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

217/524-3300

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

7011 1150 0001 0857 6427

OCT 1 1 2022

Waste Management of Illinois, Inc.
Attn: James A. Wilson
720 E. Butterfield Road
Suite 400
Lombard, IL 60148

RE: 0310390001 – Cook County
CID Recycling and Disposal Facility
ILD010284248
Log No. B-27R2
RCRA Administrative Record
Permit Draft

Dear Mr. Wilson:

Attached is a draft renewal RCRA Post-closure permit and fact sheet for the above-referenced facility. The draft permit is based on the administrative record contained in the Illinois EPA's files. The contents of the administrative record are described in 35 Ill. Adm. Code 705.144.

Under the provisions of 35 Ill. Adm. Code 705.141(d), the draft permit and administrative record must be publicly noticed and made available for public review and comment. The Illinois EPA must also provide an opportunity for a public hearing. Copies of the draft decision, fact sheet, and renewal application are available for review at the Hegewisch Branch of the Chicago Public Library, 3048 E. 130th Street, Chicago, Illinois and on the Illinois EPA website at: https://www2.illinois.gov/epa/public-notices/Pages/general-notices.aspx. The Illinois EPA has not scheduled a public hearing at the current time. However, any interested party may request a public hearing. The public comment period will close on November 28, 2022.

During the comment period, the applicant or any interested party may submit comments to the Illinois EPA on the draft renewal RCRA Post-closure permit. At the close of the comment period, the Illinois EPA will prepare a response to significant comments. Comments on the draft renewal permit may be submitted to:

Cassandra Metz, Office of Community Relations (#5)
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

Illinois EPA will issue a final renewal permit after the close of the public comment period unless the Illinois EPA decides to reverse the tentative decision. The appeal process and limitations are addressed in 35 Ill. Adm. Code 705.212.

If you have any questions concerning this draft renewal permit, please contact Kelly Huser at 217/524-3867.

Sincerely,

Kenneth E. Smith

Kenneth E. Smith, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

KES: KDH:0310390001-RCRA-B27R2-Draft.docx
KDH LRW AMS
Attachment: Fact Sheet
Draft RCRA Post-Closure Renewal Permit

cc: Norberto Gonzalez, U.S. EPA – Region V
Steven Chillson, Waste Management

FACT SHEET
for
DRAFT RCRA POST-CLOSURE RENEWAL PERMIT
Waste Management of Illinois, Inc.
CID Recycling and Disposal Facility
Calumet City, Illinois
STATE ID NO. 0310390001
FEDERAL ID NO. ILD010284248
RCRA POST-CLOSURE PERMIT LOG NO. B-27R2

This fact sheet has been prepared pursuant to the requirements of Title 35 Illinois Administrative Code (35 Ill. Adm. Code) Section 705.143. The fact sheet is intended to be a brief summary of the principal facts and significant factual, legal, methodological, and policy questions considered in preparing the draft Resource Conservation and Recovery Act (RCRA) post-closure renewal permit.

This permit requires Waste Management of Illinois, Inc. (CID RDF), to provide at least 30 years post-closure care for a closed hazardous waste landfill (known as Area 4) (D80) and a closed co-disposal landfill (known as Area 3) (D80). The post-closure care period for Area 3 began on May 30, 2008. The post-closure care period for Area 4 began on February 18, 2010. Procedures for the reduction or extension of the post-closure care period are set forth in 35 Ill. Adm. Code 724.217(a)(2)(A) and 724.217(a)(2)(B) respectively.

Pursuant to 35 Ill. Adm. Code 705.143(a), this fact sheet is sent to the applicant and any other person, who requests it.

I. INTRODUCTION

The draft permit for CID RDF contains all of the standard conditions required by 35 Ill. Adm. Code, Parts 702, 703, and 724; and the applicable conditions of 35 Ill. Adm. Code 724 for post-closure care of a closed hazardous waste in a landfill and a closed co-disposal landfill. CID RDF is an existing facility that has been operating under a Part B RCRA Permit first issued on March 4, 1988 (B-27) and the renewal permit issued June 11, 2008 (B-27R) and most recently revised on July 10, 2020 (B-27R-M-97).

II. DESCRIPTION OF FACILITY

A. General

CID RDF facility is owned and operated by Waste Management of Illinois, Inc. This facility was a commercial facility involved in the disposal of hazardous waste. Nearly all the hazardous waste handled at this facility was generated off-site by various industries. In particular, the largest generators of wastes accepted at the facility were

the metal finishing industry, the iron and steel industry, and the petroleum refining industry. Only a small portion of the waste disposed at the facility was generated on-site.

A 25.9-acre closed hazardous waste landfill (known as Area 4) exists at the facility. The hazardous waste disposed in this landfill that required treatment to meet the land disposal restrictions stated in 35 Ill. Adm. Code Part 728, were treated before disposal. Approximately 2,500,000 cubic yards of hazardous waste was placed in Area 4 between 1983 and 2009.

A 173-acre closed landfill (known as Area 3) also exists at the facility. Approximately 83 acres of Area 3 received hazardous waste during operation between 1980 and January 1983, when hazardous waste was co-disposed with municipal waste. Since January 1983, Area 3 had only received municipal refuse and other non-hazardous special wastes. Because Area 3 no longer accepted hazardous waste, a RCRA permit was not required for its continued receipt of non-hazardous waste. However, as this landfill did receive hazardous waste, it was closed in accordance with the approved closure plan (C-187) and must receive post-closure care and monitoring in accordance with this RCRA post-closure permit.

A 91-acre closed landfill (known as Area 1) also exists at the facility. The Area 1 landfill operated from approximately 1968 to 1979. The approximate volume of waste placed in Area 1 was about 20 million cubic yards. The precise types, quantities and physical states of wastes received in Area 1 are not known.

A 53.7-acre closed landfill (known as Area 2) also exists at the facility. The Area 2 landfill operated from approximately 1968 to 1979. The approximate volume of waste placed in Area 2 was about 7 million cubic yards. Area 2 was primarily used for disposal of construction demolition materials and was also used for disposal of stabilized industrial wastes from the former CID RDF Dewatering Plant.

B. Site Description

CID RDF is located on approximately 400 acres of land within the incorporated limits of Burnham, Calumet City and Chicago, in Cook County, Illinois. The address of the facility is 138th Street and Interstate 94, Calumet City, Illinois 60409. The facility is bordered on the west by Interstate 94, on the east and south by the Calumet and Little Calumet Rivers, and on the north by the Chicago SouthShore and SouthBend Railroad.

III. HAZARDOUS WASTE MANAGEMENT ACTIVITIES

A. Post-Closure

The following hazardous waste management units shall be provided with post-closure care:

Type of Waste Unit	Capacity	Wastes Contained
Area 4 Landfill (D80) Closed	2,500,000 cubic yards	Industrial hazardous waste that met Land Disposal Restrictions
Area 3 Landfill (D80) Closed	27,000,000 cubic yards	Hazardous and municipal waste

Post-closure permit conditions deal with monitoring, maintaining, and record keeping of the hazardous waste management unit(s) described above in accordance with the provisions of the post-closure care plan. Section I of the permit contains conditions specific to post-closure and implementation of the regulatory requirements of 35 Ill. Adm. Code Part 724, Subpart G.

The purpose of this RCRA post-closure permit is to require that all the referenced hazardous waste management units receive post-closure care for at least thirty (30) years. Groundwater monitoring must continue through the post-closure care period for established monitoring wells, at a minimum. Inspections during this post-closure period must identify any maintenance needed, including, but not limited to, the final cover system and vegetation of the two closed landfills. A written record of the post-closure inspections and maintenance activities performed must be kept at the facility.

B. Groundwater Program

Contamination has been detected in the groundwater at the facility. Groundwater monitoring programs are currently in place to monitor groundwater at the facility. The groundwater shall be monitored by a series of 68 wells (64 monitoring wells and 4 groundwater extraction wells), each screened at appropriate intervals to monitor multiple levels of the uppermost aquifer, at various locations around the areas. CID RDF will be required to report groundwater quality to the Illinois EPA on a routine basis.

1. Detection Monitoring

The Area 4 landfill is monitored under a Detection Monitoring Program with a total of 19 wells. Nine (9) groundwater monitoring wells are screened in the weathered

Dolomite with an average depth to groundwater of 76.1 feet; ten (10) groundwater monitoring wells are screened in the Dolton Sand with an average depth to groundwater of 14.4 feet. The primary parameters for the detection monitoring program are benzene, ethylbenzene, toluene, xylene, and 1,4-dioxane.

Parameters				
	STORET No.	PQL (µg/L)	Concentration Limit (µg/L)	
List G2 - Organics			Class I	Class II
Toluene	34010	1	1,000	2,500
Benzene	34030	1	5	25
Ethylbenzene	78113	1	700	1,000
Xylene (total)	81551	2	10,000	10,000
BTEX(total)	11750	3	11,705	13,525
1,4-dioxane	81582	5	7.7	7.7
List G3 - Organics				
Naphthalene	34696	5	140	220
Acetone	81552	10	6,300	6,300
bis(2-ethylhexyl)phthalate	39100	5	6	60
Chlorobenzene	34301	1	100	500
Methylene Chloride	34423	1	5	50
List G4 – Inorganics (total)				
Barium, total	01007	TBD	1,000	--
Chloride, total	00940	1000	200,000	--
Chromium, total	01034	TBD	100	--
Cobalt, total	01037	TBD	1,000	--
Lead, total	01051	TBD	7.5	--
Nickel, total	01067	TBD	100	--
Zinc, total	01092	TBD	5,000	--
List G5 – Inorganics (dissolved)				
Barium, dissolved	01005	2	--	--
Chloride, dissolved	00941	1000	--	--
Chromium, dissolved	01030	4	--	--
Cobalt, dissolved	01035	4	--	--
Lead, dissolved	01049	10	--	--
Nickel, dissolved	01065	10	--	--
Zinc, dissolved	01090	10	--	--

List G6 – Inorganics (total)				
Arsenic, total	01002	TBD	--	200
Chromium, total	01034	TBD	--	1000
Cobalt, total	01037	TBD	--	1000
Vanadium, total	01087	TBD	--	100
List G7 – Inorganics (dissolved)				
Arsenic, dissolved	01000	TBD	--	--
Chromium, dissolved	01030	TBD	--	--
Cobalt, dissolved	01035	TBD	--	--
Vanadium, dissolved	01055	TBD	--	--

Detection monitoring permit conditions deal with the installation and maintenance of a groundwater monitoring system in accordance with the map, plans, and specifications. Permit Section II is specific to detection monitoring and implements the regulatory requirements of 35 Ill. Adm. Code Part 724, Subpart F.

2. Compliance Monitoring

There is currently no Compliance Monitoring Program at the Facility. The Area 4 landfill is currently monitored under a Detection Monitoring Program and the Area 3 landfill is currently monitored under a Corrective Action Monitoring Program.

3. Groundwater Corrective Action

The Area 3 landfill Groundwater Corrective Action Program includes a Groundwater Management Zone (GMZ), established pursuant to 35 Ill. Adm. Code 620.250, as a three-dimensional region containing groundwater being managed through a corrective action system to mitigate impairment caused by the release of contamination; extraction of the LNAPL and groundwater contaminated with organic constituents found in the weathered Silurian Dolomite inside the northern portion of the GMZ; extraction of groundwater contaminated with organic constituents inside the southern portion of the GMZ; and implementation of a phytoremediation system at the southern portion of the GMZ. The perimeter monitoring wells comprise the point of compliance; include Illinois EPA Well Nos. R13D, G1B3, G1A8, G1B5, G10S, G25D, G38D, R23D, G1C5, R1C6, G1C7, and G1C8; and are re-evaluated at a minimum of once every five (5) years.

The following hazardous constituents and their concentration limits comprise the Groundwater Protection Standard:

Hazardous Constituents	Concentration Limit (µg/L)	
	Class I	Class II
Toluene	1,000	2,500
Benzene	5	25
Ethylbenzene	700	1,000
Xylene (total)	10,000	10,000
BTEX(total)	11,705	13,525
1,4-dioxane	7.7	7.7
Chlorobenzene	100	500
Naphthalene	140	220
Acetone	6,300	6,300
bis(2-ethylhexyl)phthalate	6	60
Methylene Chloride	5	50
1,4-dichlorobenzene	25	375
Vinyl Chloride	2	10
Fluoranthene	280	1,400
Chloride, total	200,000	200,000

Corrective action permit conditions deal with installation and maintenance of a groundwater monitoring system in accordance with map, design plans, and specifications. These permit conditions also address the implementation of a corrective action program to ensure compliance with the groundwater protection standard. Permit Section III is specific to corrective action and implements the regulatory requirements of 35 Ill. Adm. Code Part 724, Subpart F.

C. Corrective Action

Facilities with RCRA permits are required to conduct corrective action, as necessary, on solid waste management units (SWMUs) at the facility. There are two SWMUs at the facility, the closed Area 1 landfill and the closed Area 2 landfill. The corrective action provisions of the renewed RCRA Post-Closure permit, Section IV, require CID RDF to continue to provide monitoring, maintenance and recordkeeping for these two SWMUs.

D. Standard Conditions

Section V of the permit contains standard permit conditions. These conditions are regulatory requirements of 35 Ill. Adm. Code, Parts 702, 703 and 724. These conditions are of a general nature and are applicable to all Hazardous Waste

Management facilities regulated pursuant to an Illinois EPA RCRA post-closure permit. These conditions include the effectiveness of the permit, permit actions, severability, permit expiration, monitoring and retention of records, transfer of permits, and compliance schedules.

IV. CONSIDERED PERMIT ACTIONS OTHER THAN RCRA

A. Air

The air emissions from a hazardous waste management facility are regulated under RCRA, the Clean Air Act (CAA), the Illinois Environmental Protection Act and State regulations at Title 35: Environmental Protection, Subtitle B: Air Pollution. Under these regulations, the facility is required to obtain a permit to install or operate any process that is, or may be, a source of air pollutants.

Currently CID RDF is operating under a Clean Air Act Permitting Program (CAAPP) Title V Permit (#95090244). This permit regulates all air emissions from the facility.

B. Water

A discharge of any waste waters from a hazardous waste management facility into the waters of the State, is required to have a National Pollutant Discharge Elimination System (NPDES) permit, issued by the Illinois EPA under Section 39(b) of the Environmental Protection Act. CID RDF has discharge permit (NPDES #IL0061107)

V. PROCEDURES FOR REACHING A FINAL DECISION

Pursuant to 35 Ill. Adm. Code 705.162 (a) (2), the public is given at least forty-five (45) days to review the application and comment on the draft permit conditions prior to Illinois EPA taking any final permitting action on the application for this RCRA Hazardous Waste Management Post-Closure Permit. The comment period will begin on, October 12, 2022, the date of the first publication of the public notice in the South End Citizen. The comment period will end on November 28, 2022.

Copies of the permit application, draft permit and fact sheet are available for review on the Illinois EPA website at: https://www2.illinois.gov/epa/public-notices/Pages/general-notices.aspx. and at the following location:

Hegewisch Branch of the Chicago Public Library
3048 E. 130th Street
Chicago, Illinois 60633-1247

The administrative record contains the permit application, draft permit, fact sheet, and other supporting documents and correspondence submitted to the Illinois EPA. The administrative record can be made available for public inspection by appointment only at the Illinois EPA's Springfield headquarters from 8:30 a.m. to 5:00 p.m., Monday through Friday. Inspection of the administrative record must be scheduled in advance by contacting Veronica Tellez at the address listed below.

In response to requests received during the comment period or at the discretion of the Illinois EPA, a public hearing may be held to clarify one or more issues concerning the permit application. A request for a public hearing must be submitted in writing, shall indicate opposition to the draft permit and shall state the nature of the issues proposed to be raised at the hearing. Public notice of a public hearing will be issued at least forty-five (45) days before the hearing date.

For further information regarding the permit process, to submit written comments on the draft permit, or to request a public hearing, please contact:

Cassandra Metz, Office of Community Relations, #5
Illinois Environmental Protection Agency
1021 N. Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276
(217) 785-7491

When the Illinois EPA makes its final permit decision, notice will be given to the applicant and each person who has submitted written comments or requested notice of the final permit decision. The permit will become effective thirty-five days (35) after service of notice of the decision, or at a later date if stated in the permit, unless the decision is appealed.

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

HAZARDOUS WASTE MANAGEMENT RCRA POST-CLOSURE PERMIT

0310390001 -- Cook County
ILD 010284248
CID Recycling and Disposal Facility
Permit Log No. B-27R2
RCRA Administrative Record

Issue Date:
Effective Date:
Expiration Date:

PERMITTEE
Waste Management of Illinois, Inc.
Environmental Legacy Management Group
720 E. Butterfield Road, Suite 400
Lombard, Illinois 60148

A RCRA Post-Closure permit is hereby issued to Waste Management of Illinois, Inc. (CID RDF) as Owner, Operator, and Permittee pursuant to Section 39(d) of the Illinois Environmental Protection Act, and Title 35 Illinois Administrative Code Subtitle G (35 Ill. Adm. Code).

PERMITTED HAZARDOUS WASTE ACTIVITY

This permit requires CID RDF to conduct the following hazardous waste activities in accordance with the approved permit application and the conditions of this permit.

Post-Closure Care of two closed landfills (Area 3 and Area 4) (D80)
Groundwater Monitoring: Compliance Monitoring and Corrective Action Program
Corrective Action for two closed landfills (Area 1 and Area 2) (SWMUs)

This permit consists of the conditions contained herein and those in the sections and attachments in this permit. The Permittee must comply with all terms and conditions of this permit and the applicable regulations contained in 35 Ill. Adm. Code Parts 702, 703, 705 and 720 through 729 in effect on the effective date of this permit.

This permit is issued based on the information submitted in the approved permit application identified in Attachment E of this permit and any subsequent amendments. Any inaccuracies found in this information provided in the permit application may be grounds for the termination or modification of this permit (see 35 Ill. Adm. Code 702.187 and 702.186) and potential enforcement action (415 ILCS 5/44(h)).

DRAFT

Kenneth E. Smith, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

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RCRA POST-CLOSURE PERMIT

ISSUED TO

CID RDF

CALUMET CITY, ILLINOIS

STATE ID # 0310390001

ILD010284248

LOG NO. B-27R2

RCRA POST-CLOSURE PERMIT
CID RDF
LOG NO. B-27R2

TABLE OF CONTENTS

LIST OF ATTACHMENTS

GENERAL FACILITY DESCRIPTION

A. OWNER AND OPERATOR

The facility is owned and operated by Waste Management of Illinois, Inc. (WMIL), herein referred to as the "Permittee." (35 Ill. Adm. Code 702.121, 702.123 & 703.181)

Waste Management of Illinois, Inc.
720 East Butterfield Road, Suite 400
Lombard, Illinois 60148

B. LOCATION

1. Location of Facility

The CID Recycling and Disposal Facility (CID RDF) is owned and operated by WMIL and is located upon approximately 400 acres of land in the incorporated limits of Chicago, Calumet City, and Burnham in Cook County, Illinois. The CID RDF facility is located at:

CID Recycling and Disposal Facility
138th Street and Interstate 94
Calumet City, Illinois 60409

The facility contact is the District Manager. They can be reached at 630-218-1914.

2. Facility Map

A general facility map is provided in Attachment J of this permit. The location of the two closed landfills (known as Area 3 and Area 4) (D80) and the two closed Solid Waste Management Units (known as Area 1 and Area 2 landfills) are shown on this map.

C. DESCRIPTION OF HAZARDOUS WASTE MANAGEMENT ACTIVITIES

The CID RDF owned and operated by Waste Management of Illinois, Inc., was a commercial facility involved in the treatment and disposal of hazardous waste. Nearly all the hazardous waste handled at this facility was generated off-site by various industries. In particular, the largest generators of wastes accepted at the facility were the metal finishing industry, the iron and steel industry, and the petroleum refining industry. Only a small portion of the waste disposed at the facility was generated on-site.

A 25.9 acre closed hazardous waste landfill (known as Area 4) exists at the facility. The Illinois EPA approved closure of the Area 4 landfill on April 23, 2010 (Log No. B-27R-M-13).

A 173-acre closed landfill (known as Area 3) also exists at the facility. Approximately 83 acres of this landfill received hazardous waste during operation between 1980 and January 1983, when hazardous waste was co-disposed with municipal waste disposed at Area 3. Since January 1983, Area 3 has only received municipal refuse and other non-hazardous special wastes. However, as this landfill did receive hazardous waste, it was closed in accordance with the closure plan approved by the Illinois EPA on June 6, 1986 (including any adjudicated revisions as a result of the appeal), and receives post-closure care and monitoring in accordance with this RCRA Post Closure permit. The Illinois EPA approved closure of the Area 3 landfill in a letter dated October 10, 2008 (Log No. C-187-CERT).

SECTION I: POST-CLOSURE

A. SUMMARY

Hazardous waste management units where waste is left in-place must receive post-closure care for at least 30 years after they are closed. As Area 3 was used for the disposal of hazardous waste prior to January 26, 1983, and Area 4 was used for the disposal of hazardous waste, post-closure care must be provided for both units. Activities required during post-closure care include, but are not limited to, (1) maintenance of the final cover, (2) management of leachate, and (3) monitoring of the groundwater. Post-closure care for Area 3 began on May 30, 2008. Post-closure care for Area 4 began on February 18, 2010.

B. UNIT IDENTIFICATION

1. The Permittee shall provide post-closure care for the following hazardous waste management unit(s), as described in the approved permit application, subject to the terms and conditions of this permit:

Unit Designation	Capacity (c.y.)	Surface Area Dimensions of Unit (acres)	Description of Waste Hazardous Waste No.
Area 3 Landfill (D80)	27,000,000 (approximate)	173	Mostly municipal waste and some hazardous waste
Area 4 Landfill (D80)	2,500,000 (approximate)	25.9	Industrial hazardous waste that met Land Disposal Restrictions

2. The location and horizontal extent of the Area 3 landfill is identified in Attachment J, Site Layout Map, of this permit. The lowest elevation of the sumps in the base collection system for Area 3 landfill is at or above elevation 555 ft. MSL. The highest elevation of the final cover system is at or below elevation 746 ft. MSL. The slopes of the final cover on the Area 3 landfill shall not be steeper than 3:1. The Area 3 landfill was designed and constructed to achieve a minimum static slope factor of safety greater than or equal to 1.5 and a seismic factor of safety greater than or equal to 1.3.

3. The liner system on the bottom and sides of the Area 3 landfill is constructed of a minimum of 20 feet of natural, low permeability clay.

4. The cover system on the top of the Area 3 landfill is constructed of the following layers, described from the top to bottom:

a. Minimum six-inch vegetative layer with sustained vegetation

b. Minimum of four feet of compacted clayey soil

5. A survey plat indicating the location and dimensions of the Area 3 landfill and any other hazardous waste disposal units with respect to permanently surveyed benchmarks was prepared and certified by a professional land surveyor. The notes on the plat state the owner's and operator's obligation to restrict disturbance of the Area 3 landfill in accordance with the applicable Subpart G regulations. These notes state:

   a. The waste materials contained in the Area 3 landfill are considered RCRA hazardous wastes. They include mostly municipal waste and some hazardous waste.

   b. Any material removed from the Area 3 landfill during future activities must be managed as a hazardous waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal.

   c. The use of this area is restricted.

6. The Plat of Survey (PIN No. 25-35-200-004-0000, 25-35-201-014-0000, 25-35-202-003-0000, 25-35-203-001-0000, 25-36-100-026-0000, 25-35-203-007-0000, 25-35-203-003-0000, 25-36-100-002-0000, 25-35-203-006-0000) for that Area 3 landfill, Project No. 89-11-2, was filed with the Cook County Recorder's Office in Chicago, IL on March 18, 2010. The record data is Document No. 1007703015.

   The Plat of Survey was attached to the deed to the property and serves as an instrument which is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:

   a. The waste material in the Area 3 landfill is considered a RCRA hazardous waste;

   b. Use of the area is restricted; and

   c. A survey plat and record of the type, location and quantity of waste material in the Area 3 landfill was filed with the IEPA and the County Recorder.

7. The location and horizontal extent of the Area 4 landfill is identified in Attachment J, Site Layout Map, of this permit. The lowest elevation of the sumps in the Area 4 landfill is at or above elevation 549 ft. MSL. The highest elevation of the final cover system is at or below elevation 660 ft. MSL. The slopes of the final cover on the Area 4 landfill shall not be steeper than 3:1.

The Area 4 landfill was designed and constructed to achieve a minimum static slope factor of safety greater than or equal to 1.5 and a seismic factor of safety greater than or equal to 1.3.

8. The liner system on the bottom and sides of the Area 4 landfill is constructed of the following layers, described in the table below.

Area 4 Landfill Liner systems (top to bottom)			
Phase I (West)	**Phase I (East) and Phase II West**	**Phase II (East) and Phase III (North & South)**	**Phase IV (North & South), Phase V and Phase VI**
2 feet compacted clay	150-mil geotextile fabric	1-foot granular drainage layer (primary leachate collection system on the base)	Geotextile (filter on the base)
10 feet natural clay	30-mil HDPE synthetic liner	Geotextile protective filter fabric	1-foot granular drainage layer (primary leachate collection system on the base)
	2 feet compacted clay	Drainage layer (side slopes)	Geotextile (on base and side slopes)
	10 feet natural clay	60-mil HDPE (side slope) & 100-mil HDPE (base)	HDPE geonet (on side slopes)
		Geosynthetic clay liner	Primary liner: 60-mil HDPE (side slope) & 100-mil HDPE (base)
		60-mil HDPE (primary liner)	Geosynthetic clay liner
		HDPE geonet secondary leachate system with collection network	60-mil HDPE (secondary liner)
		60-mil HDPE (secondary liner)	HDPE geonet: secondary leachate detection system (Phase VI only)
		2 feet compacted clay	60-mil HDPE (tertiary liner)
		10 feet natural clay	3 feet compacted clay
			10 feet natural clay

9. The cover system on the top of the Area 4 landfill is constructed of the following layers, described from the top to bottom:

   a. 3-foot protective soil layer, with 6-inches capable of supporting vegetation

Double-sided geocomposite (an HDPE geonet sandwiched between two geotextile fabric filter layers)

b. 40-mil HDPE textured geomembrane

c. Geosynthetic clay liner (GCL)

d. 2-foot layer of compacted bioremediated or other clean soils

10. A survey plat indicating the location and dimensions of the Area 4 landfill and any other hazardous waste disposal units with respect to permanently surveyed benchmarks was prepared and certified by a professional land surveyor. The notes on the plat state the owner's and operator's obligation to restrict disturbance of the Area 4 landfill in accordance with the applicable Subpart G regulations. These notes state:

    a. The waste materials contained in the Area 4 landfill are considered RCRA hazardous wastes. They include asbestos-containing waste, industrial hazardous waste and commercial hazardous waste.

    b. Any material removed from the Area 4 landfill during future activities must be managed as a hazardous waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal.

    c. The use of this area is restricted.

11. The Plat of Survey (PIN No. 29-01-100-009-0000 and 29-01-200-011-0000) for the Area 4 landfill, Drawing No. S09-01-413, was filed with the Cook County Recorder's Office in Chicago, IL on March 18, 2010. The record data is Document No. 1007703015. The Plat of Survey was attached to the deed to the property and serves as an instrument which is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:

    a. The waste material in the Area 4 landfill is considered a RCRA hazardous waste;

    b. Use of the area is restricted; and

    c. A survey plat and record of the type, location and quantity of waste material in the Area 4 landfill was filed with the Illinois EPA and the County Recorder.

12. The Permittee shall develop a scaled topographic drawing of each unit identified in Condition I.B.1 to determine the vertical and horizontal dimensions of each unit at least once every 10 years. If a topographic drawing of a unit has not been developed in the 10

years prior to the date of this permit, it must be developed within ninety (90) days of the date of the effective date of this permit, and every 10 years thereafter. The topographic drawings shall be maintained as part of the operating record.

Each scaled topographic drawing shall be compared to the permitted dimensions for that unit. If a difference in elevation of more than 2 feet exists at any location on the unit, the Permittee shall notify the Illinois EPA Bureau of Land Permit Section within thirty (30) days of this finding. The notification must include the most recent scaled drawings of the permitted dimensions for the unit, a discussion of why the difference exists, and a plan that includes a schedule for repairing the cover system to its permitted dimensions. Repairs to the cover system, and/or its components, may be considered a permit modification.

C. POST-CLOSURE CARE PERIOD

1. The post-closure care period for the Area 3 landfill began on May 30, 2008, the date of certification of completion of closure of the unit listed in Condition I.B.1 of this permit and continues for at least thirty (30) years after that date. The post-closure care period for the Area 4 landfill began on February 18, 2010, the date of certification of completion of closure of the unit listed in Condition I.B.1 of this permit and continues for at least thirty (30) years after that date.

2. Prior to the anticipated completion of the post-closure care period, the Board will extend, or the Illinois EPA may propose extension of the post-closure care period if it finds that the extended period is necessary to protect human health and the environment (e.g., waste remains in place, or leachate or groundwater monitoring results indicate a potential for migration of waste at levels which may be harmful to human health and the environment).

3. The Illinois EPA may include restrictions upon the future use of the site if necessary, to protect public health and the environment, including permanent prohibition of the use of the site for purposes which may create an unreasonable risk of injury to human health or the environment. After any administrative and judicial challenges to such restrictions have been exhausted, the Illinois EPA shall file such restrictions of record in the Office of the Recorder of the county in which the hazardous waste disposal site is located.

4. The Permittee shall not allow the property where the units designated in Condition I.B.1 are located to be used in a way that could disturb the integrity of the final cover, liners, any components of the containment system, or function of the facility's monitoring systems, unless the Illinois EPA finds, by way of a permit modification, that such use is necessary for either of the following reasons:

a. It is necessary to the proposed use of the property, and will not increase the potential hazard to public health or the environment, or

b. It is necessary to reduce a threat to human health or the environment.

5. The Illinois EPA will require continuation of the security procedures set forth in the approved permit application during the post-closure period. At a minimum, Area 3 and Area 4 shall be totally fenced and shall have locked gates at each entrance. Any additional requirements beyond this shall be subject to the permit modification procedures set forth in 35 Ill. Adm. Code 705.128.

D. INSPECTIONS

1. The Permittee shall inspect the components, structures, and equipment at the site in accordance with the inspection schedule in the approved permit application and the conditions in this permit (Attachment D). The forms in Appendix D-2 of the Post-Closure Plan in the approved permit application shall be used to document inspections and any repairs done at the facility.

2. The Permittee shall inspect the facility semi-annually for evidence of any of the following:
   a. Deterioration, malfunctions, or improper operation of run-on and run-off systems.
   b. The presence of leachate in, and proper functioning of, the leachate collection and removal systems.
   c. The deterioration of the liner or cover systems.

3. The facility shall be inspected within 72 hours of any rain fall event of 3 or more inches in 24 hours to detect evidence of any of deterioration, malfunctions, or improper operation of run-on and run-off systems.

4. Appropriate corrective action shall be taken if problems, including erosion, blockage of the channels, slope failure, etc. are observed. If corrective action is taken, the site shall be re-visited one month later to ensure that the actions taken have indeed corrected the problem(s) noted.

5. The Permittee shall inspect the benchmark(s) used to identify the location of the hazardous waste management units (HWMUs) and solid waste management units (SWMUs) within 60 days of the effective date of this permit and thereafter in accordance with the Inspection Schedule in the approved permit application. Benchmark(s) shall be repaired and resurveyed whenever an inspection of the benchmarks indicates they have been damaged.

The inspection results, repairs, and surveys of the benchmark(s) shall be maintained as part of the operating record.

6. Results of all inspections and a description of any remedial actions taken shall be documented in the Repair Log in the Operating Record and maintained for the entire post-closure period.

E. MONITORING, MAINTENANCE, AND RECORDKEEPING

1. The Permittee shall keep and maintain a written operating record that includes all the records, reports, notifications, and data required by 35 Ill. Adm. Code 724.173 and the conditions in this permit for the entirety of the post-closure care period. The operating record shall be kept on-site at the facility and available for Illinois EPA review.

2. The Permittee shall maintain and monitor the groundwater monitoring system and comply with the other applicable regulations of 35 Ill. Adm. Code 724 Subpart F (Groundwater Protection) during the post-closure period.

3. The Permittee shall 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, and other events.

4. The Permittee shall prevent run-on from eroding or otherwise damaging the final cover. At a minimum, the run-on control system shall be capable of preventing flow onto the active portion of the landfill during peak discharge from a 24 hour, 25-year storm event.

5. The Permittee shall prevent run-off from eroding or otherwise damaging the final cover. At a minimum, the run-off management system shall be capable of collecting and controlling the volume of water resulting from a 24 hour, 25-year storm event.

6. The Permittee shall comply with the requirements for landfills described in the approved permit application and the condition of this permit as follows:

   a. 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, cracking or other events.

   b. Corrective action shall be taken if ponding has been observed, if cracks or erosion channels greater than one inch wide have formed for whatever reason, if gas, odor, vegetative or vector problems arise, if leachate pop-outs or seeps are present, or if

vegetation with tap roots is found to be growing in areas which are not designed to accommodate such vegetation.

7. The Permittee shall maintain the leachate collection systems (LCS) in Area 3 (Fig. E-5a of approved permit application) and Area 4 (Fig. E-4a of approved permit application), and leak detection system (LDS) in Phase VI of Area 4 in accordance with the design plans and specifications contained in the approved permit application and the conditions in this permit. Including the following:

    a. Initiate troubleshooting of the LCS and LDS if the control system detects abnormal operating conditions or site personnel observe unexpected performance during daily routine system inspections.

    b. Troubleshooting will include checks of electrical, mechanical, piping and control system components, as necessary depending on the nature of the operating condition. Routine maintenance, such as cleaning LCS and LDS pumps and pipe jetting, will be performed as need to achieve compliance with designated liquid levels within the LCS and LDS.

    c. Repairs will be documented in the facility operating record.

8. The permittee shall remove leachate from the Area 3 and Area 4 landfills until leachate is no longer detected in the LCS or LDS.

9. Leachate collected in the LCS and LDS shall be managed in the facility's on-site Biological Liquid Treatment Center (Permit No. 2020-463SP)

10. The Permittee shall operate, monitor, and maintain the LCS in accordance with the approved permit application and the following conditions:

    a. The leachate level in Area 3 shall not exceed the following compliance elevations as measured in the sumps of the following collection systems:

        i. 555 ft. MSL for the base collection system. This system consists of a base grade lateral piping system with the eastern half of the system containing a one-foot gravel drainage layer. Leachate levels are monitored quarterly at LW3, MH8, MH9, MH10, MH17, MH18 and W450R.

        ii. 566 ft. MSL for the elevated base collection system. This system collects leachate from a small area in the northeast portion of the landfill with lateral piping and a gravel drainage layer. Leachate levels are monitored quarterly

at LW19 and MH20.

iii. 580 ft. MSL for the piezometer system. This system consists of a series of leachate collection manholes and wells in the western portion of the landfill. Leachate levels are monitored quarterly at MH5, MH6, MH16, L430, L702, L704, G705, W434 and W435.

b. Maintenance of the leachate level at or below this elevation is necessary to create and maintain an inward gradient in the soil layer surrounding the landfill.

c. The leachate level in Area 4 shall not exceed the compliance elevations as measured in the sumps listed in the following table:

Monitoring Point	Compliance Elevation (ft) above Baseline	Monitoring Point	Compliance Elevations (ft) above Baseline
4AN Primary	1.5	4F Primary	1.5
4AW Primary	1.6	4B Secondary	1.0
4B Primary	3.0	4D Secondary	1.0
4C Primary	4.2	4E Secondary	1.0
4D Primary	2.5	4F Secondary	1.0
4E Primary	1.6	4G Secondary	4.1

d. All leachate removed from the leachate collection system shall be managed as a hazardous waste.

e. The permittee shall record the amount of liquid removed from each LCS sump (in gallons) at least monthly. The results of the leachate quantity testing data from the LCS shall be maintained in the facility's operating record and submitted electronically to the Illinois EPA.

11. Three representative samples of leachate from Area 3 and one from Area 4 shall be collected annually and analyzed individually for constituents listed in 35 Ill. Adm. Code Part 724, Appendix I. These samples shall be collected during the first quarter inspections. The four samples will be taken from the withdrawal points listed in Condition I.F.5. The results of these analyses shall be submitted electronically to the Illinois EPA by June 1st of each year.

a. The annual Appendix I analysis required by Condition I.E.11 for a given sampling point may be reduced through submittal of a permit modification request, in accordance with 35 Ill. Adm. Code 703.280, to reduce the annual leachate monitoring list. The Reduced List will be based on a review of the four most

recent full Appendix I analyses, and include all parameters detected in any of these four Appendix I analysis, along with their appropriate Storet numbers for electronic data submittal. Starting the next sampling event after Illinois EPA approval, this reduced list will be used in lieu of the Appendix I analysis for three out of four years, with the fourth year reverting to a full Appendix I analysis. Any parameters not included on the existing Reduced List detected in the fourth-year Appendix I analysis shall be added to the Reduced list, by means of a Class 1* permit modification request in accordance with 35 Ill. Adm. Code 703.280, for all future Reduced List analyses. This cycle of three years of Reduced List, followed by one year of Appendix I analysis, shall repeat for the remainder of the post-closure period. The approved Reduced Lists for calendar years 2019, 2020, and 2021 can be found in Attachment I.

12. The permittee shall operate, monitor, and maintain the LDS in Phase VI of Area 4 in accordance with the approved permit application and the following conditions:

    a. The elevation of leachate in each Leachate Monitoring/Withdrawal Well in the LDS shall be continuously monitored and recorded in feet above MSL.

    b. As far as is practicable, leachate that collects in each leak detection sump shall be removed.

    c. All leachate removed from the LDS shall be managed as a hazardous waste.

    d. The permittee shall record the amount of liquid removed from each LDS sump (in gallons) at least monthly. The results of the leachate quantity testing data from the LDS shall be maintained in the facility's operating record and submitted electronically to the Illinois EPA.

13. The action leakage (ALR) rate was calculated to be 1,532 gallons per day or 214 gallons/acre/day for the Phase VI LDS sump at Area 4 landfill. The pump operating level for the LDS is 551 feet MSL. The Permittee shall inspect, operate, and monitor all components of the LDS in accordance with the requirements in 35 Ill. Adm. Code 724.403(c). The monthly volume of leachate removed from the LDS sump shall be included in the report required in Condition I.F.2. If at any point the action leakage rate is exceeded, this event must be included on the graphically representation of the data.

14. The action leakage rate is the maximum design flow rate that the LDS can remove without the fluid head on the bottom liner exceeding 1 foot. The Permittee shall monitor the quantity of leachate removed from the LDS sump(s) each month to determine if the rate of leachate removed from each LDS sump exceeds the action leakage rate.

To determine if the action leakage rate has been exceeded, the Permittee shall convert the monthly flow rate from the monitoring data obtained under Section 724.403(c) to an average daily flow rate (gallons per acre per day) for each sump. The average daily flow rate for each sump must be calculated monthly during the post-closure care period and recorded in the operating record.

F. REPORTING AND NOTICES

1. The quarterly leachate levels, monthly leachate extraction volume and the total volume of leachate extracted from Area 3 landfill (not including contaminated ground water) shall be submitted to the Illinois EPA annually by January 31st, for the previous calendar year. A graphical representation of the data shall also be included as follows:

   a. A graphical representation of the volumes of leachate removed from the LCS each month. The scale of the x axis (time) shall be such that no more than one year of data (starting with January each year) is presented on each sheet of paper.

   b. A graphical representation of the elevation of the liquid level in each Leachate Monitoring/Withdrawal Well/Sump for the quarter. For each Well, the graph needs to identify the following: the elevation of leachate over time, elevation of the top of liner, and elevation of the bottom of the cover system all in feet above MSL. Compliance levels should also be marked on the graph.

2. Monthly leachate levels observed in each sump, amount of leachate removed from each sump and total volume removed for the year for Area 4 landfill shall be submitted to the Illinois EPA annually by January 31st, for the previous calendar year. A graphical representation of the data shall also be included as follows:

   a. A graphical representation of the volumes of leachate removed from the LCS and LDS each month. The leachate generation rates (gallons/month) from the LCS and LDS shall be presented on the same graph. The scale of the x axis (time) shall be such that no more than one year of data (starting with January each year) is presented on each sheet of paper. If at any point the action leakage rate is exceeded, this event must also be indicated on the graph.

   b. A graphical representation of the elevation of the liquid level in each Leachate Monitoring/Withdrawal Well/Sump for the month. For each Sump, the graph needs to identify the following: the elevation of leachate over time, elevation of the top of liner, and elevation of the bottom of the cover system all in feet above MSL. Compliance levels should also be marked on the graph.

3. A completed "RCRA Facility Groundwater, Leachate and Gas Reporting Form" (LPC 592) must accompany all Leachate Data Reports required by this permit. A copy of this form is provided in Attachment A to this permit. This form is not be used for permit modification requests. This form is available on the IEPA web site at https://www2.illinois.gov/epa/topics/waste-management/groundwater-monitoring/Pages/default.aspx

4. If monthly leachate level measurements at Area 3 landfill indicate non-compliance at any of the leachate monitoring points listed in Conditions I.E.10.a.i, I.E.10.a.ii,and I.E.10.a.iii, a written notification shall be sent to Illinois EPA BOL Permit Section and Illinois EPA BOL Regional Office. For instances of non-compliance in the 1st and 2nd quarter, the notice shall be sent by July 31st of that year. For instances of non-compliance in the 3rd and 4th quarter, the notice shall be sent by January 31st of the following year.

5. If monthly leachate level measurements at Area 4 landfill indicate non-compliance at any of the leachate monitoring points, a notification shall be sent to Illinois EPA BOL and Illinois EPA BOL Regional Office. For instances of non-compliance in the 1st and 2nd quarter, the notice shall be sent by July 31st of that year. For instances of non-compliance in the 3rd and 4th quarter, the notice shall be sent by January 31st of the following year.

6. Information required by Condition I.E.11 and I.E.11.a must be submitted in an electronic format. The information is to be submitted as fixed-width text files formatted as found in Attachment A.

   Additional guidance regarding the submittal of the information in an electronic format can be found at https://www2.illinois.gov/epa/topics/waste-management/groundwater-monitoring/Pages/default.aspx

7. The following leachate withdrawal points will be used in leachate quality analysis required by conditions I.E.11 and I.E.11.a. For purposes of electronic reporting, the points will be renamed as shown below.

Name in Application	Name for Electronic Reporting
A3LC (Area 3 Composite)	L311
A3L3 (Area 3 LW 3)	L312
A3M6 (Area 3 MH 6)	L313
A4LC (Area 4 Composite)	L331

8. The Permittee shall notify the Illinois EPA BOL Permit Section in writing within thirty (30) days of the leachate quality analysis required in Condition I.E.11 if the following occurs:

a. If the analysis of the leachate detects a parameter for which the groundwater was not analyzed for in the last sampling event. The Illinois EPA may require the Permittee to modify their groundwater monitoring program based on this additional information.

9. In accordance with 35 Ill. Adm. Code 724.404(b), if the flow rate in the Area 4 Phase VI leak detection sump exceeds the action leakage rate described above, the Permittee shall:

a. Notify the Illinois EPA BOL Permit Section and the Illinois EPA BOL Regional office in writing of the exceedance within 7 days of the determination;

b. Submit a preliminary written assessment to the Illinois EPA BOL Permit Section and the Illinois EPA BOL Regional office within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size and cause of any leaks, and short-term actions taken and planned;

c. Determine to the extent practicable the location, size and cause of any leak;

d. Determine whether any waste should be removed from the unit for inspection, repairs or controls;

e. Determine any other short-term and longer-term actions to be taken to mitigate or stop any leaks; and

f. Within 30 days after the notification that the action leakage rate has been exceeded, submit to the Illinois EPA BOL Permit Section and the Illinois EPA BOL Regional office the results of the determinations specified above, the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the Permittee shall submit to the Illinois EPA BOL Permit Section and the Illinois EPA BOL Regional office a report summarizing the results of any remedial actions taken and action planned.

The Permittee shall follow the procedures listed in 35 Ill. Adm. Code 724.404(c) to make the determinations required above.

The address for the Illinois EPA BOL Regional Office cited in this condition is:

Illinois EPA Field Office
9511 West Harrison
Des Plaines, Illinois 60016

G. NOTICES AND CERTIFICATION

1. A request to change the Post-Closure Plan must be submitted in the form of a permit modification request. This request must be in accordance with applicable requirements of Parts 702, 703 and 724 and must include a copy of the amended Post-Closure Plan for approval by the Illinois EPA.

2. If the Permittee or any subsequent owner or operator of the land upon which the Area 3 and Area 4 landfills listed in Condition I.B.1 above is located wishes to remove hazardous wastes, hazardous waste residues, the liner, if any, or contaminated soil, they must request a modification to this RCRA post-closure permit in accordance with the applicable requirements in 35 Ill. Adm. Code Parts 703, 705 and 724. At a minimum, the owner or operator must demonstrate that the removal of such material will satisfy the criteria of 35 Ill. Adm. Code 724.217(c).

3. If the Permittee seeks to demonstrate that they should be allowed to end the post-closure care period (e.g., all waste has been removed, and leachate and groundwater monitoring results do not indicate a potential for migration of waste at levels which may be harmful to human health and the environment), the permittee shall submit an Environmental Covenant (EC) for the future land use and management of the property on which the Area 3 landfill and Area 4 landfill is located. The EC shall be submitted at least one year prior to the date the Permittee expects to submit the Certification of Completion of Post-Closure.

   Pursuant to Section 39(g) of the Environmental Protection Act, the purpose of the EC is to place restrictions upon the future use of the site necessary to protect public health and the environment, including permanent prohibition of the use of the site for purposes which may create an unreasonable risk of injury to human health or the environment. The EC shall be pursuant to a consent order between the Permittee and the State of Illinois and in the form and format specified by Illinois EPA.

4. If the Permittee seeks to exit post-closure care, the Permittee shall submit the following documents to the Illinois EPA Bureau of Land Permit Section by registered mail no later than sixty (60) days after completion of the established post-closure care period for Area 3 landfill and Area 4 landfill listed in Condition I.B.1 of this permit:

   a. A properly completed Certification of Completion of Post-Closure Form provided in Appendix H to this permit that states the post-closure care for the hazardous waste disposal unit (Area 3 or Area 4) was performed in accordance with the specifications in the approved post-closure plan in the approved permit application and the conditions in this permit. The owner and operator and a qualified

Professional Engineer registered in the State of Illinois must sign the Certification Form.

b. A Post-Closure Documentation Report that documents the post-closure care conditions and activities at your facility during the post-closure period. The Post-Closure Documentation Report must include the following:

   i. Background information about the facility and the unit subject to the post-closure certification. Describe the facility and RCRA permit history of the unit.

   ii. A detailed description of the unit subject to the post-closure care certification that includes:

      1. The Unit's design, including liner system, sumps, leachate collection, leak detection, & gas systems, and cover system including stormwater run-off & run-on controls. Provide this information in both a narrative form, and scaled drawings.

      2. How it was operated, and how it was closed.

      3. When it was operated, and when it was closed.

      4. The wastes disposed of in the unit (including waste codes).

      5. The amount of leachate pumped each year from each sump in the unit's leachate collection and leak detection systems during the post-closure period. Provide this information in both a table and graphically. Demonstrate the unit has met the requirements of 35 Ill. Adm. Code 724.410(b)(2).

      6. A scaled map showing location of the unit within the facility. Include all wells in the groundwater monitoring system for the unit on this map.

      7. Scaled drawings (plan view and cross-section) showing the horizontal and vertical extent of the unit at the time it was certified closed, every 10 years after it was closed (if available), and at the time the Post-Closure Documentation Report is submitted (e.g. at the end of the post-closure period). The scale of the plan view should be 1 inch = 200 feet. All design components of the unit must be shown on the drawings.

When the drawings are compared; if a difference in elevation of more than 2 feet exists at any location on the unit, the Post-Closure Documentation Report needs to indicate the reason for the change in elevation, and why it would not be a concern in the future.

8. A survey of the unit when it was certified closed and at the time the Post-Closure Documentation Report is submitted (e.g. when the post-closure period ended). The surveys must be certified by a professional land surveyor.

iii. A general discussion on the inspection and maintenance of, and repairs to, the cover system, leachate collection, leak detection, gas collection, stormwater run-off & run-on controls, and wells in the groundwater monitoring system. Describe any problems and/or repairs to these systems that were addressed over the post-closure care period in chronological order. Show the locations of each of the repairs to these systems during post-closure care on a scaled drawing of the unit.

iv. A discussion on the groundwater monitoring program, including any corrective measures that were completed during the post-closure care period and a summary of the three (3) most recent years of groundwater data. Identify the horizontal and vertical extent of any groundwater contaminant plume from the unit that existed at the beginning of the post-closure period and every 5 years after that. The facility must have complied with all requirements of 35 Ill. Adm. Code 620 and 724 in order to certify completion of post-closure care activities.

v. Colored photos of unit(s) at post-closure completion. Photo documentation of the unit should include at least one aerial (satellite) photo and photos of all design features of the unit.

vi. Illinois EPA form LPC-PA23.

c. Documentation that the IC/ EC required by Condition I.G.3 above has been placed on the deed to the property on which Area 3 and Area 4 are located and has been filed with the County Recorder's Office.

5. The certification of completions of post-closure care shall not be approved by the Illinois EPA until the Permittee demonstrated that the IC/EC required by Condition I.G.3 above has been properly filed with the appropriate governmental office (e.g. State of Illinois, or County Recorder's office).

6. Within sixty (60) days after receiving certifications from the owner or operator and a qualified Professional Engineer that the post-closure care period has been completed for Area 3 and/or Area 4 landfills listed in Condition I.B.1 of this permit in accordance with the approved post-closure plan, the Illinois EPA shall notify the owner or operator that it is no longer required to maintain financial assurance for post-closure care of that unit unless the Illinois EPA determines that post-closure care has not been in accordance with the approved post-closure plan. The Illinois EPA shall provide the owner or operator with a detailed written statement of any such determination that post-closure care has not been in accordance with the approved post-closure plan.

H. SUBSURFACE GAS MANAGEMENT

The Permittee must operate the gas monitoring and collection system for the Area 3 landfill in accordance with Section E.5 of the approved permit application, Clean Air Act Program Permit (#95090244) and the following conditions:

1. The Permittee shall recover or flare the subsurface gas generated at Area 3 during the post-closure care period

   a. Condensate from any gas recovery system is considered hazardous and must be manager as hazardous waste.

2. A corrective action plan shall be submitted to the Illinois EPA's BOL for approval if subsurface gas problems start to occur within thirty (30) days of discovering subsurface gas problems.

I. FINANCIAL ASSURANCE

1. The Permittee shall maintain financial assurance for post-closure care of the closed Area 3 landfill of at least the amount of $12,585,185 (2021 dollars). The Permittee shall maintain financial assurance for post-closure care of the closed Area 4 landfill of at least the amount of $2,901,051 (2021 dollars). A summary of the cost estimate for post-closure care of this facility is shown in Attachment C to this permit. The financial assurance maintained by the facility shall be sufficient to meet the requirements of 35 Ill. Adm. Code 724 Subpart H.

2. Post-closure care costs are determined by multiplying annual costs by either the full 30-year post-closure care period, or the post-closure care period remaining at the time the estimate is prepared. However, financial assurance for a minimum of ten (10) years of post-closure care costs shall be maintained at all times.

SECTION II: AREA 4 DETECTION MONITORING PROGRAM

A. SUMMARY

The detection monitoring program consists of nineteen (19) existing groundwater monitoring wells. This includes nine (9) monitoring wells that are utilized to monitor the Silurian Dolomite and ten (10) that are utilized to monitor the Dolton Sand. Due to highly variable groundwater flow conditions in the Silurian Dolomite in the vicinity of the facility, intrawell statistical analyses will be conducted at each monitoring well. Therefore, there will not be designated upgradient and downgradient monitoring wells in this program.

B. DEFINITIONS

As used herein, the words or phrases set forth below shall have the following definitions:

1. "Uppermost Aquifer" refers to the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically connected with this aquifer in the vicinity of the facility. The uppermost aquifer underlying Area 4 has been identified as a weathered, fractured, and/or jointed Silurian dolomite which overlies a bedrock aquitard and underlies a perched outwash sand unit with minimal hydraulic connection.

2. "Point of Compliance" refers to the vertical surface located at the hydraulically downgradient limits of the waste management area (Area 4) extending down into the uppermost aquifer underlying the regulated unit.

3. "Ft – bgs" refers to the number of feet below the ground surface.

4. "Ft-MSL" refers to elevation referenced to mean sea level.

5. "Detected" shall mean a concentration equal to or above the PQL listed in USEPA's SW-846 (Third Edition) or as approved by the Illinois EPA for the applicable analytical methods specified in the approved Sampling and Analysis Procedures, which are incorporated by reference in Condition II.H of the Permit.

6. "Progressive Increase" shall mean an increase in the concentration of a constituent in successive sampling events.

7. "Stick-up" refers to the height of the reference survey datum. This point is determined within ± 0.01 foot in relation to mean sea level, which in turn is established by reference to an established National Geodetic Vertical Datum.

C. IMPLEMENTATION

1. The Permittee shall implement the detection monitoring program established in the permit to determine if the regulated unit is in compliance with the groundwater protection standard listed in Condition II.E.1. The detection monitoring requirements set forth in this permit shall supersede those established in the 35 Ill. Adm. Code 724 compliance monitoring program previously approved by the Illinois EPA.

2. The Permittee shall carry out the detection monitoring program specified in this Permit on the groundwater found in the Silurian Dolomite and the Dolton Sand beneath the CID-RDF facility in Calumet City, Illinois. Groundwater occurring within the Silurian Dolomite beneath the CID-RDF facility has been designated a 35 Ill. Adm. Code 620, Class I: Potable Resource Groundwater. Groundwater occurring within the Dolton Sand beneath the CID-RDF facility has been designated a 35 Ill. Adm. Code 620, Class II: General Resource Groundwater.

3. The point of compliance, defined as a vertical surface located at the hydraulically downgradient limits of Area 4 that extends down into the uppermost aquifer underlying the waste management units, is shown on Figure C-2c of the approved permit application.

D. WELL LOCATION AND CONSTRUCTION

1. The Permittee shall maintain the groundwater monitoring wells identified in the following table in accordance with the approved permit application to allow for the collection of groundwater samples and elevation from the uppermost aquifer. The location of these wells is specified in Figure C-2c of the approved permit application.

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval
Area 4 Dolomite Monitoring Wells				
G02D*[V]	G202	67.2	521.13	530.13-521.13
R06D*[V]	R06D	80.0	510.80	520.80-510.80
R08D*[V]	R08D	64.6	523.79	533.79-523.79

G10D*[V]	G210	71.9	515.16	524.36-515.16
G16D*[V]	G216	66.3	517.70	524.00-517.70
G18D*[V]	G218	77.5	508.66	517.56-508.66
G20D*[V]	G220	77.9	511.56	520.46-511.56
R04D*[V]	G04DR	90.9	503.98	513.98-503.98
G05D*[V]	G05D	88.7	502.76	512.76-502.76

Area 4 Dolton Sand Monitoring Wells

G01S*[VII]	G201	11.3	577.36	581.64 – 577.36
G04S*[VII]	G204	18.6	575.22	579.42 – 575.22
G05S*[VII]	G205	17.1	574.72	578.92 – 574.72
G07S*[VI]	G207	13.8	574.70	578.90 – 574.70
G09S*[VI]	G209	11.5	576.33	580.53 – 576.33
G13S*[VII]	G213	21.3	573.13	581.67 – 573.13
R15S*[VII]	G215R	12.4	575.54	581.54 – 575.54
R17S*[VI]	R17S	13.6	576.97	581.67 - 576.97
G19S*[VI]	G219	12.1	573.95	579.15 – 573.95
G21S*[VII]	G221	11.8	577.02	581.75 – 577.02

NOTE:
* – Denotes point of compliance monitoring well.
[V]- Analysis of List G1, G2, G3, G4 and G5 parameters in accordance with Condition II.E.1.
[VI]- Analysis of List G1 and G2 parameters in accordance with Condition II.E.1.
[VII]- Analysis of Lists G1, G2, G6 and G7 parameters in accordance with Condition II.E.1.

2. Construction of any new monitoring well/piezometer must be at a minimum in accordance with the diagram contained in Attachment A to this Permit unless otherwise approved in writing by the Illinois EPA. Any new monitoring wells/piezometers must be continuously sampled and logged on an Illinois EPA boring log and well completion report as provided in Attachment A unless otherwise approved by the Illinois EPA.

3. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition II.D.1 are damaged or the structure integrity has been compromised causing the well not to serve its function or to act as a contaminant pathway. A proposal for the replacement of the subject well requires Illinois EPA approval, and shall accompany this notification. The well shall not be plugged until the new well is on-line and monitoring data has been obtained and verified, unless the well is extremely damaged and would create a potential route for groundwater contamination.

4. Should any well become consistently dry or unserviceable, a replacement well shall be provided within ten (10) feet of the existing well. This well shall monitor the same zone

as the existing well and be constructed in accordance with the current Illinois EPA groundwater monitoring well construction standards at the time that the well is replaced. A replacement well which is more than ten (10) feet from the existing well or which does not monitor the same geologic zone must be approved by the Illinois EPA and designated as a new well. If the facility determines that a replacement well will be a dry well, then it must submit for Illinois EPA approval either a proposal to install a new monitoring well or a proposal not to replace the well with appropriate rationale.

5. The Permittee shall submit boring logs, construction diagrams, and data sheets from the installation and development of a new or replacement well to the Illinois EPA at the address below within thirty (30) days of the date that installation of the well is completed. In addition, the Permittee shall submit certification that plugging and abandonment of a well was carried out in accordance with the approved procedures (see Attachment A to this Permit) to the Illinois EPA at the address below within thirty (30) days of the date that the well is plugged and abandoned. All information should be submitted to the appropriate State Agencies.

   Illinois Environmental Protection Agency
   Bureau of Land - #33
   Permit Section
   1021 North Grand Avenue East
   Springfield, Illinois 62702

6. All wells/piezometers shall be clearly identified and shall be equipped with protective caps and locks. Monitoring wells or piezometers in high traffic areas must be protected with bumper guards.

7. All monitoring wells and piezometers not utilized in the approved groundwater monitoring system, but retained by the facility, must be constructed and maintained in accordance with 77 Ill. Adm. Code 920 regulations. Monitoring wells and piezometers that are improperly constructed must be abandoned in accordance with Attachment A to this Permit.

E. GROUNDWATER PROTECTION STANDARD

1. The following hazardous constituents and concentration limits comprise the groundwater protection standard in the vicinity of the CID-RDF facility. Total (unfiltered) values, derived from the applicable USEPA SW-846 (Latest Version) method or equivalent methods listed in Section C of the approved permit application, will be used for comparison with the concentration limits.

List G1 – Field Parameters	STORET No.	Units	Concentration Limit (µg/L) Class I	Class II
pH	00400	standard	6.5-9.0	--
Specific Conductance at 25°C	00094	µmhos/cm	--	--
Temperature of Water Sample	00011	Fahrenheit	--	--
Turbidity	00076	NTUs	--	--
Depth to Water (below land surface)	72019	Feet	--	--
Depth to Water (below measuring point)	72109	Ft-bgs	--	--
Elevation of Groundwater Surface	71993	Ft-MSL	--	--
Elevation of Bottom of Well#	72020	Ft-MSL	--	--
Elevation of Measuring Point (Top of Casing)##	72110	Ft-MSL	--	--

Shall be determined in accordance with Condition II.G.3
Shall be determined in accordance with Condition II.G.2

Hazardous Waste Constituents

List G2 –Organics	STORET No.	PQL (µg/L)	Concentration Limit (µg/L) Class I	Class II
Toluene	34010	1	1,000	2,500
Benzene	34030	1	5	25
Ethylbenzene	78113	1	700	1,000
Xylene (total)	81551	2	10,000	10,000
BTEX(total)	11750	3	11,705	13,525
1,4-dioxane	81582	5	7.7	7.7
List G3 – Organics				
Naphthalene	34696	5	140	220
Acetone	81552	10	6,300	6,300
bis(2-ethylhexyl)phthalate	39100	5	6	60
Chlorobenzene	34301	1	100	500
Methylene Chloride	34423	1	5	50
List G4 – Inorganics (total)				
Barium, total	01007	TBD	1,000	--
Chloride, total	00940	1000	200,000	--
Chromium, total	01034	TBD	100	--
Cobalt, total	01037	TBD	1,000	--

Lead, total	01051	TBD	7.5	--
Nickel, total	01067	TBD	100	--
Zinc, total	01092	TBD	5,000	--
List G5 – Inorganics (dissolved)				
Barium, dissolved	01005	2	--	--
Chloride, dissolved	00941	1000	--	--
Chromium, dissolved	01030	4	--	--
Cobalt, dissolved	01035	4	--	--
Lead, dissolved	01049	10	--	--
Nickel, dissolved	01065	10	--	--
Zinc, dissolved	01090	10	--	--
List G6 – Inorganics (total)				
Arsenic, total	01002	TBD	--	200
Chromium, total	01034	TBD	--	1000
Cobalt, total	01037	TBD	--	1000
Vanadium, total	01087	TBD	--	100
List G7 – Inorganics (dissolved)				
Arsenic, dissolved	01000	TBD	--	--
Chromium, dissolved	01030	TBD	--	--
Cobalt, dissolved	01035	TBD	--	--
Vanadium, dissolved	01055	TBD	--	--

2. The background values established for the purpose of intrawell statistical analysis, shall initially be established from the historical groundwater data from the initial sampling of each monitoring well under the initial RCRA Part B Permit (March 1988) to the Fourth Quarter 2006, utilizing the following procedures. This may include data from original monitoring wells and replacement wells as appropriate. This submittal shall include example calculations and shall include, in table form, all groundwater data used in the calculation for each well, the number of pieces of data used to determine the mean, and a list of derived prediction limits.

   a. For those parameters or constituents which are found to be above the PQL in 85-100 percent of the background data set, the background values for that parameter or constituent shall be calculated using the methodology described in Attachment B, Page 1. The facility must utilize a value of one half the PQL for non-detect results included in the data set.

b. For the parameters or constituents which are found to be above the PQL in 50-85 percent of the background data set, the background values for that parameter shall be calculated using methodology described in Attachment B, Page 2 or 5 as appropriate.

c. For those parameters or constituents from the background data set which do not meet the requirements of Conditions II.E.2.a or II.E.2.b above, the average background value shall be set at the PQL as shown in Condition II. E.1 above.

d. Sampling and analytical procedures utilized to establish background values shall be in accordance with Condition II.F below.

e. The Permittee must determine the distribution of the background data set for each parameter that meets the requirements of II.E.2.a and II.E.2.b above.

   i. The Permittee must calculate a coefficient of variation for the background data set from each monitoring well in accordance with Attachment B.

   ii. If the coefficient of variation is less than or equal to 1.00, the facility may assume a normal data distribution for statistical analysis.

   iii. In the event that the coefficient of variation is greater than 1.00, the Permittee may choose to transform the background data in lieu of proposing a non-parametric statistical procedure in accordance with Condition II.E.2.e.iv below. The Permittee must demonstrate that the original non-transformed data are inappropriate for a normal theory test.

   iv. If the Permittee determines that the transformed background data does not pass the test described in Condition II.E.2.e.ii above, it must assume that the background data set is not appropriate for normal theory statistical analysis. In this event, the Permittee must submit for Illinois EPA review and approval a proposed statistical procedure that is appropriate for the distribution of the data used to establish background values, and provides a reasonable balance between the probability of falsely identifying a non-contaminating regulated unit and the probability of failing to identify a contaminating unit.

   v. The Permittee may submit for Illinois EPA review and approval a proposal for an alternative procedure for evaluation of background data distribution.

3. The facility must reestablish intrawell background values every two (2) years as follows:

Background values must be established for each List G2, G3 and G5 parameter listed in Condition II.E.1 above in each Silurian Dolomite monitoring well listed in Condition II.D.1 above, and each List G2 and G7 parameter listed in Condition II.E.1 above for each Dolton Sand monitoring well listed in Condition II.D.1 above where sampling is required by the notes at the end of Condition II.D.1.

a. The facility must use a data set consisting of the results of the eight (8) most recent sampling events;

b. The facility must utilize the procedures outlined in Conditions II.E.2.a through II.E.2.e above.

c. Recalculated background values must be submitted for Illinois EPA review and approval by July 15 of each odd numbered calendar year beginning with July 15, 2021. This submittal shall include example calculations and shall include, in table form, all groundwater data used in the calculation for each well, the number of pieces of data used to determine the mean, and a list of derived prediction limits.

4. For those parameters and constituents which have not been sampled and analyzed in eight (8) previous sampling events, background values shall be established by the methodology approved by Condition II.E.2 above following four (4) sampling events after the effective date of this Renewal Permit. The results of this determination shall be submitted to the Illinois EPA for review and approval within 90 days from the fourth sampling event.

5. Each of the monitoring wells listed in Condition II.D.1 above shall be sampled semi-annually in accordance with the schedule in Condition II.J.2 below. The groundwater samples collected at each well shall be analyzed for the appropriate Condition II.E.1 constituents indicated by footnotes provided in Condition II.D.1.

6. Alternate concentration limits may be established in accordance with 35 Ill. Adm. Code 724.194(b) where the Permittee can determine a constituent will not pose a substantial hazard to human health and the environment. The alternative concentration limits proposed by the facility must be approved by the Illinois EPA.

F. DETECTION MONITORING PROGRAM

The Permittee shall conduct the Detection Monitoring Program in accordance with Section C of the approved permit application, and in accordance with the following:

1. The Permittee shall collect, preserve, and analyze samples pursuant to Condition II.H below.

2. The Permittee shall determine groundwater quality at each monitoring well identified in Condition II.D.1 semi-annually (as defined in Condition II.J.2 below) during the active life of the Area 4 landfill (including the closure and post-closure care periods), beginning with the effective date of this Permit. The Permittee shall express the groundwater quality data in a form necessary for the determination of statistically significant increases, as described in Condition II.I below. Replicate measurements are not required. Groundwater quality at each well shall be determined by analyzing a sample from the well for the appropriate Condition II.E.1 constituents indicated by footnotes provided in Condition II.D.1.

3. After determination of background water quality, the Permittee shall determine whether there is a statistically significant increase over the background values for each parameter identified in Condition II.E.1 above each time groundwater quality is determined at the point of compliance as required by Condition II.F.2 above. In determining whether such an increase has occurred, the Permittee must compare the groundwater quality at each monitoring well specified in Condition II.D.1 above to the background values in accordance with the statistical procedures specified in Condition II.I below. All activities described in Condition II.I must be completed within the same quarter that the initial sample required by Condition II.F.2 above was collected.

4. The Permittee shall determine the groundwater flow rate and direction in the Silurian Dolomite unit at least annually from the Silurian Dolomite monitoring wells listed in Condition II.D.1.

5. The Permittee shall evaluate the results of the analyses required by Condition II.F.2 above and identify:

    a. The concentration of any Condition II.E.1 List G2, G3, G4, G5, G6 and G7 constituent which is above the appropriate PQL or EQL listed in the approved analytical method(s) specified in Section C of the approved permit application.

    b. The concentration of any constituent detected which was not detected during the previous sampling event.

    c. The concentration of any Condition II.E.1 List G2, G3, G4, G5, G6 and G7 constituent that exhibits a progressive increase over four (4) consecutive sampling events.

6. Originally beginning the 2nd Quarter 2015, and for the 2nd Quarter every five (5) years thereafter, the Permittee must report the concentration of any tentatively identified compound (TIC) detected by laboratory analysis of that monitoring event. This

information must be provided in the report required by Condition II.J.10 below.

7. For any 35 Ill. Adm. Code 724, Appendix I constituent found in the analysis required by Condition II.F.6 above that is not currently included in Condition II.E.1 the Permittee must, within 30 days, resample all of the monitoring wells listed in Condition II.D.1 for the detected constituent. If the results of the second analysis confirm the presence of the constituent in groundwater, the Permittee must follow the procedures of Condition II.J.13 below.

G. GROUNDWATER ELEVATION

1. The Permittee shall determine the groundwater surface elevation referenced to the nearest 0.01 foot MSL at each well each time groundwater is sampled in accordance with Condition II.J.3.

2. The Permittee shall report the surveyed elevation of stick-up, referenced to MSL, when the well is installed (with as-built diagrams) and every two (2) years (during the First or Second Quarter), or at the request of the Illinois EPA, or whenever the elevation changes in accordance with Condition II.J.5.

3. Elevation, as referenced to MSL, of the bottom of each monitoring well (STORET 72020), shall be taken in the event a performance problem is identified with the dedicated pumps found in the monitoring wells, or whenever the downhole equipment is removed from the monitoring well in accordance with Condition II.J.7.

H. SAMPLING AND ANALYTICAL PROCEDURES

The Permittee shall use the following techniques and procedures described in the approved permit application, as modified below, when obtaining and analyzing samples from the groundwater monitoring wells described in Condition II.D.1 above:

1. Samples shall be collected using the techniques described in the approved permit application.

2. Samples shall be preserved, shipped, and handled in accordance with the procedures specified in the approved permit application.

3. Samples shall be analyzed in accordance with the procedures specified in the approved permit application.

4. Samples shall be tracked and controlled using the chain-of-custody procedures specified in the approved permit application.

I. STATISTICAL PROCEDURES

When evaluating the monitoring results in accordance with Section II.F above, the Permittee shall use the following procedures:

1. The groundwater quality for each well shall be collected in accordance with Condition II.H and shall be compared to the background values which were established for that well in accordance with Condition II.E.2 or II.E.3. The value for each parameter shall be compared to the background value established for that parameter at that well.

2. For those constituents identified in Condition II.E.1 which have background values established in accordance with Conditions II.E.2.a and II.E.2.b above, the Permittee shall conduct the following statistical analysis (NOTE: This procedure shall not be used if the coefficient of variation of the background values is greater than 1.00):

   a. The difference between the measured concentration of the constituent in a sample from each well and the background value for that constituent shall be evaluated using prediction limits as described in Attachment B to this permit. If the test indicates the difference is significant at the 0.01 level, the Permittee may resample the monitoring well(s), or the Permittee may choose not to resample and shall conclude that a statistically significant increase has occurred.

   b. If a resample is obtained, it shall be analyzed for the constituent(s) which was (were) initially found to be present in the sample at a value significantly different from its background value. Collection, preservation and analysis of this resample shall be carried out in accordance with Condition II.H. The results of this resample shall be compared to the background value for the constituent, again using the statistical procedure describe in this condition. If the second round of analysis indicated the difference is significant, the Permittee shall conclude that a statistically significant increase has occurred.

3. For those constituents identified in Condition II.E.1 which have background values established in accordance with Condition II.E.2.c above, the Permittee shall conduct the following statistical analysis at each well:

   a. The measured concentration of each of these constituents present in a sample collected from each well shall be compared to the PQL. If, for a given well, (A) the measured concentration of a single constituent is greater than two (2) times the PQL,

or (B) the measured concentration of any two (2) or more of these constituents is greater than the PQL, the Permittee may immediately resample that well(s), or the Permittee may choose not to resample and shall conclude evidence of statistically significant increase has occurred.

b. If a resample is obtained, it shall be analyzed for the constituents detected above the PQL in the initial sample collected and analyzed in accordance with this condition. Collection, preservation and analysis of this sample shall be carried out in accordance with Condition II.H above. The results of this resampling shall again be compared to the PQL's as described in this condition. If the measured concentrations for this resampling fail either of the comparisons, the Permittee shall conclude that a significant change has occurred.

4. For those constituents that have intrawell background values that exceed appropriate 35 Ill. Adm. Code 620 Groundwater Quality Standards (GQSs), the facility shall conduct the following statistical evaluation:

   a. The Permittee shall conclude that there has been a statistically significant increase if either of the following has occurred:

      i. The measured concentration of the constituent exceeds the background value calculated in accordance with Conditions II.E.2 or II.E.3 above; or

      ii. A trend analysis (e.g., Mann-Kendall Trend test or Sen's Trend Estimator) of the ten (10) most recent sampling events indicates a statistically significant increasing trend at the 95% confidence level.

   b. If the statistical evaluation required in Condition II.I.4.a. above indicates a statistically significant increase, the facility may immediately resample the monitoring well(s), or the Permittee may choose not to resample and shall conclude that a statistically significant increase has occurred.

   c. If a resample is obtained, it shall be analyzed for the constituent(s) that failed the evaluation in Condition II.I.4.a above. Collection, preservation and analysis of the resample shall be carried out in accordance with Condition II.H. above. The results of this resample shall again be evaluated as required by Condition II.I.4a above substituting the resample result for the most recent sampling event. If the resample results again fail the evaluation required by Condition II.I.4.a, the facility must conclude that as statistically significant increase has occurred.

5. Each time samples are collected for the statistical comparisons required by Conditions II.I.2, II.I.3, or II.I.4 above, the Permittee shall prepare lab (trip) blanks in accordance with the procedures described in the approved permit application.

   a. If any volatile organic compound identified in Condition II.E.1 above cause the initial sample from a given well to fail the tests required by Conditions II.I.2, II.I.3, or II.I.4 above, and the constituent(s) is (are) found above the PQL in a field and/or lab blank associated with the collection or analysis of the sample, the Permittee shall immediately resample the well of concern. This sample, taken to verify the concentration of those constituents found in the initial sample, shall be collected, preserved and analyzed in accordance with the procedures set forth in Condition II.H.

      i. Analysis of the resample.

         A. If the constituent found in the blank is statistically evaluated in accordance with Condition II.I.2, the resample shall be analyzed for the constituents which failed the test and were also found in the blanks.

         B. If the constituent found in the blank is statistically evaluated in accordance with Condition II.I.3, the resample shall be analyzed for all the constituents statistically evaluated in accordance with Condition II.I.3.

         C. If the constituent found in the blank is statistically evaluated in accordance with Condition II.I.4, the resample shall be analyzed for all the constituents statistically evaluated in accordance with Condition II.I.4.

      ii. The measured concentration of the constituents in the resample shall be compared to background values in accordance with Conditions II.I.2, II.I.3 and II.I.4 above.

         A. If this comparison passes the tests set forth in Condition II.I.2, II.I.3 and/or II.I.4 above, the Permittee may conclude that no significant increase has occurred for the constituents of concern at the well in question.

         B. If this comparison fails the test set forth in Conditions II.I.2, II.I.3 and/or II.I.4, the Permittee shall immediately collect a "verification sample" in accordance with Conditions II.I.2, II.I.3 and II.I.4.

   b. If the same problem described in Condition II.I.5.a above occurs in the analysis of the "resample" required by Conditions II.I.2, II.I.3 and II.I.4, the Permittee may collect and analyze a verification sample in accordance with Condition II.I.5.a. as modified below:

i. The phrase "resample" shall be substituted for "initial sample."

ii. The verification sample need only be analyzed for those constituents which the "resample" was analyzed for.

iii. If the comparison of the analytical results fails the tests in Conditions II.I.2, II.I.3 and/or II.I.4, the Permittee shall conclude that a significant change has occurred.

c. Chemical and statistical analyses which are not affected by the interpretation of blank data shall not be repeated, except as described above.

J. REPORTING AND RECORDKEEPING

1. The Permittee shall enter all monitoring, testing, and analytical data obtained in accordance with Conditions II.E, II.F, II.G, II.H, and II.I above in the operating record. The data must include all computations, calculated means, variances, prediction limits and statistical or results of statistical tests that the Illinois EPA has determined to be equivalent.

2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions II.E, II.F, II.G, II.H and II.I shall be collected and reported as identified in the table below. All additional information required by the groundwater monitoring program (as specified in Conditions II.E, II.F, II.G and II.I) shall also be submitted to the Illinois EPA at the address listed in Condition II.D.5 in accordance with this schedule.

Sampling Event of Calendar Year	Samples to be Collected During the Months of	Results Submitted to the Illinois EPA by the Following
Second Quarter	April – June	July 15
Fourth Quarter	October – December	January 15

3. Groundwater surface elevation data, measured pursuant to Condition II.G.1, shall be collected semi-annually and submitted to the Illinois EPA as identified in Condition II.J.2 above.

4. The Permittee shall report the groundwater flow rate and direction in the Silurian Dolomite, as required by Condition II.F.4, by July 15 of each year.

5. The Permittee shall report the surveyed elevation, as required by Condition II.G.2, of the top of the well casing ("stick-up"), referenced to MSL, in accordance with the following schedule:

   a. For wells identified in Condition II.D.1 above, every two (2) years (during the First or Second Quarter), or at the request of the Illinois EPA, or whenever the elevation changes.

   b. For any new wells, at the time of installation and reported in the as-built diagrams. Subsequent measurements shall be made every two (2) years (during the First or Second Quarter) or at the request of the Illinois EPA, or whenever the elevation changes.

6. Elevation of the bottom of each monitoring well identified in Condition II.D.1 referenced to MSL, is to be reported when maintenance activities are conducted in accordance with Condition II.J.7 below. This measurement shall be taken during the first semi-annual sampling event and reported by July 15 of that year.

7. The Permittee shall maintain all equipment associated with groundwater monitoring wells. Dedicated pumps found in monitoring wells identified in Condition III.D.1 must be removed, inspected and repaired, if necessary, every five (5) years. Information regarding the inspection and maintenance of pumps must be reported by July 15 of that year.

8. The Permittee shall submit a completed "RCRA Facility Groundwater, Leachate and Gas Reporting Form" (LPC 592) as a cover sheet for any notices or reports required by the facility's Permit for identification purposes. Only one (1) copy of the LPC 592 must accompany your submittal. However, the Permittee must submit one (1) original and (excluding the groundwater and leachate monitoring results submitted in an electronic format) a minimum of two (2) copies of each notice or report you submit to the Illinois EPA. The form is not to be used for Permit modification requests.

9. Information required by Conditions II.G.3, II.J.2, II.J.3, II.J.5 and II.J.6 must be submitted in an electronic format. The information is to be submitted, as fixed-width text files formatted as found in Attachment A to this permit, in accordance with the schedule in Condition II.J.2 above. Additional guidance regarding the submittal of the information in an electronic format can be found at https://www2.illinois.gov/epa/topics/waste-management/groundwater-monitoring/electronic-reporting/Pages/default.aspx.

10. In addition to submitting analytical results electronically as required by Condition II.J.9 above, a summary report describing the results of the groundwater sampling event must be submitted after each sampling event in accordance with the schedule found in Condition II.J.2 above. These reports must include, but not be limited to:

a. A description of any problems encountered during the event.

b. A tabulated summary of groundwater and analytical data collected during the sampling event including the appropriate groundwater quality standard, appropriate PQL or EQL, and appropriate derived background value for each parameter.

c. A summary table of groundwater elevations collected during the sampling event and potentiometric map(s) based on that data.

d. Copies of any statistical analysis required to be conducted in accordance with Conditions II.I.2, II.I.3, and II.I.4 above.

e. Information required by Conditions II.F.5, II.F.6, and II.F.7 above.

11. If the Permittee determines, pursuant to Condition II.I above, that there is a statistically significant increase for any of the parameters specified in Condition II.E.1 above at any monitoring well at the compliance point, the Permittee shall:

a. Notify the Illinois EPA in writing indicating what parameters and wells have shown statistical increases and provide all statistical calculations which have been completed. This notification shall be submitted to the Illinois EPA within seven (7) days of the date that the increase is discovered.

b. Sample the groundwater in all wells listed in Condition II.D.1 screened within the hydrostratigraphic unit in which the statistically significant increase was identified and determine the concentration of all constituents identified in 35 Ill. Adm. Code 724, Appendix I such that the results will accompany the permit modification required by Condition II.J.11.d below.

c. For any Appendix I compounds found in the analysis pursuant to this condition, the Permittee may resample within one (1) month and repeat the analysis for those compounds detected. If the results of this second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If the Permittee does not resample for the compounds pursuant to this condition, the hazardous constituents found during this initial Appendix I analysis will form the basis for compliance monitoring.

d. Within ninety (90) days, submit to the Illinois EPA an application for a permit modification to establish a compliance monitoring program meeting the requirements of 35 Ill. Adm. Code 724.199. The application must include the following information:

i. An identification of the concentration of any 35 Ill. Adm. Code 724, Appendix I constituents found in the groundwater at each monitoring well at the compliance point;

ii. Any proposal changes to the groundwater monitoring system at the facility necessary to meet the requirements of Section 724.199;

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

iv. For each hazardous constituent found at the compliance point, a proposed concentration limit under 35 Ill. Adm. Code 724.194(a)(1) or 724.194(a)(2), or a notice of intent to seek an alternate concentration limit for a hazardous constituent under 35 Ill. Adm. Code 724.194(b).

e. Submit to the Illinois EPA a corrective action feasibility plan to meet the requirements of 35 Ill. Adm. Code 724.200 unless all hazardous constituents identified under Condition II.J.11.b above are listed in 35 Ill. Adm. Code 724.194 and their concentration do not exceed the respective values given in that table or the Permittee has sought an alternate concentration limit under II.J.11.d.iv above for every hazardous constituents identified under Condition II.J.11.b above.

f. Within 180 days, submit to the Illinois EPA all data necessary to justify any alternate concentration limits for a hazardous constituent sought under Condition II.J.11.d.iv above.

12. If the Permittee determines, pursuant to Condition II.F above, that there is a statistically significant increase above the background values for the parameters specified in Condition II.E.1 above, the Permittee may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis, or statistical evaluation, or natural variation in groundwater. To make this demonstration, the Permittee shall:

a. Notify the Illinois EPA in writing within seven (7) days of the date that it intends to make a demonstration under 35 Ill. Adm. Code 724.198(g).

b. Within ninety (90) days 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.

c. Within ninety (90) days submit to the Illinois EPA an application to make any appropriate changes to the detection monitoring program at the facility.

d. Continue to monitor in accordance with the detection monitoring program established under Condition II.F.

13. If the Permittee determines that additional hazardous constituents not currently part of the Groundwater Protection Standard are present in the groundwater, the Permittee shall:

    a. Report the concentration of these additional constituents detected in the groundwater to the Illinois EPA within seven (7) days after the receipt of the analytical data from the laboratory, and

    b. Within thirty (30) days of the date that the additional constituents are confirmed, submit a Class 1* permit modification request to add the additional constituents to the monitoring list of the Groundwater Protection Standard, Lists G2 through G7 as necessary and establish the concentration limit for each additional constituent following procedures in Condition II.E.2 above.

14. Area 1 RFI activities do not relieve the facility of the responsibility to meet the requirements of 35 Ill. Adm. Code 724.198(g), which among other things, requires the reporting of statistically significant increases for 1,4-dioxane and chloride in Area 4 monitoring wells adjacent to Area 1.

K. REQUEST FOR PERMIT MODIFICATION

1. If the Permittee or the Illinois EPA determines that the detection monitoring program no longer satisfies the requirements of 35 Ill. Adm. Code 724, Subpart F, the Permittee must, within ninety (90) days, submit an application for a permit modification to the Illinois EPA to make any appropriate changes to the program which will satisfy the regulations.

2. Conditions in this section of the permit may be modified in accordance with 35 Ill. Adm. Code 705.128 if there is cause for such modification, as defined in 35 Ill. Adm. Code 702.184. Causes for modification identified in this section include, but are not limited to, alterations to the permitted facility, additional information which would have justified the application of different permit conditions at the time of issuance, and new regulations.

SECTION III
AREA 3 GROUNDWATER CORRECTIVE ACTION PROGRAM

A. SUMMARY

Groundwater contamination has been detected in groundwater monitoring wells in the Dolton Sand and the upper Silurian Dolomite aquifer at Area 3 of the CID-RDF. The groundwater contamination is in the form of light non-aqueous phase liquid (LNAPL), as well as organic constituents at concentrations which exceed the Groundwater Protection Standards established by 35 Ill. Adm. Code 724.192. Therefore, this corrective action program, meeting the requirements of 35 Ill. Adm. Code 724.200, must be implemented at Area 3.

The Area 3 Groundwater Corrective Action Program required by this Permit includes:

1. A Groundwater Management Zone (GMZ), established pursuant to 35 Ill. Adm. Code 620.250, as a three-dimensional region containing groundwater being managed through a corrective action system to mitigate impairment caused by the release of contamination;

2. Extraction of the LNAPL and groundwater contaminated with organic constituents found in the weathered Silurian Dolomite inside the northern portion of the GMZ.

3. Extraction of groundwater contaminated with organic constituents inside the southern portion of the GMZ.

4. Implementation of a phytoremediation system at the southern portion of the GMZ.

5. Monitoring of groundwater to ensure the effectiveness of the Corrective Action System within the GMZ. This monitoring will involve: (a) evaluating the zone of influence of the Corrective Action system; and (b) groundwater sampling and analysis to ensure the reduction of contaminant concentrations.

6. Monitoring of groundwater at uncontaminated wells that are situated at the perimeter of the GMZ. This monitoring system ensures wells located at the perimeter of the GMZ are in compliance with the Groundwater Protection Standard.

7. Monitoring of groundwater at the portions of Area 3 that are not included in the GMZ.

B. DEFINITIONS

1. "Uppermost Aquifer" refers to the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically connected with this aquifer in the vicinity of the facility. The uppermost aquifer underlying Area 3 has been

identified as a weathered, fractured and/or jointed Silurian dolomite which overlies a bedrock aquitard, and underlies a perched outwash sand unit with minimal hydraulic connection.

2. "GMZ" refers to the three (3) dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from a site.

3. "Point of Compliance" refers to the vertical surface located at the hydraulically downgradient limits of the waste management area (Area 3) extending down into the uppermost aquifer underlying the regulated unit.

4. "Ft – bgs" refers to the number of feet below the ground surface.

5. "Ft-MSL" refers to elevation referenced to mean sea level.

6. "Detected" shall mean a concentration equal to or above the PQL listed in USEPA's SW-846 (Third Edition) or as approved by the Illinois EPA for the applicable analytical methods specified in the approved Sampling and Analysis Procedures, which are incorporated by reference in Condition III.H of the Permit.

7. "Progressive Increase" shall mean an increase in the concentration of a constituent in successive sampling events.

8. "Stick-up" refers to the height of the reference survey datum. This point is determined within $\pm$ 0.01 foot in relation to mean sea level, which in turn is established by reference to an established National Geodetic Vertical Datum.

C. IMPLEMENTATION

1. The Permittee shall implement the Corrective Action Program upon the effective date of this Permit. On that date, the corrective action and groundwater monitoring requirements set forth in this Permit shall supersede those previously established in the previous Part B Permit for the facility.

2. The Permittee shall carry out the corrective action monitoring program specified in this Permit on the groundwater beneath the CID-RDF facility in the City of Chicago, Illinois. The uppermost aquifer in the vicinity of the CID-RDF has been identified as a composite zone consisting of a perched outwash sand and gravel, where present and the underlying weathered, fractured and/or jointed Silurian dolomite which lies above a bedrock aquitard.

3. Monitoring wells at the facility are screened in the shallow outwash sand and gravel referred to as the "Dolton Sand", historic overlying fill material, and the deeper dolomite

unit referred to as the "Silurian Dolomite". For the purposes of this Permit and in accordance with 35 Ill. Adm. Code Part 620 regulations: (1) the Dolton Sand has been designated Class II: General Resource Groundwater; and (2) the Silurian Dolomite has been designated Class I: Potable Resource Groundwater. The analytical results obtained from the groundwater monitoring wells shall be compared to the appropriate Class I or Class II concentration limits that comprise the groundwater protection standard found in Condition III.E.1 or to established background values as appropriate.

4. Upon the effective date of this Permit, a GMZ is established as a 3-dimensional region containing groundwater within the previously defined uppermost aquifer pursuant to 35 Ill. Adm. Code 620.250. The GMZ consist of a northern portion and a southern portion. The geographic location of the northern portion of the GMZ is currently bound by monitoring wells H28D, C28D, D28D, R13D, M28D, P28D, and K28D. The geographic location of the southern portion of the GMZ is currently bound on the north by monitoring wells G23DR, G10S, RW8S, G38D, and G25D. The geometry of the GMZ and the corrective action activities conducted within the GMZ may be modified in accordance with Condition III.K.11 below as corrective action activities progress.

5. The GMZ shall apply to the constituents comprising the groundwater protection standard found in Condition III.E.1 below. The GMZ shall remain in place as long as corrective action activities are being conducted in a timely and appropriate manner.

6. The facility must remediate groundwater such that it meets appropriate groundwater quality standards at the Point of Compliance. At this time, the Point of Compliance shall be postponed for the Area 3 GMZ until such time that the GMZ monitoring wells have attained the applicable concentration limits that comprise the groundwater protection standard found in Condition III.E.1 and the GMZ expires. At that time, the CID-RDF facility must submit a proposal for establishment of a point of compliance which satisfies the regulatory requirements found in 35 Ill. Adm. Code 724, Subpart F and reflects the current conditions at the facility.

D. WELL LOCATIONS AND CONSTRUCTION

1. The Permittee shall maintain the groundwater monitoring wells identified in the following table in accordance with the approved permit application to allow for the collection of groundwater samples. The location of these wells is specified in Figures C-2a, C-2b, and C-2c of the approved permit application.

IEPA Well No.	Permittee Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval
List 1 – GMZ Observation Zone Monitoring Wells/LNAPL/Groundwater Extraction Network (GMZ wells located within the area of groundwater contamination)				
G1A1*[M]	A28D	74.7	518.90	528.40-518.90
G1A2*[M]	B28D	82.0	512.51	522.51-512.51
G1A3*[M]	C28D	71.6	521.54	531.54-521.54
G1A4[RM]	D28D	77.6	516.81	526.81-516.41
G1A5*[M]	E28DR	84.4	505.71	515.71-505.71
R1A6*[M]	F28DR	84.6	508.81	518.87-508.81
G1A7*[M]	G29D	88.2	505.24	515.24-505.24
G1B1*[M]	K28D	85.5	503.23	513.23-503.23
G1B2*[M]	L28D	93.8	496.76	506.76-496.76
G601[RE]	RW-1	79.52	511.97	511.97-522.14
G602[RE]	RW-2	84.17	506.58	506.63-516.63
G603[RM]	RW-3	90.9	502.07	512.07-502.07
A24D[O]	A24D	94.1	498.84	508.84-498.84
G36D[M]	G36D	90.7	497.97	507.97-497.97
G37D[M]	G37D	92.8	496.61	506.61-496.61
GU2D[M]	IW302D	89.0	503.44	513.44-503.44
G604[E]	EW1	79.00	509.06	519.56-509.56
G605[E]	EW2	11.50	576.73	583.23-577.23
P106[P]	P6W	13.6	577.12	582.12-577.12
G1C1[P]	RW1S	13.7	578.50	583.50-578.50
G1C2[P]	RW2S	18.0	576.14	586.14-576.14
G1C3[P]	RW3S	10.3	578.18	583.18-578.18
G1C4[P]	RW4S	10.7	579.73	584.73-579.73

List 2 – GMZ Perimeter Monitoring Wells (GMZ wells located outside the area of groundwater contamination)

R13D[M]	R13D	82.3	509.21	519.21-509.21
G1A8*[M]	H28D	71.6	520.74	530.74-520.74
G1B3[M]	M28D	96.3	494.27	504.27-494.27
G1B5[M]	P28D	94.5	495.61	505.61-495.61
G10S[P]	G10S	7.7	581.22	586.22-581.22
G25D[O]	G25D	102.6	488.46	498.46-488.46
G38D[M]	G38D	96.9	495.14	505.14-495.14
R23D[M]	G23DR	69.5	522.45	532.45-522.45
G1C5[P]	RW5S	11.0	579.51	585.51-579.51
R1C6[P]	RW6S	12.5	578.70	583.40-578.70
G1C7[S]	RW7S	11.9	580.99	585.64-580.99
G1C8[P]	RW8S	12.6	579.56	583.99-579.56

List 3 – Area 3 Dolomite Monitoring Wells (Outside the GMZ)

A12D[O]	A12D	54.7	534.65	544.65-534.65
R15D[O]	G15DR	97.7	490.85	495.85-490.85
G1B6[M]	O28D	60.8	529.06	539.06-529.06
G21D[O]	G21D	60.5	530.13	535.13-530.13
R107[O]	G107R	83.0	508.19	517.59-508.19
AW01[O]	AW01	98.9	490.39	500.39-490.39
R16D[O]	R16D	84.3	505.66	515.66-505.66
R26D[O]	G26DR	87.4	502.96	512.96-502.96
R27D[O]	G27DR	89.6	501.96	511.96-501.96

List 4 – Area 3 Dolton Sand Monitoring Wells (Outside the GMZ)

G12S[P]	G12S	7.3	581.21	582.21-581.21
R13S[P]	G13SR	7.6	583.92	588.92-583.92
G14S[P]	G14S	17.3	572.62	573.62-572.62
G15S[P]	G15S	18.1	570.33	571.33-570.33
G16S[P]	G16S	11.8	577.56	578.56-577.56

NOTE:
[E] -- Groundwater extraction well
[M] – Analysis of List G1, G2, G3, G4 and G5 parameters in accordance with Condition III.E.1
[O] – Analysis of List G1, G2, G3, G4 and G5 parameters in accordance with Condition III.E.1
[P] -- Analysis of List G1 and G2 parameters in accordance with Condition III.E.1
[R] -- Denotes LNAPL recovery well.
[S] -- Denotes monitoring well used only for groundwater elevation measurements

* -- Denotes well to be used for groundwater quality monitoring and supplemental LNAPL recovery.

2. Construction of each new or replacement monitoring well/piezometer must be at a minimum in accordance with the diagram contained in Attachment A to this Permit, unless otherwise approved in writing by the Illinois EPA. All new monitoring wells/piezometers must be continuously sampled and logged on an Illinois EPA boring log and well completion report, as provided in Attachment A unless otherwise approved by the Illinois EPA.

3. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition III.D.1 are damaged, the structural integrity has been compromised causing the well not to serve its function or to act as a contaminant pathway. A proposal for the replacement of the subject well(s) shall accompany this notification. The well shall not be plugged until the new well is on-line and monitoring data has been obtained and verified, unless the well is extremely damaged and would create a potential route for groundwater contamination.

4. Should any well become consistently dry or unserviceable, a replacement well shall be provided within ten (10) feet of the existing well. This well shall monitor the same zone as the existing well and be constructed in accordance with the current Illinois EPA groundwater monitoring well construction standards at the time that the wells are replaced. A replacement well which is more than ten (10) feet from the existing well and which does not monitor the same geologic zone shall be approved by the Illinois EPA and designated as a new well. If the facility determines that a replacement well will be a dry well, then it must submit for Illinois EPA approval either a proposal to install a new monitoring well or a proposal not to replace the well with appropriate rationale.

5. The Permittee shall submit boring logs, construction diagrams, and data sheets from the installation and development of each new or replacement well to the Illinois EPA at the address below within thirty (30) days of the date that installation of the well is completed. In addition, the Permittee shall submit certification that plugging and abandonment of a well was carried out in accordance with the approved procedures (see Attachment A to this Permit) to the Illinois EPA at the address below within thirty (30) days of the date that the well is plugged and abandoned. All information shall be submitted to the appropriate Agencies.

Illinois Environmental Protection Agency
Bureau of Land -- #33
1021 North Grand Avenue East
Permit Section
Springfield, Illinois 62702

6. All wells/piezometers shall be clearly identified and shall be equipped with protective caps and locks. Monitoring wells or piezometers located in high traffic areas must be protected with bumper guards.

7. All groundwater monitoring wells and piezometers not utilized in the approved groundwater monitoring system, but retained by the facility, must be constructed and maintained in accordance with 77 Ill. Adm. Code 920 regulations. Monitoring wells and piezometers that are improperly constructed must be abandoned in accordance with Attachment A to this Permit.

E. GROUNDWATER PROTECTION STANDARD

1. The following hazardous constituents and concentration limits comprise the groundwater protection standard in the vicinity of the CID-RDF facility. Total (unfiltered) values, derived from the applicable USEPA SW-846 (latest version) or equivalent methods listed in Section C of the approved permit application, will be used for comparison with the concentration limits.

	STORET No.	Units	Concentration Limit	
			Class I	Class II
List G1 – Field Parameters				
pH	00400	standard	6.5-9.0	
Specific Conductance at 25°C	00094	µmhos/cm	--	--
Temperature of Water Sample	00011	Fahrenheit	--	--
Turbidity	00076	NTUs	--	--
Depth to Water (below land surface)	72019	Feet	--	--
Depth to Water (below measuring point)	72109	Ft-bgs	--	--
Elevation of Groundwater Surface	71993	Ft-MSL	--	--
Elevation of Bottom of Well#	72020	Ft-MSL	--	--
Elevation of Measuring Point (Top of Casing) ##	72110	Ft-MSL	--	--

Hazardous Waste Constituents

List G2 – Organics	STORET No.	PQL (µg/L)	Concentration Limit (µg/L)	
			Class I	Class II
Toluene	34010	6	1,000	2,500
Benzene	34030	5	5	25
Ethylbenzene	78113	7.2	700	1,000
Xylene (total)	81551	5	10,000	10,000
BTEX(total)	11750	--	11,705	13,525
1,4-dioxane	81582	5	7.7	7.7
Chlorobenzene	34301	6	100	500
List G3 – Organics				
Naphthalene	34696	10	140	220
Acetone	81552	100	6,300	6,300
bis(2-ethylhexyl)phthalate	39100	6	6	60
Methylene Chloride	34423	5	5	50
1,4-dichlorobenzene	34571	2	25	375
Vinyl Chloride	39175	2	2	10
Fluoranthene	34376	5	280	1400
List G4 – Inorganics (total)				
Chloride, total	00940	1,000	200,000	200,000
List G5 – Inorganics (dissolved)				
Chloride, dissolved	00941	1000	--	--

Shall be determined in accordance with Condition III.G.3
Shall be determined in accordance with Condition III.G.2

2. Alternate concentration limits may be established in accordance with 35 Ill. Adm. Code 724.194 (b) where the Permittee can determine a constituent will not pose a substantial hazard to human health or the environment. The alternate concentration limits proposed by the facility must be approved by the Illinois EPA.

3. The compliance period when the Groundwater Protection Standard applies is the number of years equal to the active life of the waste management area (including any waste management activity prior to permitting and the closure period). The compliance period

at the CID-RDF facility has been defined as 30 years following certification of closure of the Area 3 Landfill.

4. This Corrective Action Program shall continue during the compliance period until the Permittee demonstrates that the LNAPL has been removed to greatest extent practicable, and that the Groundwater Protection Standard has not been exceeded for four (4) consecutive monitoring events. However, if the owner or operator is engaged in a corrective action at the end of the defined compliance period, the compliance period is extended until the owner or operator can demonstrate that the Groundwater Protection Standard has not been exceeded for three (3) consecutive years.

5. The Permittee shall not be relieved of the responsibility to remediate a release that has migrated beyond the facility boundary where off-site access is denied.

F. CORRECTIVE ACTION PROGRAM

The Permittee shall conduct the corrective action program and perform groundwater monitoring detailed in this section, in accordance with the following:

1. List 1, Observation Zone Monitoring Wells/LNAPL/Groundwater Extraction Network

   a. The GMZ Observation Zone monitoring wells identified in Condition III.D.1, List 1 are the wells that comprise the Groundwater Remediation System. The Groundwater Remediation System consists of wells that are used for recovery of LNAPL, contaminated groundwater, and for groundwater quality monitoring when LNAPL is not present. For the northern portion of the GMZ, the Permittee shall implement, at these wells, the corrective measures detailed in Section C.8 of the approved permit application as modified by Illinois EPA Log No. B-27R-M-67. For the southern portion of the GMZ, the Permittee shall implement the corrective measures detailed in the document entitled, "Class 2 Permit Modification", dated May 24, 2013 and additional information to that document dated July 30, 2013, with the following conditions:

      i. Extraction using the LNAPL Extraction System shall begin within thirty (30) days of the effective date of this Permit. Extraction at newly installed extraction wells shall begin within thirty (30) days of the date of installation of the new well.

      ii. The facility must extract LNAPL from each northern GMZ well identified in Condition III.D.1, List 1 on a quarterly basis. LNAPL extraction must be conducted in accordance with the procedures described in Section C.8.3 of the approved permit application.

iii. Written approval in the form of a Class 1* Permit Modification must be obtained from the Illinois EPA prior to the installation of additional LNAPL extraction well(s).

iv. LNAPL extraction shall be evaluated quarterly and reported semi-annually in accordance with Conditions III.I.1 and III.K.2 below.

b. The Permittee shall demonstrate the effectiveness of the Corrective Action Program by monitoring the groundwater from the GMZ Observation Zone well network identified in Condition III.D.1, List 1. The effectiveness shall be evaluated in accordance with the procedures described in the approved permit application and the following conditions:

i. Groundwater samples shall be collected semi-annually (2nd and 4th quarters) in accordance with the schedule provided in Condition III.K.2 below and analyzed for List G1, G2, G3, G4 and G5 parameters as identified by the Notes in Condition III.D.1 above. However, if measurable LNAPL is present within a well at the time of a sampling event, the well must be monitored for the presence and thickness of LNAPL in lieu of the above lists.

ii. Wells that exhibit measurable quantities of LNAPL must be recorded as containing free product and area not required to be sampled for pH, specific conductance, water temperature, turbidity, or Lists G2, G3, G4 and G5 parameters during that event. Wells that do not exhibit measurable quantities of LNAPL (i.e., wells with sheens, emulsions or no evidence of free product) must be sampled for pH, specific conductance, water temperature, turbidity, and Lists G2, G3, G4 and G5 parameters, as identified by the Notes to Condition III.D.1 above, during that event.

iii. The volume of LNAPL removed by each well in the LNAPL Extraction System shall be determined quarterly during the time that measurable LNAPL is extracted from the LNAPL Extraction System. If no measurable LNAPL is extracted by the LNAPL Extraction System, the facility shall note that no LNAPL was recovered during this period.

iv. The facility must report the method of LNAPL extraction utilized for each well during each extraction event and the criteria used to determine the extraction method.

v. The volume of groundwater extracted by each well must be reported in accordance with the requirements of Condition III.K.2 below.

vi. Sampling and analytical procedures utilized in the Observation Zone wells shall be in accordance with Condition III.H below.

vii. Statistical analysis of the data collected from Observation Zone wells must be conducted in accordance with Condition III.I.1.a below.

viii. Results of the Observation Zone monitoring and LNAPL/groundwater extraction activities must be reported in accordance with Condition III.K below.

2. Perimeter Wells

a. The Permittee shall determine whether the Groundwater Protection Standard has been exceeded at the GMZ Perimeter (non-impacted) wells. The wells identified in Condition III.D.1, List 2 shall be used for this evaluation. These wells shall be evaluated during the compliance period as follows:

i. Groundwater samples shall be collected semi-annually (2^{nd} and 4^{th} quarters) in accordance with the schedule provided in Condition III.K.2 below and analyzed for Lists G1, G2, G3, G4 and G5 parameters as identified by the Notes in Condition III.D above.

ii. Sampling and analytical procedures shall be in accordance with Condition III.H below.

iii. Statistical analysis of the data collected from the GMZ Perimeter wells must be conducted in accordance with Condition III.I.1.b below.

iv. Results of the GMZ Perimeter well monitoring must be reported in accordance with Condition III.K below.

3. List 3 – Area 3 Dolomite Monitoring Wells (Outside the GMZ)

a. The facility must monitor groundwater in the Silurian Dolomite for releases from portions of Area 3 that are not associated with the current GMZ. The wells identified in Condition III.D.1, List 3 shall be used for this evaluation. These wells shall be evaluated during the compliance period as follows:

i. Groundwater samples shall be collected semi-annually (2^{nd} and 4^{th} quarters) in accordance with the schedule provided in Condition III.K.2 below and analyzed for List G1, G2, G3, G4 and G5 parameters identified in Condition III.E above.

ii. Sampling and analytical procedures shall be in accordance with Condition III.H below.

iii. Statistical analysis of the data collected from the List 3 – Area 3 Dolomite Monitoring wells must be conducted for the List G2, G3 and G5 parameters in accordance with Conditions III.J below.

iv. Results of the List 3 well monitoring must be reported in accordance with Condition III.K below.

4. List 4 – Area 3 Dolton Sand Monitoring Wells (Outside the GMZ)

   a. The facility must monitor groundwater in the Dolton Sand for releases from portions of Area 3 that are not associated with the current GMZ. The wells identified in Condition III.D.1, List 4 shall be used for this evaluation. These wells shall be evaluated during the compliance period as follows:

      i. Groundwater samples shall be collected semi-annually (2^{nd} and 4^{th} quarters) in accordance with the schedule provided in Condition III.K.2 below and analyzed for List G1 and G2 parameters identified in Condition III.E above.

      ii. Sampling and analytical procedures shall be in accordance with Condition III.H below.

      iii. Statistical analysis of the data collected from the List 4 – Area 3 Dolton Sand Monitoring wells must be conducted for the List G2 parameters in accordance with Condition III.J below.

      iv. Results of the List 4 well monitoring must be reported in accordance with Condition III.K below.

5. The Permittee shall determine the groundwater flow rate and direction in the Dolton Sand and the Silurian Dolomite at least annually from the wells listed in Condition III.D, Lists 1, 2, 3 and 4. The groundwater flow rate should be reported as a minimum and maximum range.

6. The Permittee shall provide, on a semi-annual basis (2^{nd} and 4^{th} quarters), isoconcentration maps, by monitored zone, of the extent of contamination in groundwater at the corrective action area.

7. The Permittee shall evaluate the effectiveness of the Groundwater Remediation System to hydraulically capture and withdraw the off-site plume of groundwater contamination. This evaluation shall be conducted semi-annually (2^{nd} and 4^{th} quarters). If the evaluation indicates the off-site plume of contamination is not completely captured by the current corrective action system design, the Permittee shall submit within thirty (30) days of the

semi-annual evaluation proper notification or modification request to achieve capture of the groundwater contamination.

8. The Permittee shall evaluate the results of the analyses required by Conditions III.F.1, III.F.2, III.F.3 and III.F.4 above, excluding the List G1 parameters, and identify:

   a. The concentration of any constituent listed in Condition III.E.1 which is above the appropriate PQL or EQL listed in the approved analytical method(s) specified in Section C of the approved permit application.

   b. The concentration of any constituent detected which was not detected during the previous sampling event.

   c. The concentration of any constituent that exhibits a progressive increase over four (4) consecutive sampling events.

9. Originally beginning the 2nd Quarter 2015, and for the 2nd Quarter every five (5) years thereafter, the Permittee must report the concentration of any tentatively identified compound (TIC) detected by laboratory analysis of that monitoring event. This information must be provided in the report required by Condition III.K.10 below.

10. For any 35 Ill. Adm. Code 724, Appendix I constituent found in the analysis required by Condition III.F.8 above that is not currently included in Condition III.E.1 the Permittee must, within 30 days, resample all of the monitoring wells listed in Condition III.D.1 for the detected constituent. If the results of the second analysis confirm the presence of the constituent in groundwater, the Permittee must follow the procedures of Condition III.K.13 below.

G. GROUNDWATER ELEVATION

1. The Permittee shall determine the groundwater surface elevation referenced to the nearest 0.01 foot MSL at each well each time groundwater is sampled in accordance with Condition III.K.3.

2. The Permittee shall report the surveyed elevation of stick-up, referenced to MSL, when the well is installed (with as-built diagrams) and every two (2) years (during the First or Second Quarter), or at the request of the Illinois EPA, or whenever the elevation changes in accordance with Condition III.K.5.

3. Elevation, as referenced to MSL, of the bottom of each monitoring well (STORET 72020), shall be taken in the event a performance problem is identified with the dedicated pumps found in the monitoring wells. Additionally, the elevation of the bottom of each

monitoring well shall be taken whenever the downhole equipment is removed from the monitoring well.

H. SAMPLING AND ANALYSIS PROCEDURES

The Permittee shall use the techniques and procedures described in approved permit application when obtaining samples from the groundwater monitoring wells described in Condition III.D.1 above with the following conditions:

1. Samples shall be collected by the techniques described in the approved permit application.

2. Samples shall be preserved, shipped, and handled in accordance with the procedures specified in the approved permit application.

3. Samples shall be analyzed according to the procedures specified in the approved permit application.

4. Samples shall be tracked and controlled using the chain-of-custody procedures specified in the approved permit application.

I. STATISTICAL PROCEDURES FOR THE GMZ MONITORING WELLS

To determine the effectiveness of the corrective action system in reducing the concentration of contaminants within the GMZ the facility must conduct the following activities:

1. The Permittee shall evaluate the quality of groundwater samples acquired during the semi-annual sampling events identified below in Condition III.K.2.

    a. List 1 GMZ Observation Zone wells shall be evaluated according to the following procedures:

        i. When measurable LNAPL is present, LNAPL thickness and elevation referenced to feet MSL for each well must be tabulated and graphed to indicate historical trends.

        ii. Measurable LNAPL/groundwater volume recovered from each recovery well must be tabulated and graphed to indicate historical trends.

        iii. Concentrations of each List G2, G3 and G5 parameter analyzed in accordance with Condition III.F.1.b at each well must be tabulated and graphed to indicate historical trends.

iv. The results of Observation Zone analyses must be reported in accordance with Condition III.K.2.

b. List 2 GMZ Perimeter wells shall be evaluated according to the following procedures:

i. The concentration of each List G2, G3 and G4 parameter shall be compared to its PQL and its respective Concentration Limit. If a List G2, G3 or G4 constituent is found to exceed the appropriate concentration limit(s) in the sample collected from the well, the Permittee may resample within thirty (30) days. If the Permittee chooses not to resample, it shall conclude that a statistically significant increase has occurred and follow the procedures in Conditions III.K.11 or III.K.12.

ii. If the Permittee chooses to resample, it must repeat the analysis for those compounds detected. Collection preservation and analysis of this resample shall be carried out in accordance with Condition III.H. If the second round of analysis indicates an exceedance of appropriate concentration limit(s), the Permittee shall conclude that a statistically significant increase has occurred and shall follow the procedures specified in Conditions III.K.11 or III.K.12.

iii. Constituents detected below the PQL shall be determined to be showing no change and no action is necessary.

iv. Constituents detected above the PQL shall be plotted on graphs which show historical concentration versus time. Plots indicating statistically significant increasing trends shall be reported, in accordance with Condition III.K.14 below, as a potential area of increasing contamination. The trend analysis must be based on data from a minimum of four (4) and a maximum of the ten (10) most recent consecutive sampling events and use of an appropriate trend test (e.g. Mann-Kendall Trend Test or Sen's Trend Estimator) of the 95% confidence level. In addition, this report shall contain an evaluation as to whether the corrective actions are operating effectively and whether adjustments or additional remedial actions are necessary based on this trend.

v. If the Permittee determines at any time that free product is present in any GMZ Perimeter well listed in Condition III.D.1, List 2, it must be reported and addressed in accordance with Condition III.K.11 and III.K.12 below.

J. STATISTICAL PROCEDURES FOR THE AREA 3 MONITORING WELLS OUTSIDE THE GMZ

To monitor for releases of contamination to groundwater underlying Area 3 that are not associated with the GMZ, the facility must conduct the following activities:

1. The background values established for the purpose of intrawell statistical analysis for the groundwater parameters monitored at the List 3 and List 4 monitoring wells listed in Condition III.D.1 above, shall initially be established from the historical groundwater data from the initial sampling of each monitoring well under the initial RCRA Part B Permit (1988) to the Fourth Quarter 2006. This may include data from original monitoring wells and replacement wells as appropriate. The parameters for which background values must be established at the List 3 wells include the List G2, G3 and G5 parameters. The parameters monitored at the List 4 wells for which background values must be established include the List G2 parameters.

2. The background values established for the purpose of intrawell statistical analysis, shall be established from the background data set, utilizing the following procedures. This submittal shall include example calculations and shall include, in table form, all groundwater data used in the calculation for each well, the number of pieces of data used to determine the mean, and a list of derived prediction limits.

   a. For those parameters or constituents which are found to be above the PQL in 85-100 percent of the background data set, the background values for that parameter or constituent shall be calculated using the methodology described in Attachment B, Page 1. The facility must utilize a value of one half the PQL for non-detect results included in the data set.

   b. For the parameters or constituents which are found to be above the PQL in 50-85 percent of the background data set, the background values for that parameter shall be calculated using methodology described in Attachment B, Page 2 or 5 as appropriate.

   c. For those parameters or constituents in the background data set which do not meet the requirements of Conditions III.J.2.a or III.J.2.b above, the average background value shall be set at the PQL as shown in Condition III.E.1 above.

   d. Sampling and analytical procedures utilized to establish background values shall be in accordance with Condition III.H.

   e. The Permittee must determine the distribution of the background data set for each parameter that meets the requirements of III.J.2.a and III.J.2.b above.

      i. The Permittee must calculate a coefficient of variation for the background data set from each monitoring well in accordance with Attachment B.

      ii. If the coefficient of variation is less than or equal to 1.00, the facility may assume a normal data distribution for statistical analysis.

iii. In the event that the coefficient of variation is greater than 1.00, the Permittee may choose to transform the background data in lieu of proposing a non-parametric statistical procedure in accordance with Condition III.J.2.e.iv below. The Permittee must demonstrate that the original non-transformed data are inappropriate for a normal theory test.

iv. If the Permittee determines that the transformed background data does not pass the test described in Condition III.J.2.e.ii above, it must assume that the background data set is not appropriate for normal theory statistical analysis. In this event, the Permittee must submit for Illinois EPA review and approval a proposed statistical procedure that is appropriate for the distribution of the data used to establish background values, and provides a reasonable balance between the probability of falsely identifying a non-contaminating regulated unit and the probability of failing to identify a contaminating unit.

v. The Permittee may submit for Illinois EPA review and approval a proposal for an alternative procedure for evaluation of background data distribution.

3. The facility must reestablish intrawell background values at the List 3 and List 4 monitoring wells every two (2) years as follows:

   a. The parameters for which background values must be established at the List 3 wells include the List G2, G3 and G5 parameters. The parameters monitored at the List 4 wells for which background values must be established include the List G2 parameters.

   b. The facility must use a data set consisting of the results of the eight (8) most recent sampling events.

   c. The facility must utilize the procedures outlined in Conditions III.J.2.a through II.J.2.e above.

   d. Recalculated background values must be submitted for Illinois EPA review and approval by July 15 of each odd numbered calendar year beginning with July 15, 2009. This submittal shall include example calculations and shall include, in table form, all groundwater data used in the calculation for each well, the number of pieces of data used to determine the mean, and a list of derived prediction limits.

4. For those parameters and constituents which have not been sampled and analyzed in eight (8) previous sampling events, background values shall be established by the methodology approved by Condition III.J.2 above following four (4) sampling events after the effective date of this Permit. The results of this determination shall be submitted to the Illinois EPA for review and approval within 90 days from the fourth sampling event.

5. Each of the List 3 and List 4 monitoring wells in Condition III.D.1 above shall be sampled semi-annually in accordance with the schedule in Condition III.K.2 below. The semi-annual sampling events must be conducted during the Second and Fourth Quarters of each calendar year during the compliance period.

6. The groundwater quality for each List 3 and List 4 monitoring well shall be collected in accordance with Condition III.H and shall be compared to the background values which were established for that well in accordance with Condition III.J.2 or III.J.3. The value for each parameter shall be compared to the background value established for that parameter at that well.

7. For those constituents identified in Condition III.E.1 which have background values established in accordance with Conditions III.J.2.a and III.J.2.b above, the Permittee shall conduct the following statistical analysis (NOTE: This procedure shall not be used if the coefficient of variation of the background values is greater than 1.00):

   a. The difference between the measured concentration of the constituent in a sample from each well and the background value for that constituent shall be evaluated using prediction limits as described in Attachment B to this permit. If the test indicates the difference is significant at the 0.01 level, the Permittee may resample the monitoring well(s), or the Permittee may choose not to resample and shall conclude that a statistically significant increase has occurred.

   b. If a resample is obtained, it shall be analyzed for the constituent(s) which was (were) initially found to be present in the sample at a value significantly different from its background value. Collection, preservation and analysis of this resample shall be carried out in accordance with Condition III.H. The results of this resample shall be compared to the background value for the constituent, again using the statistical procedure describe in this condition. If the second round of analysis indicated the difference is significant, the Permittee shall conclude that a statistically significant increase has occurred.

8. For those constituents identified in Condition III.E.1 which have background values established in accordance with Condition III.J.2.c above, the Permittee shall conduct the following statistical analysis at each well:

   a. The measured concentration of each of these constituents present in a sample collected from each well shall be compared to the PQL. If, for a given well, (A) the measured concentration of a single constituent is greater than two (2) times the PQL, or (B) the measured concentration of any two (2) or more of these constituents is greater than the PQL, the Permittee may immediately resample from that well(s), or the Permittee may choose not to resample and shall conclude evidence of statistically significant increase has occurred.

b. If a resample is obtained, it shall be analyzed for the constituents detected above the PQL in the initial sample collected and analyzed in accordance with this condition. Collection, preservation and analysis of this sample shall be carried out in accordance with Condition III.H above. The results of this resampling shall again be compared to the PQLs as described in this condition. If the measured concentrations for this resampling fail either of the comparisons, the Permittee shall conclude that a significant change has occurred.

9. For those constituents that have intrawell background values that exceed appropriate 35 Ill. Adm. Code 620 Groundwater Quality Standards (GQSs), the facility shall conduct the following statistical evaluation:

   a. The Permittee shall conclude that there has been a statistically significant increase if any one of the following has occurred:

      i. The measured concentration of the constituent exceeds the intrawell background value calculated in accordance with Conditions III.J.1, III.J.2, or III.J.3 above; or

      ii. A trend analysis (e.g., Mann-Kendall Trend test or Sen's Trend Estimator) of the ten most recent sampling events indicates a statistically significant increasing trend at the 95% confidence level.

   b. If the statistical evaluation required in Condition III.J.9.a above indicates a statistically significant increase, the facility may immediately resample the monitoring well(s), or the Permittee may choose not to resample and shall conclude that a statistically significant increase has occurred.

   c. If a resample is obtained, it shall be analyzed for the constituent(s) that failed the evaluation in Condition III.J.9.a above. Collection, preservation and analysis of the resample shall be carried out in accordance with Condition III.H. above. The results of this resample shall again be evaluated as required by Condition III.J.9.a above substituting the resample result for the most recent sampling event. If the resample results again fail the evaluation required by Condition III.J.9.a, the facility must conclude that as statistically significant increase has occurred.

10. Each time samples are collected for the statistical comparisons required by Conditions III.J.7, III.J.8 or III.J.9 above, the Permittee shall prepare lab (trip) blanks in accordance with the procedures described in the approved permit application.

    a. If any volatile organic compound identified in Condition III.E.1 above cause the initial sample from a given well to fail the tests required by Conditions III.J.7 or III.J.8 above, and the constituent(s) is (are) found above the PQL in a field and/or lab blank associated with the collection or analysis of the sample, the Permittee shall

immediately resample the well of concern. This sample, taken to verify the concentration of those constituents found in the initial sample, shall be collected, preserved and analyzed in accordance with the procedures set forth in Condition III.H.

i. Analysis of the resample

A. If the constituent found in the blank is statistically evaluated in accordance with Condition III.J.7, the resample shall be analyzed for the constituents which failed the test and were also found in the blanks.

B. If the constituent found in the blank is statistically evaluated in accordance with Condition III.J.8, the resample shall be analyzed for all the constituents statistically evaluated in accordance with Condition III.J.8.

C. If the constituent found in the blank is statistically evaluated in accordance with Condition III.J.9, the resample shall be analyzed for the constituents statistically evaluated in accordance with Condition III.J.9.

ii. The measured concentration of the constituents in the resample shall be compared to background values in accordance with Conditions III.J.7, III.J.8, and III.J.9 above.

A. If this comparison passes the tests set forth in Condition III.J.7, III.J.8 and/or III.J.9 above, the Permittee may conclude that no significant increase has occurred for the constituents of concern at the well in question.

B. If this comparison fails the test set forth in Conditions III.J.7, III.J.8 and/or III.J.9, the Permittee shall immediately collect a "verification sample" in accordance with Conditions III.J.7, III.J.8 and III.J.9.

b. If the same problem described in Condition III.J.10.a above occurs in the analysis of the "resample" required by Conditions III.J.7, III.J.8, and III.J.9, the Permittee may collect and analyze a verification sample in accordance with Condition III.J.10.a as modified below:

i. The phrase "resample" shall be substituted for "initial sample."

ii. The verification sample need only be analyzed for those constituents which the "resample" was analyzed for.

iii. If the comparison of the analytical results fails the tests in Conditions III.J.7, III.J.8 and/or III.J.9, the Permittee shall conclude that a significant change has occurred.

c. Chemical and statistical analyses which are not affected by the interpretation of blank data shall not be repeated, except as described above.

K. REPORTING AND RECORDKEEPING

1. The Permittee shall enter all monitoring, testing and analytical data obtained in accordance with Conditions III.E, III.F, III.G, III.H, III.I and III.J into the operating record. The data must include all computations, calculated means, variance, prediction limits, and statistical or results of statistical tests that the Illinois EPA has determined to be equivalent.

2. Samples collected to meet the requirements of the groundwater monitoring described in Conditions III.E, III.F, III.G, III.H, III.I and III.J shall be collected and reported as identified in the table below. All additional information required by the groundwater monitoring program (as specified in Conditions III.E, III.F, III.G, III.H, III.I and III.J) shall also be submitted to the Illinois EPA at the address listed in Condition III.D.5 in accordance with this schedule.

Sampling Event of Calendar Year*	Samples to be Collected in the Months of	Results Submitted to the Illinois EPA by the Following
Second Quarter	April-June	July 15
Fourth Quarter	October-December	January 15

Note: Quarterly LNAPL extraction results and evaluations must be submitted semi-annually. First and second quarter LNAPL results and evaluations are to accompany the report due July 15; third and fourth quarter LNAPL results and evaluations are to accompany the report due January 15.

3. Groundwater surface elevation data, measured pursuant to Condition III.G.1, shall be collected and submitted to the Illinois EPA as identified in Condition III.K.2 above.

4. The Permittee shall report the groundwater flow rate and direction in the Dolton Sand and the Silurian Dolomite, as required by Condition III.F.5 by July 15 of each year.

5. The Permittee shall report the surveyed elevation, as required by Condition III.G.2, of the top of the well casing ("stick-up"), referenced to MSL, in accordance with the following schedule:

a. For wells identified in Condition III.D.1 above, every two (2) years (during the First or Second quarter), or at the request of the Illinois EPA, or whenever the elevation changes.

b. For any new wells, at the time of installation and reported in the as-built diagrams. Subsequent measurements shall be made every two (2) years (during the First or Second quarter), or at the request of the Illinois EPA, or whenever the elevation changes.

6. Elevation of the bottom of each monitoring well identified in Condition III.D.1 referenced to MSL, is to be reported when maintenance activities are conducted in accordance with Condition III.K.7 below. This measurement shall be taken during the first semi-annual sampling event and reported by July 15 of that year.

7. The Permittee shall maintain all equipment associated with groundwater monitoring wells. Dedicated pumps found in monitoring wells identified in Condition III.D.1 must be removed, inspected and repaired if necessary every five (5) years. Information regarding the inspection and maintenance of pumps must be reported by July 15 of that year.

8. The Permittee shall submit a completed "RCRA Facility Groundwater, Leachate and Gas Reporting Form" (LPC 592) as a cover sheet for any notices or reports required by the facility's Permit for identification purposes. Only one (1) copy of the LPC 592 must accompany your submittal. However, the Permittee must submit one (1) original and (excluding the groundwater and leachate monitoring results submitted in an electronic format) a minimum of two (2) copies of each notice or report submitted to the Illinois EPA. The form is not to be used for Permit modification requests.

9. Information required by Conditions III.F above must be submitted in an electronic format. The information is to be submitted, as fixed-width text files formatted as found in Attachment A to this Permit, in accordance with the schedule in Condition III.K.2 above. Additional guidance regarding the submittal of the information in an electronic format can be found at https://www2.illinois.gov/epa/topics/waste-management/groundwater-monitoring/electronic-reporting/Pages/default.aspx.

10. In addition to submitting analytical results electronically as required by Condition III.K.9 above, a summary report describing the results of the groundwater sampling event must be submitted after each sampling event in accordance with the schedule found in Condition III.K.2 above. These reports must include, but not be limited to:

a. A description of any problems encountered during the event.

b. A tabulated summary of groundwater and analytical data collected during the sampling event including the appropriate groundwater quality standard, appropriate PQL, and appropriate derived background value for each parameter.

c. A summary table of groundwater elevations collected during the sampling event and potentiometric map(s) based on that data.

d. Copies of any statistical analysis required to be conducted in accordance with Conditions III.I and III.J.

e. Information required by Condition III.F.6, III.F.7, III.F.8, III.F.9 and III.F.10 above.

11. If the Permittee determines pursuant to Condition III.I.1.b above that any Concentration Limits specified in the Groundwater Protection Standard are being exceeded at any monitoring well within the List 2 GMZ Perimeter wells, or pursuant to Condition III.J.6 that a statistically significant increase has occurred in any of the List 3 Dolomite or List 4 Dolton Sand monitoring wells, the Permittee shall:

    a. Notify the Illinois EPA of this finding in writing within seven (7) days. The notification must indicate what exceedances have been observed.

    b. Within 90 days of the date that the increase is discovered, submit to the Illinois EPA a request for modification to the Corrective Action Program to meet the requirements of 35 Ill. Adm. Code 724.200. The application must at a minimum included the following information:

        i. A detailed description of corrective actions that will achieve compliance with the Groundwater Protection Standard.

        ii. A plan for a groundwater monitoring program that will demonstrate the effectiveness of the corrective action. Such a groundwater monitoring program may be based on a compliance monitoring program.

12. If the Permittee determines, pursuant to Condition III.I.1.b that the groundwater Concentration Limits in Condition III.E are being exceeded at any GMZ Perimeter well, or that a statistically significant increase has occurred in any of the List 3 Dolomite or List 4 Dolton Sand monitoring wells, the Permittee may demonstrate that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis or statistical evaluation, or natural variation in groundwater. In making a demonstration under this condition, the Permittee shall:

    a. Notify the Illinois EPA in writing within seven (7) days of the date that the increase is discovered that they intend to make this demonstration under this condition;

b. Within ninety (90) days, 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 an error in sampling analysis or evaluation;

c. Within ninety (90) days, submit to the Illinois EPA an application to make any appropriate changes to the corrective action monitoring program at the facility; and

d. Continue to monitor in accordance with Condition III.F.

13. If the Permittee determines that additional constituents not currently part of the Groundwater Protection Standard are present in the groundwater, the Permittee shall:

a. Report the concentration of these additional constituents detected in the groundwater to the Illinois EPA within seven (7) days of receipt of the analytical data from the laboratory; and

b. Within thirty (30) days of the date that the additional constituents are confirmed, submit a permit modification request to add the additional constituents to the monitoring list of the Groundwater Protection Standard, Lists G2 and G3 and establish the concentration limit for each additional constituent following procedures in Condition III.J.2 above.

14. The Permittee shall submit a written report to the Illinois EPA annually which discusses the effectiveness of the Corrective Action Program and place it in the operating record for the facility. The report must be submitted as a standalone document by July 15 of each year that the Corrective Action Program is in effect. At a minimum, the report must:

a. Present a detailed summary of the information requirements in Conditions III.E, III.F, III.G, III.H, III.I and III.J presented during the previous calendar year;

b. Evaluate the effectiveness of the hydraulic control and contaminant removal from the Groundwater Remediation System; and

c. Provide recommendations for the Corrective Action Program based on the information provided in III.K.14.a and III.K.14.b above.

d. This annual report may also be used to fulfill the Second Quarter reporting requirements listed in Conditions II.J.10 and III.K.10, provided that all information required by Conditions II.J.10 and III.K.10 is included.

15. In accordance with 35 Ill. Adm. Code 620.250(c), a review of the GMZ must take place no less often than every five (5) years and the results shall be presented to the Illinois EPA in a written report. The most recent review was approved by permit modification B-27R-

M-87 dated March 23, 2020. The next GMZ review must be submitted to the Illinois EPA by March 31, 2025.

L. REQUEST FOR PERMIT MODIFICATION

1. If the Permittee or the Illinois EPA determines that the corrective action program no longer satisfies the requirements of 35 Ill. Adm. Code 724, Subpart F, the Permittee must, within ninety (90) days, submit an application for a permit modification to make any appropriate changes to the program which will satisfy the regulations.

2. Conditions in this section of this Permit may be modified in accordance with 35 Ill. Adm. Code 705.128 if there is cause for such modification, as defined in 35 Ill. Adm. Code 702.184. Causes for modification identified in this section include, but are not limited to, alteration to the permitted facility, additional information which would have justified the application of different permit conditions at the time of issuance, and new regulations.

SECTION IV:
CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS

A. INTRODUCTION

1. 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 waste constituents from any solid waste management unit (SWMU) at its facility in Calumet City, Illinois. This section contains the conditions which must be followed to ensure these requirements are met.

2. The Illinois EPA may include restrictions upon the future use of Area 1 and Arera 2 if necessary, to protect public health and the environment, including permanent prohibition of the use of Area 1 and Area 2 for purposes which may create an unreasonable risk of injury to human health or the environment. After any administrative and judicial challenges to such restrictions have been exhausted, the Illinois EPA shall file such restrictions of record in the Office of the Recorder of the county in which the waste disposal site is located.

3. The Permittee shall not allow the property where Area 1 and Aera 2 are located to be used in a way that could disturb the integrity of the final cover, liners, any components of the containment system, or function of the facility's monitoring systems, unless the Illinois EPA finds, by way of a permit modification, that such use is necessary for either of the following reasons:

    a. It is necessary to the proposed use of the property, and will not increase the potential hazard to public health or the environment, or

    b. It is necessary to reduce a threat to human health or the environment.

4. The original USEPA RCRA permit, issued March 4, 1988, contained, among other things, corrective action requirements for SWMUs at the facility. A summary of the corrective action activities completed under the initial RCRA permit overseen by USEPA is provided in Section IV.C below. This summary also discusses completed closure efforts at several former hazardous waste management units at the facility. The Permittee has implemented corrective measures, which will be maintained and monitored under this permit.

5. The Illinois EPA now has authority for imposing corrective action requirements at RCRA permitted facilities and thus will now be responsible for overseeing future corrective

action activities at this facility.

6. The Permittee must provide corrective action, as appropriate, for: (1) any newly discovered SWMUs; or (2) future releases from existing SWMUs.

7. The requirements of 35 Ill. Adm. Code 620 and 742 must be met, when applicable, in establishing remediation objectives for corrective action. In addition, all corrective action efforts must meet the requirements of 35 Ill. Adm. Code 724.201.

8. All Illinois EPA final decisions regarding RCRA corrective action at this facility are subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.

B. CORRECTIVE ACTION REQUIREMENTS

1. Groundwater contamination has been detected in groundwater monitoring wells in the Dolton Sand and the upper Silurian Dolomite aquifer at Area 3 of the CID-RDF. The groundwater contamination is in the form of light non-aqueous phase liquid (LNAPL), as well as organic constituents at concentrations which exceed the Groundwater Protection Standards established by 35 Ill. Adm. Code 724.192. A corrective action program, meeting the requirements of 35 Ill. Adm. Code 724.200, has been implemented at Area 3. Detailed information about this program may be found in Section III of this permit.

2. Corrective measures have been completed at two SWMUs. These units, which must be monitored and maintained, are Areas 1 and 2 landfills. Section IV.C to this permit contains a summary of corrective action activities completed at these SWMUs.

3. A summary of the approved correction action program for the SWMUs still of concern (the Areas 1 and 2 landfills) consists of:

   a. operation and maintenance of a landfill gas management system for the Area 1 landfill;

   b. operation and maintenance of a leachate management system for each landfill;

   c. inspecting/maintaining the final cover of each landfill.

   The monitoring and maintenance program for Areas 1 and 2 landfills shall be in accordance with the approved operating and maintenance plan for the Areas 1 and Area 2 landfills found in Appendix F-5 of the approved permit application.

4. Based on the current groundwater conditions at the facility and the requirements of the October 29, 1997 USEPA letter, the Illinois EPA has determined that groundwater monitoring of the Areas 1 and Area 2 landfills will continue to be accomplished via the groundwater monitoring programs for the Areas 3 and Area 4 landfills. The Illinois EPA reserves the right to require the installation of additional groundwater monitoring wells, as well as implementation of groundwater monitoring programs specific to the Areas 1 and/or Area 2 landfill, in the event that groundwater flow conditions change or groundwater contamination has been determined to be present in the vicinity of those landfills.

5. Leachate maintenance elevations for seven Area 1 leachate trench risers (PLC-184 through PLC-190) and eleven Area 2 leachate trench risers (PLC-270 through PLC-280) are based on quarterly measurement of ground water elevations at seven piezometers located around Area 1 (P-1 and P-2) and Area 2 (P-3E, P-4E, P-5E, P-6W, and P-7W) screeded in the Dolton Sand. Leachate maintenance elevations are established relative to groundwater elevations in the Dolton Sand because both Area 1 and 2 are surrounded by slurry walls and an inward gradient across each slurry wall is integral to the approved corrective action. Maintenance elevations are defined as 1 foot below the average groundwater elevation in the Dolton Sand and are measured quarterly.

6. The Permittee must record the leachate level in all wells at the Area 1 landfill (gas and leachate) on a monthly basis and submit the results electronically with their quarterly reports to the Illinois EPA.

7. An annual report shall be submitted to the Illinois EPA by February 1 of each year (for the preceding calendar year). This report shall document the dates of inspections, problems discovered, and actions completed to remedy any problems. This report shall also contain an evaluation of the leachate collection efforts at Area 1 landfill including recommendations, as appropriate, to modify the leachate management system to reduce the amount of leachate in the landfill so that it has minimal impact on the groundwater beneath and around Area 1.

8. The Permittee may modify the approved plans and programs set forth in this subsection; such modifications must first be approved by the Illinois EPA. Requests to modify the approved plans and programs set forth in the subsection must be submitted as requests to modify the approved corrective action program for Areas 1 and 2.

9. The Plat of Survey for the Area 1 landfill (PIN No. 29-01-100-008-0000, 29-01-200-010-0000 and 29-01-201-001-0000) and Area 2 landfill (PIN No. 25-36-300-002-0000 and 25-36-300-003-0000), Drawing No. 19-R0710, was filed with the Cook County Recorder's Office in Chicago, IL on July 19, 2019. The record data is Document No. 1920006110.

The Plat of Survey was attached to the deed to the property and serves as an instrument which is normally examined during title search that will in perpetuity notify any potential purchasers of the property that:

a. The property has been used to manage hazardous wastes;

b. The use of the property is restricted under 35 Ill. Adm. Code, Part 724, Subpart G;

c. A survey plat and record of the type of waste material in the Area 1 landfill and Area 2 landfill was filed with the Illinois EPA and the County Recorder.

C. CORRECTIVE ACTION EFFORTS COMPLETED TO DATE

The Permittee performed corrective action activities with oversight from the USEPA for Area 1 and Area 2 landfills. In a letter dated October 29, 1997, USEPA determined no additional remediation activities were required for Area 1 and Area 2 landfills. As part of the RCRA corrective action program, the Permittee conducted corrective measures to prevent releases that may occur to the Dolton Sand layer adjacent to the closed Areas 1 and 2 landfills. The USEPA and Illinois EPA have determined that corrective measures are complete. Continued monitoring of the groundwater, landfill gas management system, leachate management system and final cover for the Areas 1 and 2 landfills will be required.

Corrective measures for the Dolton Sand included construction of a slurry wall along the boundaries of Area 1 and 2 landfills. Additional corrective measures at Areas 1 and 2 landfills included: (1) installation of a leachate collection system inside the slurry wall; (2) upgrading the Landfill Gas Removal System; and (3) repair, regrading, reseeding and maintenance of the final cover for Areas 1 and 2 landfills.

The following table is a list of former hazardous waste management units (HWMU) at the facility, and thus solid waste management unit, which have been clean closed in accordance with plans approved by Illinois EPA and which need no further action.

Name of HWMU	Description
Pug Mill	This unit was used between 1980 and February 1987 for acid neutralization and solidification of liquid hazardous wastes. Illinois EPA approved certification of closure for the Pug Mill on March 27, 1992 (Illinois EPA Log No. C-317).
Drum Tipping Unit	This unit was a hydraulically operated table-like unit housed in a small roofed structure, which transferred liquid waste from drums into bulk containers for subsequent treatment, processing or disposal. Illinois EPA approved certification of closure for the

Name of HWMU	Description
	Drum Tipping Unit on June 8, 1989 (Illinois EPA Log No. C-317-M-1).
Surface Impoundments	These units were operated for storage of acidic, metal-bearing waste prior to treatment. They were referred to as the 'North Pond', the 'South Pond', the 'East Pond', and the 'West Pond'. These units were closed in accordance with a plan approved by Illinois EPA (Log No. C-317 and associated modifications). Certification of closure of these units was accepted by Illinois EPA on August 24, 2005 (Log No. C-317).
Dewatering Plant	Certified closed on July 29, 1991. IEPA acknowledged closure of this on December 7, 1999 (Log No B-27-M-73, 81, 83) by removing the tanks associated with this plant from the facility's RCRA Permit.
Drum Storage Building	Certified closed on June 14, 1995 (IEPA Log No. B-27-M-54).
Stabilization Facility	Certified closed on December 7, 1999 (IEPA Log No. B-27-M-73).
Container Storage Area	Certified closed January 13, 2005 (IEPA Log No. PS04-169).

D. GROUNDWATER SPECIFIC CORRECTIVE ACTION

1,4-dioxane has been detected in the shallow and deep groundwater present between the Area 1 and 4 landfills. A plan to investigate this contamination in the shallow groundwater, which included soil investigations, groundwater investigation, and an evaluation of the construction/operation details of the Area 1 and Area 4 landfills, was approved by IEPA on January 19, 2010 (B-27R-CA-1). On July 16, 2010, CID submitted the results of that investigation. In a letter from Illinois EPA, dated January 20, 2011 (B-27R-CA-2), IEPA concurred with CID that the source of the 1,4-dioxane is Area 1 and required CID to submit a RCRA Facility Investigation (RFI) work plan and a Current Conditions Report (CCR) for Area 1. On April 18, 2011, CID submitted their RFI and CCR to the IEPA. IEPA conditionally approved the work plan and CCR on June 21, 2011 (B-27R-CA-3). Following investigation activities, a January 2012 investigation report was conditionally approved by IEPA on July 16, 2012 (B-27R-CA-3 and 5). A Basis of Design Report was submitted by the facility on October 12, 2012 and the report was conditionally approved by IEPA on December 18, 2012 (B-27R-CA-6). A Final Design Report was submitted by the facility on March 18, 2013, and the report was conditionally approved by IEPA on October 28, 2013 (B-27R-CA-7). Installation of the approved corrective measures began in the spring of 2014. A Construction Completion Report and a proposed Groundwater Management Zone (GMZ) was

submitted to Illinois EPA on July 7, 2017 (B-27R-CA-12). This application is currently under review by Illinois EPA.

1. The Permittee shall submit quarterly reports documenting the operation, maintenance and monitoring of the groundwater extraction system and phytoremediation system at the Area 1 landfill. The reports must contain the following information:

   a. Introduction. This portion of the document should provide a brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.

   b. System Description. This portion of the document should provide a description of the corrective measures constructed/installed at the site, and identify significant equipment.

   c. Monitoring Results. This portion of the document should provide a description of the monitoring and inspection procedures to be performed on the corrective measures. A summary of the monitoring results for the corrective measure, including copies of any laboratory analyses which document system effectiveness, provide a description of the monitoring procedures and inspections performed.

   d. Effectiveness Determination. This portion of the document should provide calculations and other relevant documentation that demonstrates the effectiveness of the selected corrective measure in remediating/stabilizing contamination to the extent anticipated by the corrective measures final design. Copies of relevant analytical data should be provided to substantiate this determination.

   e. System Effectiveness Recommendation. Based upon the results of the effectiveness determination required under 5.d above, this portion of the report should provide a recommendation on continuance of the corrective measure, If the corrective measure is not performing in accordance with the final design, a recommendation on revisions of expansion of the system should be provided. Additionally, based upon the monitoring result, a schedule for achieving the cleanup objective should be included with each evaluation.

   Eventually, the Permittee must submit a final report documenting that the required corrective measures have achieved the established remediation objectives.

2. The quarterly report required by Conditions IV.D.1 above must be prepared and submitted to the Illinois EPA in accordance with the following table:

Quarter of Calendar Year	**Report for the Month of**	**Report to the Illinois EPA by the Following**
1st Quarter	January - March	April 15th
2nd Quarter	April - June	July 15th

3rd Quarter	July - September	October 15th
4th Quarter	October - December	January 15th

E. CORRECTIVE MEASURES REQUIREMENTS

1. If it is determined that corrective measures must be taken at a newly identified SWMU, then the Permittee must implement a Corrective Measures Program (CMP) for such SWMUs in general accordance with the procedures set forth in Attachment G to this permit. The corrective measures implemented by the Permittee must be sufficient to ensure the appropriate requirements of 35 Ill. Adm. Code 302, 620, 724, and 742 are met.

2. The types of corrective measures which may be implemented include, but are not limited to:

   a. Removal of the contaminants or the contaminated media so that the remaining media meet remediation objectives developed in accordance with 35 Ill. Adm. Code 742;

   b. Closing the SWMU as a landfill by establishing a proper final cover over the SWMU and then providing proper long-term monitoring/maintenance/management of: (1) leachate; (2) subsurface gas: (3) final cover system; and (4) groundwater;

   c. Establishing engineered barriers to restrict exposure to the contaminants remaining at the SWMU (necessary to certain remediation objectives developed in accordance with 35 Ill. Adm. Code 742);

   d. Establishing institutional controls to restrict activities at the facility, as necessary, to support remediation objectives established in accordance with 35 Ill. Adm. Code 742.

3. The Corrective Measures Program described in Attachment G consists of five phases:

   - Phase I--conceptual design of the selected corrective measure;

   - Phase II--development of the final design plans for the corrective measure, including installation and operation/maintenance plans;

   - Phase III--actual construction/installation/implementation of the corrective measure;

   - Phase IV—operation/maintenance/monitoring, as necessary, of the corrective measure to ensure it is being properly implemented and is properly protecting human health and the environment.

- Phase V--demonstration/verification that the corrective measure has been completed and that the established remediation objectives have been achieved.

The phases may be combined or skipped, depending on the actual corrective measure selected. The overall CMP implemented at a given SWMU must: (1) be logical in nature: and (2) allow for Illinois oversight and approval throughout the entire process. As such, it will be necessary for the Permittee to submit workplans and reports regarding all aspects of corrective measures for the Illinois EPA review and approval prior to carrying out any corrective measure activity.

4. A Phase I CMP Plan, or its equivalent, must be submitted to the Illinois EPA within ninety (90) days of the date that the Illinois EPA notifies the Permittee of the need for a Corrective Measures Program.

5. Subsequent CMP related workplans and reports must be submitted to the Illinois EPA for review and approval in accordance with a schedule approved by the Illinois EPA.

6. For units closed as landfills:

   a. The Phase II report must include a plan for the construction of a final cover system as well as a post-closure care plan (the post-closure care plan must include provisions for (1) inspecting the final cover; (2) monitoring the groundwater and soil gas; and (3) taking corrective action if any problems are observed during the inspection/monitoring effort.

   b. The Phase III report must document the construction of the approved final cover system and any other systems required for closure of the unit.

   c. During Phase IV, quarterly reports must be submitted documenting the results of the inspection/monitoring efforts as well as any corrective measures taken in response to problems observed during these efforts. It will be necessary to submit plans to the Illinois EPA for review and approval to address any groundwater quality or gas migration problems.

   d. The Phase V report will not be submitted until the post-closure care period has been completed. This report must demonstrate that all applicable post-closure requirements have been met and that the groundwater at the site meets the applicable standards.

7. Once all corrective measures have been completed, a report must be developed documenting all efforts and results associated with the completed measure, including, as appropriate, information demonstrating the approved remediation objectives for the

project have been achieved.

8. The Illinois EPA's action on all Corrective Measures Program submittals shall be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.

F. FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

1. The current cost estimate for corrective action at this facility is $10,303,004 (in 2021 dollars). This corrective action estimate includes costs associated with inspection and maintenance of Areas 1 and Area 2 landfills, operation of gas collection system at Area 1 landfill, leachate collection system at Areas 1 and 2 landfills, and groundwater remediation systems at Area 1 landfill. The Permittee shall develop its corrective action cost estimate using a minimum period of at least ten (10) years. Attachment C provides a summary of cost estimates.

2. The Permittee shall demonstrate compliance with 35 Ill. Adm. Code 724.201 by providing documentation of financial assurance using a mechanism specified in 35 Ill. Adm. Code 724.243, in at least the amount of the cost estimate required under Condition IV.F.1. The words "completion of corrective action" shall be substituted for "closure and/or post-closure", as appropriate in the financial instrument specified in 35 Ill. Adm. Code 724.251. The Illinois EPA may accept financial assurance for completion of corrective action in combination with another financial mechanism that is acceptable under 35 Ill. Adm. Code 724.246.

3. The cost estimate must be supported by a detailed breakdown of the estimated third-party cost for completing each required task. The amount of the various resources needed to complete each task must be provided, as well as the unit cost of these resources and an adjustment for contingencies. Justification for all data used in these calculations must also be provided.

4. The financial assurance requirements of 35 Ill. Adm. Code 724.201 must also be met for any investigative or corrective action efforts carried out in accordance with Sections IV.G or IV.H below. Detailed cost estimates must be developed for any activities carried out under this Section and must accompany any workplan/report submitted to Illinois EPA for review and approval.

   Appropriate documentation of financial assurance in at least the amount of the approved cost estimate must be submitted to Illinois EPA within 60 days after the cost estimates are approved.

5. All cost estimates prepared under the requirements of Conditions IV.F.1 through IV.F.4 must be submitted as a Class 1* permit modification request in accordance with 35 Ill. Adm. Code 703.281.

G. REQUIREMENTS FOR ADDRESSING NEWLY- IDENTIFIED SWMU(S) AND AREA OF CONCERN (AOC

1. The Permittee shall notify the Illinois EPA in writing of any newly-identified SWMU(s) or Areas of Concern (AOCs) discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than thirty (30) calendar days after discovery. The notification shall provide the following information, as available:

   a. The location of the newly-identified SWMUs/AOCs in relation to other SWMUs/AOCs on a scaled map or drawing;

   b. The type and past and present function of the unit;

   c. The general dimensions, capacities, and structural description of the unit (available drawings and specifications provided);

   d. The time period during which the units was operated;

   e. The specifics on all materials, including but not limited to, wastes and hazardous waste constituents, that have been or are being managed at the SWMU/AOC, to the extent available; and,

   f. The results of any relevant available sampling and analysis which may aid in determining whether releases of hazardous wastes or hazardous constituents have occurred or are occurring from the unit.

2. If the submitted information demonstrates a potential for a release of hazardous waste or hazardous constituents from the newly identified SWMU/AOC, the Illinois EPA may request, in writing, that the Permittee prepare a Solid Waste Management Unit Assessment Plan (Plan) and a proposed schedule of implementation of the Plan for any additional SWMUs/AOCs discovered subsequent to the issuance of this Permit. This Plan must propose investigations, including field investigations, if necessary, to determine the release potential to specific environmental media for the newly-identified SWMU/AOC. The Plan must demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and must include parameters sufficient to

identify migration of hazardous waste and hazardous constituents from the newly discovered SWMUs/AOCs to the environment.

3. Within ninety (90) calendar days after receipt of the Illinois EPA's request for a SWMU Assessment Plan, the Permittee shall submit the Plan to the Illinois EPA for review and approval.

4. The Illinois EPA shall either approve, conditionally approve or disapprove the Plan in writing. If the Plan is approved, the Permittee shall implement the Plan within forty-five (45) calendar days of receiving such written notification or in accordance to the terms and schedule established within the Plan and any conditions placed on it. If the Plan is disapproved, the Illinois EPA shall notify the Permittee, in writing, of the Plan's deficiencies and specify a due date for submittal of a revised plan.

5. The Permittee shall submit a report documenting the results of the approved Plan to the Illinois EPA in accordance with the schedule in the approved Plan. The report shall describe all results obtained from the implementation of the approved Plan.

6. The Permittee must implement a Corrective Measures Program, as necessary, to properly address any contamination encountered during the assessment. Guidance regarding the implementation of this program will be provided at the time Illinois EPA notifies the Permittee of the need for such a program.

H. FUTURE RELEASES FROM SWMUs

There exists a potential that a release may occur in the future from SWMUs/AOCs identified in the RFA or RFI which did not require any corrective action at the time that the RFA or RFI was completed. If the Permittee discovers that a release has occurred from a SWMU/AOC in the future, then the Illinois EPA must be notified of this release within thirty (30) days after its discovery following the procedures set forth in Condition IV.G.1 above.

Additional investigation and, as necessary, corrective measures efforts at this SWMU/AOC must be carried out in accordance with the procedure set forth in Section G above. The results of all corrective action efforts required by this condition must meet the requirements of 35 Ill. Adm. Code 724.201.

I. INTERIM MEASURES

At any time during the course of this permit, the Permittee may initiate interim measures for the purpose of preventing continuing releases and/or mitigating the results of releases and/or

mitigating the migration of hazardous wastes or hazardous waste constituents. It shall not be necessary to conduct all phases of an investigation prior to implementing an interim measure if the Illinois EPA and the Permittee agree that a problem can be corrected, or a release cleaned up, without additional study and/or without a formal Corrective Measures Study (CMS).

1. Prior to implementing any interim measures, the Permittee must submit detailed information regarding the proposed interim measure to the Illinois EPA for approval. This information shall include, at a minimum:

   a. Objectives of the interim measure, how the measure is mitigating a potential threat to human health and the environment; and/or, is consistent with, and integrated into, any long-term solution at the facility;

   b. Design, construction, and maintenance requirements;

   c. Schedules for design and construction; and

   d. Schedule for progress reports.

2. If the Illinois EPA determines that a release cannot be addressed without additional study and/or a formal CMS, then the Illinois EPA will notify the Permittee that these must be performed. Any proposal made under this provision or any other activity resulting from such proposal, including the invocation of dispute resolution, shall not affect the schedule for implementation of any other portion of the permit.

3. If the Illinois EPA determines that interim measures are necessary to protect human health or the environment, the Permittee will be notified by way of a permit modification.

SECTION V: SPECIAL CONDITIONS

A. REPOSITORY

1. The permittee shall maintain a repository at the Hegewisch Branch of the Chicago Public Library, located at 3048 East 130th Street, Chicago, Illinois. The following information shall be sent to the repository:

    a. A copy of the approved RCRA Post-Closure Renewal Permit.

    b. All permit applications and permit modification requests.

    c. All Illinois EPA responses to modification requests made to the RCRA Post-Closure Permit (Log No. B-27R3).

B. 39i CERTIFICATION

1. The permitted shall submit a current 39i certification and supporting documentation with all applications for a permit.

C. COMPLIANCE SCHEDULE

1. Within 180 days of the approval of this renewal permit, the permittee shall submit an updated Operations and Maintenance (O&M) Plan for the Area 1 and Area 2 landfills as a Class 1* permit modification request. The O&M Plan must provide specific details of the current operation and maintenance of the leachate collection and gas collection systems at Areas 1 and 2 including a diagram of each system.

SECTION VI: STANDARD CONDITIONS FOR POST CLOSURE CARE

GENERAL REQUIREMENTS

1. EFFECT OF PERMIT. The existence of a RCRA permit shall not constitute a defense to a violation of the Environmental Protection Act or Subtitle G, except for development, modification or operation without a permit. Issuance of this permit does not convey property rights or any exclusive privilege. Issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or infringement of state or local law or regulations. (35 Ill. Adm. Code 702.181)

2. PERMIT ACTIONS. This permit may be modified, reissued or revoked for cause as specified in 35 Ill. Adm. Code 703.270 through 703.273 and Section 702.186. The filing of a request by the Permittee for a permit modification or revocation, or a notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition. (35 Ill. Adm. Code 702.146)

3. SEVERABILITY. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. (35 Ill. Adm. Code 700.107)

4. PERMIT CONDITION CONFLICT. In case of conflict between a special permit condition and a standard condition, the special condition will prevail. (35 Ill. Adm. Code 702.160)

5. DUTY TO COMPLY. The Permittee shall comply with all conditions of this permit except for the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the Environmental Protection Act and is grounds for enforcement action; permit revocation or modification; or for denial of a permit renewal application. (35 Ill. Adm. Code 702.141 and 703.242)

6. DUTY TO REAPPLY. If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee must apply for a new permit at least 180 days before this permit expires, unless permission for a later date has been granted by the Illinois EPA. (35 Ill. Adm. Code 702.142 and 703.125)

7. PERMIT EXPIRATION. This permit and all conditions herein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application (see 35 Ill. Adm. Code 703.181-703.209) and through no fault of the Permittee the Illinois EPA has not issued a new permit as set forth in 35 Ill. Adm. Code 702.125.

8. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (35 Ill. Adm. Code 702.143)

9. DUTY TO MITIGATE. In the event of noncompliance with the permit, the permittee shall take all reasonable steps to minimize releases to the environment and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. (35 Ill. Adm. Code 702.144)

10. PROPER OPERATION AND MAINTENANCE. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory, and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit. (35 Ill. Adm. Code 702.145)

11. DUTY TO PROVIDE INFORMATION. The Permittee shall furnish to the Illinois EPA, within a reasonable time, any relevant information which the Illinois EPA may request to determine whether cause exists for modifying, revoking and reissuing or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Illinois EPA, upon request, copies of records required to be kept by this permit. (35 Ill. Adm. Code 702.148)

12. INSPECTION AND ENTRY. The Permittee shall allow an authorized representative of the Illinois EPA, upon the presentation of credentials and other documents as may be required by law, to:

    a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

    b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the appropriate Act, any substances or parameters at any location. (35 Ill. Adm. Code 702.149)

13. MONITORING AND RECORDS. (35 Ill. Adm. Code 702.150)

a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste must be the appropriate method from Appendix A of 35 Ill. Adm. Code 721. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, latest versions; Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, latest versions; or an equivalent method as specified in the approved Waste Analysis Plan.

b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report or application. These periods may be extended by request of the Illinois EPA at any time. The permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period as well.

c. Records of monitoring information shall include:

i. The date(s), exact place, and time of sampling or measurements;

ii. The individual(s) who performed the sampling or measurements;

iii. The date(s) analyses were performed;

iv. The individual(s) who performed the analyses;

v. The analytical technique(s) or method(s) used; and

vi. The result(s) of such analyses. (35 Ill. Adm. Code 702.150)

14. REPORTING PLANNED CHANGES. The permittee shall give written notice to the Illinois EPA as soon as possible of any planned physical alterations or additions to the permitted facility. In general, proposed changes to the facility will need to be submitted to

the Illinois EPA as permit modification request that complies with the requirements of 35 Ill. Adm. Code 703.280. (35 Ill. Adm. Codes 702.152(a))

15. CONSTRUCTION CERTIFICATION. For a new hazardous waste management facility, the permittee shall not commence treatment, storage or disposal of hazardous waste; and for a facility being modified the permittee shall not treat, store or dispose of hazardous waste in the modified portion of the facility, until:

    a. The permittee has submitted to the Illinois EPA by certified mail or hand delivery a letter signed by the permittee and a qualified professional engineer stating that the facility has been constructed or modified in compliance with the permit; and

    b. 1. The Illinois EPA has inspected the modified or newly constructed facility and finds it is in compliance with the condition of the permit; or

    2. If, within 15 days of the date of submission of the letter in paragraph (a), the permittee has not received notice from the Illinois EPA of its intent to inspect, prior inspection is waived, and the permittee may commence treatment, storage or disposal of hazardous waste. (35 Ill. Adm. Code 703.247)

16. ANTICIPATED NONCOMPLIANCE. The Permittee shall give advanced written notice to the Illinois EPA of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements, regulations, or the Act. (35 Ill. Adm. Code 702.152(b))

17. TRANSFER OF PERMITS. This permit may not be transferred by the permittee to a new owner or operator unless the permit has been modified or reissued pursuant to 35 Ill. Adm. Code 703.260(b) or 703.272. Changes in the ownership or operational control of a facility must be made as a Class 1 modification with the prior written approval of the Illinois EPA. The new owner or operator shall submit a revised permit application no later than 90 days prior to the scheduled change. (35 Ill. Adm. Code 703.260)

18. MONITORING REPORTS. Monitoring results shall be reported at the intervals specified in the permit. (35 Ill. Adm. Code 702.152(d))

19. COMPLIANCE SCHEDULES. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than specified in 35 Ill. Adm. Code 702.162. (35 Ill. Adm. Code 702.152(e))

20. TWENTY-FOUR HOUR REPORTING.

a. The Permittee shall report to the Illinois EPA any noncompliance with the permit which may endanger health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the following circumstances. This report shall include the following:

i. Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies.

ii. Information concerning the release or discharge of any hazardous waste or of a fire or explosion at the HWM facility, which could threaten the environment or human health outside the facility.

b. The description of the occurrence and its cause shall include:

i. Name, address, and telephone number of the owner or operator;

ii. Name, address, and telephone number of the facility;

iii. Date, time, and type of incident;

iv. Name and quantity of material(s) involved;

v. The extent of injuries, if any;

vi. An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable; and

vii. Estimated quantity and disposition of recovered material that resulted from the incident.

c. A written submission shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Illinois EPA may waive the five day written notice requirement in favor of a written report within fifteen days. (35 Ill. Adm. Code 702.152(f) and 703.245(b))

21. OTHER NONCOMPLIANCE. The Permittee shall report all instances of noncompliance not otherwise required to be reported under Standard Conditions 14, 15, and 16, at the

time monitoring reports, as required by this permit, are submitted. The reports shall contain the information listed in Standard Condition 20. (35 Ill. Adm. Code 702.152(g))

22. OTHER INFORMATION. Where the Permittee becomes aware that it failed to submit any relevant facts in the permit application or submitted incorrect information in a permit application or in any report to the Illinois EPA, the Permittee shall promptly submit such facts or information. (35 Ill. Adm. Code 702.152(h))

23. SUBMITTAL OF REPORTS OR OTHER INFORMATION. All written reports or other written information required to be submitted by the terms of this permit shall be sent to:

    Illinois Environmental Protection Agency
    Bureau of Land #33
    1021 North Grand Avenue East
    Springfield, Illinois 62702

24. SIGNATORY REQUIREMENT. All permit applications, reports or information submitted to the Illinois EPA shall be signed and certified as required by 35 Ill. Adm. Code 702.126. (35 Ill. Adm. Code 702.151)

25. CONFIDENTIAL INFORMATION. Any claim of confidentiality must be asserted in accordance with 35 Ill. Adm. Code 702.103 and 35 Ill. Adm. Code 161.

26. DOCUMENTS TO BE MAINTAINED AT FACILITY SITE. The Permittee shall maintain at the facility, until post-closure is complete, the following documents and amendments, revisions and modifications to these documents:

    a. Post-closure plan as required by 35 Ill. Adm. Code 724.218(a) and this permit.

    b. Cost estimate for post-closure care as required by 35 Ill. Adm. Code 724.244(d) and this permit.

    c. Operating record as required by 35 Ill. Adm. Code 724.173 and this permit.

    d. Inspection schedules as required by 35 Ill. Adm. Code 724.115(b) and this permit.

GENERAL FACILITY STANDARDS

27. GENERATOR REQUIREMENTS. Any hazardous waste generated at this facility shall be managed in accordance with the generator requirements at 35 Ill. Adm. Code Part 722.

28. SECURITY. The Permittee shall comply with the security provisions of 35 Ill. Adm. Code 724.114(b) and (c).

29. GENERAL INSPECTION REQUIREMENTS. The Permittee shall follow the approved inspection schedule. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 35 Ill. Adm. Code 724.115(c). Records of inspections shall be kept as required by 35 Ill. Adm. Code 724.115(d).

30 CLOSURE REQUIREMENTS FOR ACCUMULATION AREAS. The Permittee shall close containers storage areas, tanks, drip pads, or containment buildings used for the accumulation of on-site generated hazardous waste in accordance with the requirements identified at 35 Ill. Adm. Code 722.117(a)(8).

PREPAREDNESS AND PREVENTION

31. DESIGN AND OPERATION OF FACILITY. The Permittee shall maintain and operate the facility to minimize the possibility of fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. (35 Ill. Adm. Code 724.131)

RECORD KEEPING

32. OPERATING RECORD. The Permittee shall maintain a written operating record at the facility in accordance with 35 Ill. Adm. Code 724.173.

POST-CLOSURE

33. CARE AND USE OF PROPERTY. The Permittee shall provide post-closure care for the facility as required by 35 Ill. Adm. Code 724.217 and in accordance with the approved post-closure plan.

34. AMENDMENT TO POST-CLOSURE PLAN. The Permittee must amend the post-closure plan whenever a change in the facility operation plans or facility design affects the post-closure plan or when an unexpected event has occurred which has affected the post-closure plan pursuant to 35 Ill. Adm. Code 724.218(d).

35. COST ESTIMATE FOR POST-CLOSURE. The Permittee's original post-closure cost estimate, prepared in accordance with 35 Ill. Adm. Code 724.244, must be:

    a. Adjusted for inflation either 60 days prior to each anniversary of the date on which the first closure cost estimate was prepared or if using the financial test or corporate guarantee, within 30 days after close of the firm's fiscal year.

b. Revised whenever there is a change in the facility's post-closure plan increasing the cost of post closure.

c. Kept on record at the facility and updated. (35 Ill. Adm. Code 724.244)

36. FINANCIAL ASSURANCE FOR POST-CLOSURE CARE. The Permittee shall demonstrate compliance with 35 Ill. Adm. Code 724.245 by providing documentation of financial assurance, as required by 35 Ill. Adm. Code 724.251, in at least the amount of the cost estimates required by the previous Permit Condition. Changes in financial assurance mechanisms must be approved by the Illinois EPA pursuant to 35 Ill. Adm. Code 724.245.

Financial assurance documents submitted to Illinois EPA should be directed to the following address:

Illinois Environmental Protection Agency
Bureau of Land #24
Financial Assurance Program
1021 North Grand Avenue East
Springfield, IL 62702

37. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 Ill. Adm. Code 724.248 whenever necessary.

SECTION VII: REPORTING AND NOTIFICATION REQUIREMENTS

The reporting and notification requirements of each Section of the RCRA permit are summarized below. This summary is provided to highlight the various reporting and notification requirements of this permit.

Condition	Submittal	Due Date
SECTION I: POST-CLOSURE		
E.6.c. iv	Leachate analyses from Area 3 and Area 4	June 1 of each year
E.8.a	Notify IEPA in writing that flow into the leak detection system exceeds the action leakage rate.	7 days after the determination is made
E.8.b	Submit a preliminary assessment of the liner and leachate collection/detection system	14 days after the Permittee determines flow into the leak detection system has exceeded the action leakage rate
E.8.f	Submit a report meeting the requirements of 35 Ill. Adm. Code 724.404(b) if the action leakage rate has been exceeded	30 days after the notification that the action leakage rate has been exceeded
F.1	Leachate levels, monthly volumes and total volume of leachate removed from Area 3 for the pervious calendar year	January 31 of each year
F.2	Leachate levels, monthly volumes and total volume of leachate removed from Area 4 for the pervious calendar year	January 31 of each year
F.4, F.5	Non-compliance of leachate level for Area 3 and Area 4	July 31 (1st & 2nd Qtr.) January 31 (3rd & 4th Qtr.)
G.3	Submit certification for completion of post-closure care and post-closure documentation report	60 days after completion of post-closure care
SECTION II: AREA 4 DETECTION MONITORING PROGRAM		
D.3	Notification/proposal to replace damaged monitoring well	30 days from date of determination
D.5	Submit as-built of additional wells to be installed	30 days after they have been installed and developed
D.5	Submit well plugging and abandonment certifications	30 days after well abandonment
E.3.c	Submit recalculated intrawell background values	July 15 of each odd numbered calendar year

Condition	Submittal	Due Date
E.4	Submit proposed background values for constituents not sampled during eight previous sampling events	90 days after fourth sampling event
F.4	Report groundwater flow rate and direction in accordance with Condition II.J.4	July 15 of every year
G.2	Report surveyed elevation of stick-up.	July 15 every two years
G.3	Report elevation of well bottom when a problem is identified, or when downhole equipment is removed	with groundwater report
J.2	Groundwater monitoring data/summary report. All information collected during preceding months of April-June and October-December	Results to Illinois EPA by: July 15 January 15
J.6 and J.7	Report elevation of well bottom when downhole equipment is removed for five-year inspection	July 15
J.11.a	Notify Illinois EPA of statistically significant increase	7 days after discovery of increase
J.11.b	Apply for permit modification establishing corrective action program	90 days after discovery of increase
J.12.a	Notify Illinois EPA that the Permittee intends to demonstrate that a source other than the regulated unit is responsible for a statistical increase or that the increase was due to error	7 days after discovery of increase
J.12.b	Submit report which demonstrates that a source other than the regulated unit caused a statistical increase or that the increase resulted from error in sampling, analysis or evaluation	90 days after discovery of increase
J.12.c	Submit application for modification of Detection Monitoring program	90 days after discovery of increase
J.13.a	Report concentration of additional constituents detected	7 days after receipt of data confirming increase
J.13.b	Permit modification request to add additional constituents to Groundwater Protection Standard	30 days after the date of the confirmation of the increase
K.1	Submit application for permit modification.	90 days after determination that the compliance monitoring program no longer satisfies 35 Ill. Adm. Code 724 Subpart F requirements

Condition	Submittal	Due Date
SECTION III: AREA 3 GROUNDWATER CORRECTIVE ACTION PROGRAM		
D.3	Notification/proposal to replace damaged monitoring well	30 days from date of determination
D.5	Submit well plugging and abandonment	30 days after well abandonment from monitoring program
D.5	Submit as-built diagrams, boring logs, drawing for new and replacement wells	30 days after they have been installed and developed data sheets, grid coordinates and location
F.5	Report groundwater flow rate and direction in accordance with Condition III.K.4	July 15 of each year
G.2	Report surveyed elevation of stick-up.	July 15 every two years
G.3	Report elevation of well bottom when a problem is identified, or when downhole equipment is removed	with groundwater monitoring
J.3.d	Submit recalculated intrawell background values	July 15 of each odd numbered calendar year
J.4	Submit proposed background values for constituents not sampled during eight previous sampling events	90 days after fourth sampling event
K.2	Groundwater monitoring data/summary report All information collected during preceding months of April-June and October-December	July 15 January 15
K.6 and K.7	Report elevation of well bottom when downhole equipment is removed for five-year inspection	July 15
K.11.a	Notify Illinois EPA of statistically significant increase	7 days after discovery of increase
K.11.b	Submit request to modify Corrective Action Program	90 days after discovery of increase
K.12.a	Notify Illinois EPA that the Permittee intends to demonstrate that a source other than the regulated unit is responsible for a statistical increase or that the increase was due to error	7 days after discovery of increase
K.12.b	Submit report which demonstrates that a source other than the regulated unit caused a statistical increase or that the increase resulted from error in sampling, analysis or evaluation	90 days after discovery of increase
K.12.c	Submit application for modification of Corrective Action monitoring program	90 days after discovery of increase
K.13.a	Report concentration of additional constituents detected	7 days after receipt of data confirming increase

Condition	Submittal	Due Date
K.13.b	Permit modification request to add additional constituents to Groundwater Protection Standard	30 days after the date of the confirmation of the increase
K.14	Annual evaluation of Corrective Action Program	July 15
SECTION IV: CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS		
B.6	Submit quarterly leachate levels and quantity removed report for Area 1 landfill.	April 15 July 15 October 15 January 15
B.7	Submit annual monitoring and maintenance report for Area 1 and Area 2 landfills	February 1 of each year
D.1	Submit quarterly ground water remediation report for Area 1 landfill	April 15 July 15 October 15 January 15
E.4	Phase I Corrective Measures Program Plan	Within 90 days of notification from Illinois EPA
F.4	Shall meet the requirements of 35 Ill. Adm. Code 724.201 and provide financial assistance to Illinois EPA in the amount approved	Within 60 days after the cost estimates are approved by Illinois EPA
G.1	Notify Illinois EPA in writing of any newly identified SWMUs discovered during the course of groundwater monitoring	30 calendar days after discovery
G.3	SWMU Assessment Plan	Within 90 days of request from Illinois EPA
G.5	SWMU Assessment Plan Report	In accordance with approved Plan
H	Notify Illinois EPA of any releases from SWMUs	30 days after its discovery
SECTION V: SPECIAL CONDITIONS		
B	Current 39i certification and supporting documentation	With all applications for a permit
SECTION VI: STANDARD CONDITIONS		
6	Complete application for new permit	180 days prior to permit expiration
11	Information requested by the Illinois EPA and copies of records required to be kept by this permit	Submittal date to be determined by the Illinois EPA
14	Notify Illinois EPA of planned physical alterations or additions	As soon as possible.

Condition	Submittal	Due Date
16	Notify Illinois EPA of changes which may result in permit noncompliance	Within 15 days of change
17	Application for permit modification indicating permit is to be transferred	at least 90 days prior to transfer date
19	Submission of any information required in a compliance schedule	14 days after each schedule date
20	Report to the Illinois EPA any non-compliance which may endanger health or environment	
	By telephone	24 hours after discovery, and
	In writing	5 days after discovery
21	Report all other instances of non-compliance.	With monitoring report required by this permit
34	Application for permit modification amending post-closure plan	When a change in operation or design affects the post-closure plan
35(a)	Adjust post-closure cost estimate for inflation	60 days prior to anniversary date
35(b)	Revision of post closure-cost estimate.	Whenever there is a change that increases costs
36	Change in financial assurance mechanism for post-closure	As needed
37	Notify Illinois EPA of commencement of voluntary or involuntary bankruptcy proceedings	10 days after commencement of proceeding

ATTACHMENT A

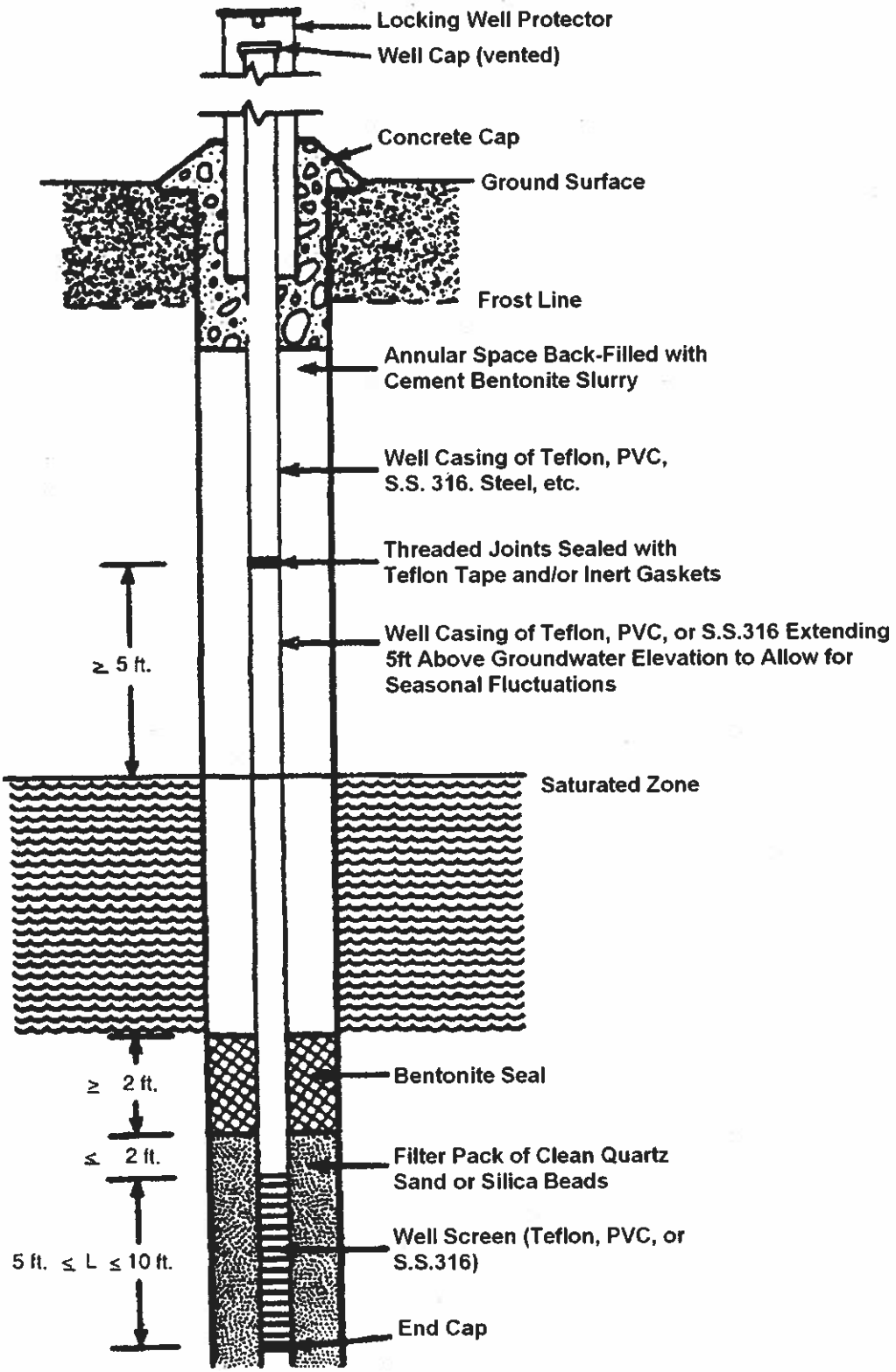
GROUNDWATER MONITORING ATTACHMENTS

STATE ID # 0310390001

ILD010284248

POST-CLOSURE PERMIT LOG NO. B-27R2

Monitoring Well Diagram



ILLINOIS EPA MONITOR WELL PLUGGING AND ABANDONMENT PROCEDURES

	Well Construction		Plugging Procedure
I. Unconsolidated Sediment Wells	I-A	...if backfilled with cement grout above bentonite seal and/or sandpack:	1. Cut casing off at desired depth. 2. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). 3. Insert tremi pipe (1" i.d. pvc) into well and extend to bottom. 4. Slowly pump slurry under low pressure through temi pipe. 5. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. 6. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing.
	I-B	...if backfilled with soft sediments (cuttings) above bentonite seal and/or sandpack:	1. Knock out and remove thin surface concrete plug, if present. 2. Re-auger entire length of well. 3. Remove well casing from re-augured borehole. 4. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). 5. Insert tremi pipe (1" i.d. pvc) into augers and extend to bottom. 6. Slowly pump slurry under low pressure through tremi pipe. 7. Continue slow pumping until all formation water and the water slurry mix is displaced from top of casing. 8. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. 9. Pull a flight of augers (5" if in unstable materials and hole collapse is likely or 10" if in competent material and collapse is unlikely). 10. Top off cement slurry after each flight is removed.
	I-C	...if monitor well construction is unknown:	1. Follow procedures in I-A.
II. Bedrock Wells	II-A	...All bedrock monitor wells:	1. Cut casing off at desired depth. 2. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). 3. Insert tremi-pipe (1" i.d. pvc) into well and extend to bottom. 4. Slowly pump slurry under low pressure through tremi pipe. 5. Slowly withdraw pipe making sure bottom of pipe remains below pure slurry. 6. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing.

Illinois Environmental Protection Agency

Field Boring Log

Page ____ of ____

County: _____

Site File No. _____ Federal ID No. _____

Site File Name: _____

Boring No. _____ Monitoring Well No.: _____

Quadrangle: _____ Sec._____ T._____ R. _____

Surface Elevation: _____ Completion Depth: _____

Auger Depth: _____ Rotary Depth: _____

Date: Start _____ Finish: _____

UTM (or State Plane) Coord. N. (X) _____ E (Y): _____

Latitude ____° ____° ____°Longitude ____° ____° ____°

Drilling Location: _____

Drilling Equipment: _____

Elev.	Description of Material	Graphic Log	Depth in Feet	SAMPLES: Sample No.	Sample Type	Sample Recovery (X)	Potentiometer	N Value (Blow Counts)	OVA or HNU Readings	Personnel: G – D – H – H –	Remarks

Illinois Environmental Protection Agency **Well Completion Report**

Site Number: _____ County: _____

Site Name: _____ Well #: _____

State Plane Coordinate: X __ Y __ (or) Latitude: __° __' __" Longitude: __° __' __" Borehole #: _____

Surveyed by: _____ IL Registration #: _____

Drilling Contractor: _____ Driller: _____

Consulting Firm: _____ Geologist: _____

Drilling Method: _____ Drilling Fluid (Type): _____

Logged By: _____ Date Started: _____ Date Finished: _____

Report Form Completed By: _____ Date: _____

ANNULAR SPACE DETAILS

Type of Surface Seal: _____

Type of Annular Sealant: _____

Installation Method: _____

Setting Time: _____

Type of Bentonite Seal – Granular, Pellet, Slurry (Choose One)

Installation Method: _____

Setting Time: _____

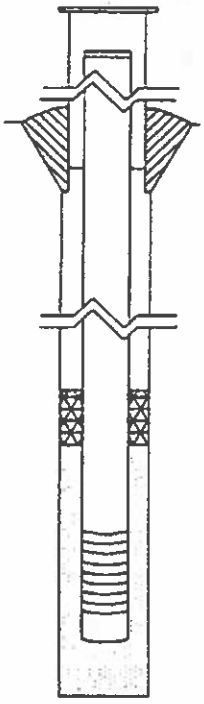
Type of Sand Pack: _____

Grain Size: _____ (Sieve Size)

Installation Method: _____

Type of Backfill Material: _____ (if applicable)

Installation Method: _____



Elevations (MSL)*	Depth (BGS) (.01ft.)	
____	____	Top of Protective Casing
____	____	Top of Riser Pipe
____	____	Ground Surface
____	____	Top of Annular Sealant
____	____	Static Water Level (After Completion)
____	____	Top of Seal
____	____	Top of Sand Pack
____	____	Top of Screen
____	____	Bottom of Screen
____	____	Bottom of Well
____	____	Bottom of Borehole

* Referenced to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
River Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other

CASING MEASUREMENTS

Diameter of Borehole (inches)	
ID of Riser Pipe (inches)	
Protective Casing Length (feet)	
Riser Pipe Length (feet)	
Bottom of Screen to End Cap (feet)	
Screen Length (1st slot to last slot) (feet)	
Total Length of Casing (feet)	
Screen Slot Size**	

**Hand-Slotted Well Screens are Unacceptable

Illinois Bureau of Land
Environmental 1021 North Grand Avenue East
Protection Agency Box 19276
Springfield, IL 62794-9276

RCRA FACILITY GROUNDWATER, LEACHATE AND GAS REPORTING FORM

This form must be used as a cover sheet for the notices and reports, identified below as required by: (1) a facility's RCRA interim status closure plan; (2) the RCRA interim status regulations; or (3) a facility's RCRA permit. All reports must be submitted to the Illinois EPA's Bureau of Land Permit Section. This form is for use by Hazardous Waste facilities only. Reporting for Solid Waste facilities should be submitted on a separate form. All reports submitted to the Illinois EPA's Bureau of Land Permit Section must contain an original, plus a minimum of two copies.

Note: This form is not to be used with permit or closure plan modification requests. The facility's approved permit or closure plan will state whether the document you are submitting is required as a report or a modification request.

Facility Name: _____ Site ID #: _____
Facility Address: _____ Fed ID #: _____

Check the appropriate heading. Only one heading may be checked for each corresponding submittal. Check the appropriate sub-heading, where applicable. Attach the original and all copies behind this form.

___ LPC-160 Forms

Groundwater
___ Quarterly – Indicate one: 1 2 3 4
___ Semi-Annual
___ Annual
___ Biennial

Leachate
___ Quarterly – Indicate one: 1 2 3 4
___ Semi-Annual
___ Annual
___ Biennial

___ Groundwater Data (without LPC-160 Forms)
___ Quarterly – Indicate one: 1 2 3 4
___ Annual ___ Semi-Annual ___ Biennial

___ Well Construction Information
___ Well Construction Forms, Boring Logs and/or Abandonment Forms
___ Well Survey Data (e.g., Stick-up Elevation Data)

___ Notice of Statistically Significant Evidence of Groundwater Contamination (35 Ill. Adm. Code 724.198)

___ Notice of Exceedence of Groundwater Concentration Limit (35 Ill. Adm. Code 724.199(h))

___ Notice of Alternate Source or Error in Sampling Analysis or Evaluation of Groundwater (35 Ill. Adm. Code 724.199(i))

___ Gas Monitoring Reports

___ Other (identify) _____

Formatting Requirements for the 01 Record of the Electronically Submitted Groundwater and Leachate Data (the 01 Record portion of the LPC-160 is included for example purposes)

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND POLLUTION CONTROL Page 1 of _____
CHEMICAL ANALYSIS FORM

RECORD CODE: L P C S M 0 1 (1–7) TRANS CODE: A (8)

REPORT DUE DATE __ __/__ __/__ __ (36 M D Y 41)

FEDERAL ID NUMBER _____

SITE INVENTORY NUMBER _____ (9–18)

MONITOR POINT NUMBER _____ (see Instructions) (19–22)

REGION _____ CO. _____

DATE COLLECTED __ __/__ __/__ __ (23 M D Y 28)

FACILITY NAME _____

FOR IEPA USE ONLY

LAB _____ (29)

DATE RECEIVED __ __/__ __/__ __ (42 M D Y 47)

BACKGROUND SAMPLE (X) _____ (54)

TIME COLLECTED __ __ : __ __ (24 Hr. Clock) (55 11 M 58)

UNABLE TO COLLECT SAMPLE _____ (see Instructions) (59)

MONITOR POINT SAMPLED BY _____ (see Instructions) (60)

OTHER (SPECIFY) _____

SAMPLE FIELD FILTERED - INORGANICS (X) _____ (61) ORGANICS (X) _____ (62)

SAMPLE APPEARANCE _____ (63–102)

COLLECTOR COMMENTS _____ (103–142)

LAB COMMENTS _____ (150–199)

Il 532 1213
LPC 160 12/2011

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 ½, Section 1004 and 1021. Disclosure of this information is required. Failure to do so may result in a civil penalty up to $25,000 for each day the failure continues a fine up to $1,000.00 and imprisonment up to one year. This form has been approved by the Forms Management Center.

All analytical procedures must be performed in accordance with the methods contained in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846, 3rd Edition, September 1986 or equivalent methods approved by the Agency. Proper sample chain of custody control and quality assurance/quality control procedures must be maintained in accordance with the facility sampling and analysis plan.

***Only Keypunch with Data in Column 35 or Columns 38-47**

KEY:

Spaces Numbered	Description	Format
Spaces 1-7	Record Code	LPCSM01
Space 8	Trans Code	A
Spaces 9-18	Site ID	0000000000
Spaces 19-22	Mon Pt ID	G000
Spaces 23-28	Date Collected	000000
Space 29	Lab	
Spaces 30-35	Filler	
Spaces 36-41	Report Due Date	000000
Spaces 42-47	Date Received	000000
Spaces 48-53	Filler 2	
Space 54	Background Sample	
Spaces 55-58	Time Collected	0000
Space 59	Unable to Collect Sample	
Space 60	Monitoring Point Sampled By	
Space 61	Field Filtered – Inorganic	
Space 62	Field Filtered – Organic	
Spaces 63-102	Sample Appearance	
Spaces 103-142	Collector Comments	
Spaces 143-149	Filler 3	
Spaces 150-159	Lab Comments	

Formatting Requirements for the 02 Record of the Electronically Submitted Groundwater and Leachate Data (the 02 Record portion of the LPC-160 is included for example purposes)

RECORD CODE | L | P | C | S | M | 0 | 2 | (1–7) TRANS CODE | A | (8) (COLUMNS 9-29 FROM ABOVE)

	FIELD MEASUREMENTS CONSTITUENT DESCRIPTION AND REQUIRED UNIT OF MEASURE	STORET NUMBER	Remarks See Inst.	Replicate	< or >	Value
Q	TEMP OF WATER (unfiltered ° F)	0 0 0 1 1 (30–34)	(35)	(36)	(37)	_____•_____ (38–47)
Q	SPEC COND (unfiltered umhos)	0 0 0 9 4				_____•_____
Q	pH (unfiltered units)	0 0 4 0 0				_____•_____
Q	ELEV OF GW SURF (ft ref MSL)	7 1 9 9 3				_____•_____
Q	DEPTH OF WATER (ft below LS)	7 2 0 1 9				_____•_____
A	BTM WELL ELEV (ft ref MSL)	7 2 0 2 0				_____•_____
Q	DEPTH TO WATER FR MEA PT (ft)	7 2 1 0 9				_____•_____
						_____•_____
						_____•_____

IL 532 1213
LPC 160 12/2011

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 ½, Section 1004 and 1021. Disclosure of this information is required. Failure to do so may result in a civil penalty up to $25,000 for each day the failure continues a fine up to $1,000.00 and imprisonment up to one year. This form has been approved by the Forms Management Center.

All analytical procedures must be performed in accordance with the methods contained in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846, 3rd Edition, September 1986 or equivalent methods approved by the Agency. Proper sample chain of custody control and quality assurance/quality control procedures must be maintained in accordance with the facility sampling and analysis plan.

***Only Keypunch with Data in Column 35 or Columns 38-47**

KEY:

Spaces Numbered	Description	Format
Spaces 1-7	Record Code	LPCSM02
Space 8	Trans Code	A
Spaces 9-18	Site ID	0000000000
Spaces 19-22	Mon Pt ID	
Spaces 23-28	Date Collected	
Space 29	Lab	
Spaces 30-34	STORET Number	
Space 35	Remarks	
Space 36	Replicate	
Space 37	< or >	
Space 38-47	Value	

ATTACHMENT B

STATISTICAL PROCEDURE

STATE ID # 0310390001

ILD010284248

POST-CLOSURE PERMIT LOG NO. B-27R2

Attachment B-1

The following statistical procedure must be followed as referenced in Section II (Area 4 Compliance Monitoring Program) and Section III (Area 3 Groundwater Corrective Action Program). This statistical procedure is only valid for normally distributed data sets.

1. Calculate the arithmetic mean, $\bar{x}_b$, of the background values as follows:

$$\bar{x}_b = \frac{x_{b1} + x_{b2} + \ldots + x_{bn}}{n}$$

where: x_b = background concentration
n = number of observations

2. Calculate the variance, S_b^2, of the background values:

$$S_b^2 = \frac{(x_{b1} - \bar{x}_b)^2 + (x_{b2} - \bar{x}_b)^2 + \ldots + (x_{bn} - \bar{x}_b)^2}{n-1}$$

3. Calculate the standard deviation, S_b, of the background values:

$$S_b = \sqrt{S_b^2}$$

4. Specify the number of future observations per well (k) and calculate the prediction limit (PL) using the following equation:

$$PL = \bar{x}_b + C * S_b$$

where: $\bar{x}_b$ = background mean value
C = factor for obtaining a one-sided 99% prediction limit for k additional samples given a background sample size of n (see "Note" below)
S_b = Background standard deviation

Note: C is determined from Tables 1-3 of "Standard Prediction Intervals for the Evaluation of Groundwater Quality", R. Gibbons, Ground Water, Vol. 25, No. 4, July-August 1987. Refer to Attachment F, pages F-6 through F-8.

Reference: "Statistical Analysis of Ground-water Monitoring Data at RCRA Facilities, Interim Final Guidance", USEPA, February 1989

Attachment B-2

Cohen's Method for Calculating Estimates of the Mean and Variance of Background Measurements when Some Observations (≤ 50%) are Below the Practical Quantitation Limit (PQL)

This method is to be used only when PQLs are equal for the data set. Let n be the total number of observations, m represents the number of data points above the PQL, and x_i represents the value of the i^{th} constituent value above the PQL

1. Compute the sample mean $\bar{x}_d$ from the data above the PQL as follows:

$$\bar{x}_d = \frac{1}{m}\sum_{i=1}^{m} x_i$$

2. Compute the sample variance S_d^2 from the data above the PQL as follows:

$$S_d^2 = \sum_{i=1}^{m}\frac{(x_i - \bar{x}_d)^2}{m-1} = \frac{\sum_{i=1}^{m} x_i^2 - \frac{1}{m}(\sum_{i=1}^{m} x_i)^2}{m-1}$$

3. Compute the two parameters, h and γ (lower case gamma), as follows:

$$h = \frac{(n-m)}{n} \qquad \gamma = \frac{S_d^2}{(\bar{x} - PQL)^2}$$

where n is the total number of observations (i.e. above and below the PQL). These values are then used to determine the value of the parameter $\hat{\lambda}$ from Appendix B, Table 7 (see Attachment F.2A).

4. Estimate the corrected sample mean, which accounts for the data below the PQL, as follows:

$$\bar{x} = \bar{x}_d - \hat{\lambda}(\bar{x}_d - PQL)$$

5. Estimate the corrected sample standard deviation, which accounts for the data below the PQL, as follows:

$$S = (S_d^2 + \hat{\lambda}(\bar{x}_d - PQL)^2)^{1/2}$$

6. Use the corrected values of $\bar{x}$ and S in the procedure for constructing a prediction limit outlined in Attachment F-1.

$\bar{x}_d$ = sample mean
x_i = ith value above the PQL
m = number of data points above the PQL

h = parameter to determine λ from Appendix B, Table 7 (see Attachment B-2A).
γ = parameter to determine λ from Appendix B, Table 7 (see Attachment B-2A).
n = number of observations
S_j^2 = Sample variance
PQL = Practical Quantitation Limit
$\hat{\lambda}$ = parameter used to derive corrected $\bar{x}$ and corrected S
$\bar{x}$ = corrected sample mean
S = corrected sample standard deviation

Reference: "Statistical analysis of Ground-water Monitoring Data at RCRA Facilities, Interim Final Guidance", USEPA, February 1989

Attachment B-2A

Appendix B, Table 7, from: "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Interim Final Guidance," USEPA, February 1989.

Table 7. Values of the Parameter $\hat{\lambda}$ for Cohen's Estimates Adjusting for Nondetected Values

	h											
r	.01	.02	.03	.04	.05	.06	.07	.08	.09	.10	.15	.20
.00	.010100	.020400	.030902	.041583	.052507	.063625	.074953	.08649	.09824	.11020	.17342	.24268
.05	.010551	.021294	.032225	.043350	.054670	.066159	.077909	.08983	.10197	.11431	.17925	.25033
.10	.010950	.022082	.033398	.044902	.056596	.068483	.080563	.09285	.10534	.11804	.18479	.25741
.15	.011310	.022798	.034466	.046318	.058356	.070586	.083009	.09563	.10845	.12148	.18985	.26405
.20	.011642	.023459	.035453	.047829	.059990	.072539	.085280	.09822	.11135	.12469	.19460	.27031
.25	.011952	.024076	.036377	.048858	.061522	.074372	.087413	.10065	.11408	.12772	.19910	.27626
.30	.012243	.024658	.037249	.050018	.062969	.076106	.089433	.10295	.11667	.13059	.20338	.28193
.35	.012520	.025211	.038077	.051120	.064345	.077736	.091355	.10515	.11914	.13333	.20747	.28737
.40	.012784	.025738	.038866	.052173	.065660	.079332	.093193	.10725	.12150	.13595	.21129	.29250
.45	.013036	.026243	.039624	.053182	.066921	.080845	.094958	.10926	.12377	.13847	.21517	.29765
.50	.013279	.026728	.040352	.054153	.068135	.082301	.096657	.11121	.12595	.14090	.21882	.30253
.55	.013513	.027196	.041054	.055089	.069306	.083708	.098298	.11208	.12806	.14325	.22225	.30725
.60	.013739	.027849	.041733	.055995	.070439	.085068	.099887	.11490	.13011	.14552	.22578	.31184
.65	.013958	.028087	.042391	.056874	.071538	.086388	.10143	.11666	.13209	.14773	.22910	.31630
.70	.014171	.028513	.043030	.057726	.072505	.087670	.10292	.11837	.13402	.14987	.23234	.32065
.75	.014378	.029927	.043652	.058556	.073643	.088917	.10438	.12004	.13590	.15196	.23550	.32489
.80	.014579	.029330	.044258	.059364	.074655	.090133	.10580	.12167	.13775	.15400	.23858	.32903
.85	.014773	.029723	.044848	.060153	.075642	.091319	.10719	.12225	.13952	.15599	.24158	.33307
.90	.014967	.030107	.045425	.060923	.075606	.092477	.10854	.12480	.14126	.15793	.24452	.33703
.95	.015154	.030483	.045989	.061676	.077549	.093611	.10987	.12632	.14297	.15983	.24740	.34091
1.00	.015338	.030850	.046540	.062413	.078471	.094720	.11116	.12780	.14465	.16170	.25022	.34471

	h											
r	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.80	.90
.00	.31862	.4021	.4941	.5961	.7096	.8388	.9808	1.145	1.336	1.561	2.176	3.283
.05	.32793	.4130	.5066	.6101	.7252	.8540	.9994	1.166	1.358	1.585	2.203	3.314
.10	.33662	.4233	.5184	.6234	.7400	.8703	1.017	1.185	1.379	1.608	2.229	3.345
.15	.34480	.4330	.5296	.6361	.7542	.8860	1.035	1.204	1.400	1.630	2.255	3.376
.20	.35255	.4422	.5403	.6483	.7673	.9012	1.051	1.222	1.419	1.651	2.280	3.405
.25	.35993	.4510	.5506	.6600	.7810	.9158	1.067	1.240	1.439	1.672	2.305	3.435
.30	.36700	.4595	.5604	.6713	.7937	.9300	1.083	1.257	1.457	1.693	2.329	3.464
.35	.37379	.4676	.5699	.6821	.8060	.9437	1.098	1.274	1.475	1.713	2.353	3.492
.40	.38033	.4735	.5791	.6927	.8179	.9570	1.113	1.290	1.494	1.732	2.376	3.520
.45	.38665	.4831	.5880	.7029	.8295	.9700	1.127	1.306	1.511	1.751	2.399	3.547
.50	.39276	.4904	.5967	.7129	.8408	.9826	1.141	1.321	1.528	1.770	2.421	3.575
.55	.39679	.4976	.6061	.7225	.8517	.9950	1.155	1.337	1.545	1.788	2.443	3.601
.60	.40447	.5045	.6133	.7320	.8625	1.007	1.169	1.351	1.561	1.806	2.465	3.628
.65	.41008	.5114	.6213	.7412	.8729	1.019	1.182	1.368	1.577	1.824	2.486	3.654
.70	.41555	.5180	.6291	.7502	.8832	1.030	1.195	1.380	1.593	1.841	2.507	3.679
.75	.42090	.5245	.6367	.7590	.8932	1.042	1.207	1.394	1.608	1.851	2.528	3.705
.80	.42612	.5308	.6441	.7676	.9031	1.053	1.220	1.408	1.624	1.875	2.548	3.730
.85	.43122	.5370	.6515	.7781	.9127	1.064	1.232	1.422	1.639	1.892	2.568	3.754
.90	.43622	.5430	.6586	.7844	.9222	1.074	1.244	1.435	1.653	1.908	2.588	3.779
.95	.44112	.5490	.6656	.7925	.9314	1.085	1.255	1.448	1.668	1.924	2.607	3.803
1.00	.44592	.5548	.6724	.8005	.9406	1.095	1.287	1.461	1.882	1.940	2.626	3.827

Source: Cohen, A.C., Jr. 1961. "Tables for Maximum Liklihood Estimates: Singly Truncated and Singly Censored Samples." *Technometrics.*

Attachment B-3

Aitchison's Method for Calculating Estimates of the Mean and Variance of Background Measurements when Some Observations (≤ 50%) are Below the Practical Quantitation Limit (PQL)

This method may be used when PQLs are not equal for the dataset.

1. The corrected sample mean is calculated using the following equation:

$$\overline{X} = \left(1 - \frac{d}{n}\right)\overline{X}^*$$

2. The corrected standard deviation is calculated using the following equation:

$$S = \frac{n-(d+1)}{n-1}\left(S^*\right)^2 + \frac{d}{n}\left(\frac{n-d}{n-1}\right)\left(\overline{X}^*\right)^2$$

3. Use the corrected values of $\overline{X}$ and S in the procedure for constructing a prediction limit outlined in Attachment F-1.

$\overline{X}$ = corrected sample mean
$\overline{X}^*$ = sample mean of detected values
n = number of samples
S = corrected sample standard deviation
d = number of values below the PQL

Reference: "Statistical analysis of Ground-water Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance", USEPA, July 1992

Attachment B-4

Coefficient of Variation Test

This test is a simple check for evidence of gross nonnormality in groundwater monitoring data.

1. Calculate the sample mean ($\bar{x}$) of n observations x_i, i=1, …, n.

$$\bar{x} = \left(\sum_{i=1}^{n} x_i\right) \Big/ n$$

2. Calculate the sample standard deviation, S.

$$S = \left[\sum_{i=1}^{n} (x_i - \bar{x})^2 \Big/ n-1\right]^{1/2}$$

3. Divide the sample standard deviation by the sample mean. This ratio is the Coefficient of Variation (CV).

$$CV = S \Big/ \bar{x}$$

4. Determine if the result of Step 3 exceeds 1.00. If so, this is evidence that the assumption of normal distribution does not fit the data adequately.

Reference: "Statistical analysis of Ground-water Monitoring Data at RCRA Facilities, Interim Final Guidance", USEPA, February 1989

Attachment B-5

Table 1. Factors for Obtaining One-Sided 99% Prediction Limits for k
Additional Samples Given a Background Sample of Size n

Previous	Number of new measurements (k)														
n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
4	4.70	5.81	6.52	7.06	7.49	7.86	8.17	8.45	8.71	8.94	9.15	9.35	9.53	9.70	9.86
5	3.96	4.77	5.28	5.66	5.96	6.22	6.44	6.63	6.81	6.97	7.11	7.24	7.37	7.48	7.59
6	3.67	4.23	4.63	4.93	5.17	5.37	5.54	5.69	5.83	5.95	6.06	6.16	6.26	6.35	6.43
7	3.32	3.89	4.24	4.49	4.69	4.86	5.00	5.13	5.24	5.34	5.43	5.52	5.60	5.67	5.74
8	3.16	3.67	3.98	4.20	4.38	4.52	4.65	4.75	4.85	4.94	5.02	5.09	5.16	5.22	5.28
9	3.04	3.61	3.79	3.99	4.16	4.28	4.39	4.49	4.58	4.66	4.73	4.79	4.85	4.91	4.96
10	2.95	3.39	3.65	3.84	3.98	4.10	4.21	4.30	4.37	4.45	4.51	4.57	4.62	4.68	4.72
11	2.88	3.30	3.54	3.72	3.85	3.97	4.06	4.14	4.22	4.28	4.34	4.40	4.45	4.50	4.54
12	2.82	3.22	3.46	3.62	3.76	3.86	3.95	4.03	4.09	4.16	4.21	4.26	4.31	4.36	4.40
13	2.78	3.16	3.39	3.54	3.67	3.77	3.85	3.93	3.99	4.05	4.11	4.16	4.20	4.24	4.28
14	2.74	5.11	3.33	3.48	3.60	3.70	3.78	3.85	3.91	3.97	4.02	4.07	4.11	4.15	4.19
15	2.71	3.07	3.28	3.43	3.64	3.63	3.71	3.78	3.84	3.90	3.95	3.99	4.03	4.07	4.11
16	2.68	3.03	3.24	3.38	3.49	3.58	3.66	3.72	3.78	3.84	3.88	3.93	3.97	4.00	4.04
17	2.66	3.00	3.20	3.34	3.46	3.54	3.61	3.68	3.73	3.78	3.83	3.87	3.91	3.95	3.98
18	2.64	2.97	3.17	3.31	3.41	3.50	3.57	3.63	3.69	3.74	3.78	3.82	3.86	3.89	3.93
19	2.62	2.95	3.14	3.28	3.38	3.46	3.53	3.60	3.65	3.70	3.74	3.78	3.82	3.85	3.88
20	2.60	2.93	3.12	3.25	3.35	3.43	3.50	3.56	3.61	3.66	3.70	3.74	3.78	3.81	3.84
21	2.69	2.91	3.10	3.22	3.32	3.41	3.47	3.53	3.58	3.63	3.67	3.71	3.75	3.78	3.81
22	2.57	2.89	3.08	3.20	3.3O	3.38	3.45	3.51	3.56	3.60	3.64	3.68	3.71	3.75	3.78
23	2.66	2.88	3.06	3.18	3.28	3.36	3.42	3.48	3.53	3.58	3.62	3.65	3.69	3.72	3.75
24	2.65	2.86	3.04	3.17	3.26	3.34	3.40	3.46	3.51	3.55	3.59	3.63	3.66	3.69	3.72
25	2.64	2.85	3.03	3.15	3.24	3.32	3.39	3.44	3.49	3.53	3.57	3.61	3.64	3.67	3.70
26	2.63	2.84	3.01	3.14	3.23	3.30	3.37	3.42	3.47	3.51	3.55	3.59	3.62	3.65	3.68
27	2.62	2.83	3.00	3.12	3.21	3.29	3.35	3.41	3.45	3.50	3.53	3.57	3.60	3.63	3.66
28	2.62	2.82	2.99	3.11	3.20	3.27	3.34	3.39	3.44	3.48	3.52	3.55	3.58	3.61	3.64
29	2.61	2.81	2.98	3.10	3.19	3.26	3.32	3.38	3.42	3.46	3.50	3.54	3.57	3.60	3.62
30	2.60	2.80	2.97	3.09	3.18	3.25	3.31	3.36	3.41	3.45	3.49	3.52	3.55	3.58	3.61
31	2.50	2.79	2.96	3.08	3.17	3.24	3.30	3.35	3.40	3.44	3.47	3.51	3.54	3.57	3.59
32	2.49	2.79	2.95	3.07	3.16	3.23	3.29	3.34	3.39	3.43	3.46	3.50	3.53	3.55	3.58
33	2.49	2.78	2.94	3.06	3.16	3.22	3.28	3.33	3.37	3.41	3.45	3.48	3.51	3.54	3.57
34	2.48	2.77	2.94	3.05	3.14	3.21	3.27	3.32	3.36	3.40	3.44	3.47	3.50	3.53	3.56
35	2.48	2.77	2.93	3.04	3.13	3.20	3.26	3.31	3.35	3.39	3.43	3.46	3.49	3.52	3.54
36	2.47	2.76	2.92	3.04	3.1.2	3.19	3.25	3.30	3.35	3.39	3.42	3.45	3.48	3.51	3.53
37	2.47	2.76	2.92	3.03	3.12	3.19	3.24	3.29	3.34	3.38	3.41	3.44	3.47	3.50	3.53
38	2.46	2.75	2.91	3.02	3.11	3.18	3.24	3.29	3.33	3.37	3.40	3.44	3.46	3.49	3.52
39	2.46	2.75	2.91	3.02	3.10	3.17	3.23	3.28	3.32	3.36	3.40	3.43	3.46	3.48	3.51
40	2.46	2.74	2.90	3.01	3.10	3.17	3.22	3.27	3.31	3.35	3.39	3.42	3.45	3.47	3.50
41	2.45	2.74	2.90	3.01	3.09	3.16	3.22	3.27	3.31	3.35	3.38	3.41	3.44	3.47	3.49
42	2.45	2.73	2.89	3.00	3.09	3.15	3.21	3.26	3.30	3.34	3.37	3.41	3.43	3.46	3.48
43	2.45	2.73	2.89	3.00	3.08	3.15	3.20	3.25	3.30	3.33	3.37	3.40	3.43	3.45	3.48
44	2.44	2.73	2.88	2.99	3.08	3.14	3.20	3.25	3.29	3.33	3.36	3.39	3.42	3.45	3.47
45	2.44	2.72	2.88	2.99	3.07	3.14	3.19	3.24	3.28	3.32	3.36	3.39	3.41	3.44	3.46
46	2.44	2.72	2.88	2.98	3.07	3.13	3.19	3.24	3.28	3.32	3.35	3.38	3.41	3.43	3.46
47	2.44	2.72	2.87	2.98	3.06	3.13	3.18	3.23	3.27	3.31	3.34	3.38	3.40	3.43	3.45
48	2.43	2.71	2.87	2.98	3.06	3.12	3.18	3.23	3.27	3.31	3.34	3.37	3.40	3.42	3.45
49	2.43	2.71	2.86	2.97	3.06	3.12	3.18	3.22	3.26	3.30	3.34	3.37	3.39	3.42	3.44
50	2.43	2.71	2.86	2.97	3.05	3.12	3.17	3.22	3.26	3.30	3.33	3.36	3.39	3.41	3.44
60	2.41	2.68	2.84	2.94	3.02	3.08	3.14	3.18	3.22	3.26	3.29	3.32	3.35	3.37	3.40
70	2.40	2.67	2.82	2.92	3.00	3.06	3.12	3.16	3.20	3.24	3.27	3.30	3.32	3.35	3.37
80	2.39	2.66	2.80	2.91	2.98	3.05	3.10	3.14	3.18	3.22	3.25	3.28	3.30	3.33	3.35
90	2.38	2.65	2 79	2.89	2.97	3.03	3.08	3.13	3.17	3.20	3.23	3 26	3.29	3.31	3.33
100	2.38	2.64	2.79	2.89	2.96	3.02	3.07	3.12	3.16	3.19	3.22	3.25	3.27	3.30	3.32

Factor = $t_{(n-1,1-\alpha/k)}\sqrt{1 + 1/n}$

Table 2. Factors for Obtaining One-Sided 99% Prediction Limits for k
Additional Samples Given a Background Sample of Size n

Previous	Number of new measurements (k)													
n	16	17	18	19	20	21	22	23	24	25	26	27	28	29
4	10.01	10.16	10.30	10.43	10.55	10.67	10.79	10.90	11.00	11.11	11.21	11.30	11.40	11.49
5	7.70	7.79	7.89	7.97	8.06	8.14	8.22	8.29	8.36	8.43	8.50	8.56	8.62	8.68
6	6.51	6.58	6.65	6.72	6.79	6.85	6.90	6.96	7.02	7.07	7.12	7.17	7.21	7.26
7	5.80	5.86	5.92	5.98	6.03	6.08	6.13	6.17	6.21	6.26	6.30	6.34	6.38	6.41
8	5.34	5.39	5.44	5.49	5.53	5.57	5.61	5.65	5.69	5.73	5.76	5.80	5.83	5.86
9	5.01	5.06	5.10	5.14	5.18	5.22	5.25	5.29	5.32	5.35	5.39	5.42	5.44	5.47
10	4.77	4.81	4.85	4.89	4.92	4.96	4.99	5.02	5.05	5.08	5.11	5.14	5.16	5.19
11	4.58	4.62	4.66	4.69	4.73	4.76	4.79	4.82	4.84	4.87	4.90	4.92	4.94	4.97
12	4.44	4.47	4.51	4.64	4.57	4.60	4.63	4.65	4.68	4.71	4.73	4.75	4.77	4.80
13	4.32	4.35	4.38	4.42	4.44	4.47	4.50	4.52	4.55	4.57	4.59	4.62	4.64	4.66
14	4.22	4.25	4.28	4.31	4.34	4.37	4.39	4.42	4.44	4.46	4.48	4.50	4.52	4.54
15	4.14	4.17	4.20	4.23	4.25	4.28	4.30	4.33	4.35	4.37	4.39	4.41	4.43	4.45
16	4.07	4.10	4.13	4.15	4.18	4.20	4.23	4.25	4.27	4.29	4.31	4.33	4.35	4.37
17	4.01	4.04	4.07	4.09	4.12	4.14	4.16	4.18	4.20	4.22	4.24	4.26	4.28	4.30
18	3.96	3.99	4.01	4.04	4.06	4.08	4.11	4.13	4.15	4.17	4.18	4.20	4.22	4.24
19	3.91	3.94	3.97	3.99	4.01	4.04	4.06	4.08	4.10	4.11	4.13	4.15	4.17	4.18
20	3.87	3.90	3.92	3.95	3.97	3.99	4.01	4.03	4.05	4.07	4.09	4.10	4.12	4.14
21	3.84	3.86	3.89	3.91	3.93	3.95	3.97	3.99	4.01	4.03	4.05	4.06	4.08	4.09
22	3.80	3.83	3.85	3.88	3.90	3.92	3.94	3.96	3.98	3.99	4.01	4.03	4.04	4.06
23	3.77	3.80	3.82	3.85	3.87	3.89	3.91	3.93	3.94	3.96	3.98	3.99	4.01	4.02
24	3.75	3.77	3.80	3.82	3.84	3.86	3.88	3.90	3.92	3.93	3.95	3.96	3.98	3.99
25	3.72	3.75	3.77	3.79	3.82	3.84	3.85	3.87	3.89	3.91	3.92	3.94	3.95	3.97
26	3.70	3.73	3.75	3.77	3.79	3.81	3.83	3.85	3.87	3.88	3.90	3.91	3.93	3.94
27	3.68	3.71	3.73	3.75	3.77	3.79	3.81	3.83	3.84	3.86	3.87	3.89	3.90	3.92
28	3.66	3.69	3.71	3.73	3.75	3.77	3.79	3.81	3.82	3.84	3.85	3.87	3.88	3.90
29	3.65	3.67	3.69	3.71	3.73	3.75	3.77	3.79	3.80	3.82	3.83	3.85	3.86	3.88
30	3.63	3.66	3.68-	3.70	3.72	3.74	3.75	3.77	3.79	3.80	3.82	3.83	3.85	3.86
31	3.62	3.64	3.66	3.68	3.70	3.72	3.74	3.75	3.77	3.79	3.80	3.81	3.83	3.84
32	3.60	3.63	3.65	3.67	3.69	3.71	3.72	3.74	3.76	3.77	3.79	3.80	3.81	3.83
33	3.59	3.61	3.64	3.66	3.67	3.69	3.71	3.73	3.74	3.76	3.77	3.79	3.80	3.81
34	3.58	3.60	3.62	3.64	3.66	3.68	3.70	3.71	3.73	3.74	3.76	3.77	3.78	3.80
35	3.57	3.59	3.61	3.63	3.65	3.67	3.69	3.70	3.72	3.73	3.75	3.76	3.77	3.78
36	3.56	3.58	3.60	3.62	3.64	3.66	3.67	3.69	3.71	3.72	3.73	3.75	3.76	3.77
37	3.55	3.57	3.59	3.61	3.63	3.65	3.66	3.68	3.69	3.71	3.72	3.74	3.75	3.76
38	3.54	3.56	3.58	3.60	3.62	3.64	3.65	3.67	3.68	3.70	3.71	3.73	3.74	3.75
39	3.53	3.55	3.57	3.59	3.61	3.63	3.64	3.66	3.67	3.69	3.70	3.72	3.73	3.74
40	3.52	3.54	3.56	3.58	3.60	3.62	3.63	3.65	3.67	3.68	3.69	3.71	3.72	3.73
41	3.51	3.54	3.56	3.58	3.59	3.61	3.63	3.64	3.66	3.67	3.68	3.70	3.71	3.72
42	3.51	3.53	3.55	3.57	3.59	3.60	3.62	3.63	3.65	3.66	3.68	3.69	3.70	3.71
43	3.50	3.52	3.54	3.56	3.58	3.59	3.61	3.63	3.64	3.65	3.67	3.68	3.69	3.71
44	3.49	3.51	3.53	3.56	3.57	3.59	3.60	3.62	3.63	3.65	3.66	3.67	3.69	3.70
45	3.49	3.51	3.53	3.56	3.56	3.58	3.60	3.61	3.63	3.64	3.65	3.67	3.68	3.69
46	3.48	3.50	3.52	3.54	3.56	3.57	3.59	3.61	3.62	3.63	3.65	3.66	3.67	3.68
47	3.48	3.50	3.52	3.53	3.55	3.57	3.58	3.60	3.61	3.63	3.64	3.65	3.67	3.68
48	3.47	3.49	3.51	3.53	3.55	3.56	3.58	3.59	3.61	3.62	3.63	3.65	3.66	3.67
49	3.46	3.48	3.50	3.52	3.54	3.56	3.57	3.59	3.60	3.62	3.63	3.64	3.65	3.66
50	3.46	3.48	3.50	3.52	3 53	3.55	3.57	3.58	3.60	3.61	3.62	3.64	3.65	3.66
60	3.42	3.44	3.46	3.47	3.49	3.51	3.52	3.54	3.55	3.56	3.58	3.59	3.60	3.61
70	3.39	3.41	3.43	3.45	3.46	3.48	3.49	3.51	3.52	3.53	3.54	3.56	3.57	3.58
80	3.37	3.39	3.41	3.42	3.44	3.45	3.47	3.48	3.50	3.51	3.52	3.53	3.54	3.56
90	3.35	3.37	3.39	3.41	3.42	3.44	3.45	3.47	3.48	3.49	3.50	3.51	3.53	3.54
100	3.34	3.36	3.38	3.39	3.41	3.42	3.44	3.45	3.46	3.48	3.49	3.50	3.51	3.52

Factor = $t_{(n-1,1-a/k)}\sqrt{1 + 1/n}$

Table 3 Factors for Obtaining One-Sided 99% Predicti6n;Limits for k
Additional Samples Given a Background Sample of Size n

Previous	Number of new measurements (k)														
n	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
4	11.57	11.98	12.34	12.66	12.95	13.22	13.47	13.70	13.91	14.11	14.31	14.49	14.66	14.82	14.98
6	8.74	9.01	9.25	9.46	9.65	9.83	9.99	10.14	10.29	10.42	10.64	10.66	10.77	10.88	10.98
6	7.30	7.51	7.68	7.84	7.99	8.12	8.24	8.35	8.46	8.55	8.65	8.73	8.82	8.90	8.97
7	6.45	6.61	6.76	6.89	7.00	7.11	7.20	7.29	7.38	7.46	7.53	7.60	7.67	7.73	7.79
8	5.89	6.03	6.15	6.26	6.36	6.45	6.53	6.61	6.68	6.74	6.81	6.87	6.92	6.97	7.02
9	5.50	5.62	5.73	5.82	5.91	5.99	6.06	6.13	6.19	6.25	6.30	6.35	6.40	6.45	6.49
10	5.21	5.32	5.42	5.50	5.58	5.65	5.72	5.77	5.83	5.88	5.93	5.98	6.02	6.06	6.10
11	4.99	5.09	5.18	5.26	5.33	5.39	5.45	5.51	5.56	5.60	5.65	5.69	5.73	5.77	5.80
12	4.82	4.91	4.99	5.07	5.13	5.19	5.25	5.30	5.34	5.39	5.43	5.47	5.50	5.54	5.57
13	4.68	4.77	4.84	4.91	4.97	5.03	5.08	5.13	5.17	5.21	5.25	5.28	5.32	5.35	5.38
14	4.56	4.65	4.72	4.78	4.84	4.89	4.94	4.99	5.03	5.07	5.10	5.14	5.17	5.20	5.23
15	4.46	4.54	4.61	4.68	4.73	4.78	4.83	4.87	4.91	4.95	4.98	5.01	5.04	5.07	5.10
16	4.38	4.46	4.53	4.59	4.64	4.69	4.73	4.77	4.81	4.84	4.88	4.91	4.94	4.96	4.99
17	4.31	4.39	4.45	4.51	4.56	4.61	4.65	4.69	4.72	4.76	4.79	4.82	4.85	4.87	4.90
18	4.25	4.32	4.39	4.44	4.49	4.54	4.58	4.61	4.65	4.68	4.71	4.74	4.77	4.79	4.82
19	4.20	4.27	4.33	4.38	4.43	4.47	4.51	4.55	4.58	4.61	4.64	4.67	4.70	4.72	4.75
20	4.15	4.22	4.28	4.33	4.38	4.42	4.46	4.49	4.53	4.56	4.59	4.61	4.64	4.66	4.68
21	4.11	4.18	4.23	4.28	4.33	4.37	4.41	4.44	4.48	4.50	4.53	4.56	4.58	4.61	4.63
22	4.07	4.14	4.19	4.24	4.29	4.33	4.36	4.40	4.43	4.46	4.49	4.51	4.54	4.56	4.58
23	4.04	4.10	4.16	4.21	4.25	4.29	4.32	4.36	4.39	4.42	4.44	4.47	4.49	4.51	4.54
24	4.01	4.07	4.12	4.17	4.21	4.25	4.29	4.32	4.35	4.38	4.41	4.43	4.45	4.48	4.50
25	3.98	4.04	4.09	4.14	4.18	4.22	4.26	4.29	4.32	4.35	4.37	4.40	4.42	4.44	4.46
26	3.95	4.01	4.07	4.11	4.16	4.19	4.23	4.26	4.29	4.31	4.34	4.36	4.39	4.41	4.43
27	3.93	3.99	4.04	4.09	4.13	4.17	4.20	4.23	4.26	4.29	4.31	4.33	4.36	4.38	4.40
28	3.91	3.97	4.02	4.06	4.11	4.14	4.17	4.21	4.23	4.26	4.28	4.31	4.33	4.35	4.37
29	3.89	3.95	4.00	4.04	4.08	4.12	4.15	4.18	4.21	4.24	4.26	4.28	4.30	4.32	4.34
30	3.87	3.93	3.98	4.02	4.06	4.10	4.13	4.16	4.19	4.21	4.24	4.26	4.28	4.30	4.32
31	3.85	3.91	3.96	4.00	4.04	4.08	4.11	4.14	4.17	4.19	4.22	4.24	4.26	4.28	4.30
32	3.84	3.90	3.94	3.99	4.03	4.06	4.09	4.12	4.15	4.17	4.20	4.22	4.24	4.26	4.28
33	3.82	3.88	3.93	3.97	4.01	4.04	4.08	4.10	4.13	4.16	4.18	4.20	4.22	4.24	4.26
34	3.81	3.87	3.91	3.96	3.99	4.03	4.06	4.09	4.11	4.14	4.16	4.18	4.20	4.22	4.24
35	3.80	3.85	3.90	3.94	3.98	4.01	4.04	4.07	4.10	4.12	4.15	4.17	4.19	4.21	4.22
36	3.79	3.84	3.89	3.93	3.97	4.00	4.03	4.06	4.08	4.11	4.13	4.15	4.17	4.19	4.21
37	3.77	3.83	3.88	3.92	3.95	3.99	4.02	4.04	4.07	4.09	4.12	4.14	4.16	4.18	4.19
38	3.76	3.82	3.86	3.90	3.94	3.97	4.00	4.03	4.06	4.08	4.10	4.12	4.14	4.16	4.18
39	3.75	3.81	3.85	3.89	3.93	3.96	3.99	4.02	4.05	4.07	4.09	4.11	4.13	4.15	4.17
40	3.74	3.80	3.84	3.88	3.92	3.95	3.98	4.01	4.03	4.06	4.08	4.10	4.12	4.14	4.15
41	3.73	3.79	3.83	3.87	3.91	3.94	3.97	4.00	4.02	4.05	4.07	4.09	4.11	4.12	4.14
42	3.73	3.78	3.82	3.86	3.90	3.93	3.96	3.99	4.01	4.04	4.06	4.08	4.10	4.11	4.13
43	3.72	3.77	3.82	3.85	3.89	3.92	3.95	3.98	4.00	4.03	4.05	4.07	4.09	4.10	4.12
44	3.71	3.76	3.81	3.85	3.88	3.91	3.94	3.97	3.99	4.02	4.04	4.06	4.08	4.09	4.11
45	3.70	3.75	3.80	3.84	3.87	3.91	3.93	3.96	3.98	4.01	4.03	4.05	4.07	4.08	4.10
46	3.70	3.75	3.79	3.83	3.87	3.90	3.93	3.95	3.98	4.00	4.02	4,04	4.06	4.08	4.09
47	3.69	3.74	3.78	3.82	3.80	3.89	3.92	3.94	3.97	3.99	4.01	4.03	4.05	4.07	4.08
48	3.68	3.73	3.78	3.82	3.86	3.88	3.91	3.94	3.96	3.98	4.00	4.02	4.04	4.06	4.07
49	3.68	3.73	3.77	3.81	3.84	3.88	3.90	3.93	3.95	3.98	4.00	4.02	4.03	4.05	4.07
50	3.67	3.72	3.76	3.80	5.84	3.87	3.90	3.92	3.95	3.97	3.99	4.01	4.03	4.04	4.06
60	3.62	3.67	3.71	3.75	3.78	3.81	3.84	3.87	3.89	3.91	3.93	3.95	3.97	3.98	4.00
70	3.59	3.64	3.68	3.72	3.75	3.78	3.80	3.83	3.85	3.87	3.89	3.91	3.93	3.94	3.96
80	3.57	3.61	3.65	3.69	3.72	3.76	3.78	3.80	3.82	3.84	3.86	3.88	3.89	3.91	3.93
90	3.55	3.59	3.63	3.67	5.70	3.73	3.75	3.78	3.80	3.82	3.84	3.85	3.87	3.89	3.90
100	3.53	3.58	3.02	3.65	3.68	3.71	3.74	3.76	3.78	3.80	3.82	3.84	3.85	3.87	3.88

Factor = $t_{(n-1,1-a/k)}\sqrt{1 + 1/n}$

Attachment B-6, Table 1
CID-RDF Area 4 Landfill
Silurian Dolomite
Intrawell Background Values (ug/L)
December 2019
Illinois EPA Log No. B-27R-M-91

List G2	Concentration Limit	G02D	R06D	R08D	G10D	G16D	G18D	G20D	R04D	G05D
Toluene	1000	6	6	6	6	6	6	6	1	6
Benzene	5	5	5	5	5	5	5	5	1	5
Ethylbenzene	700	7.2	7.2	7.2	7.2	7.2	7.2	7.2	1	7.2
Xylene (total)	10000	5	5	5	5	5	5	5	2	5
BTEX (total)	11705	23.2	23.2	23.2	23.2	23.2	23.2	23.2	3	23.2
1,4-dioxane	7.7	5	5	5	5	5	5	5	5	5
List G3										
Naphthalene	140	10	10	10	10	10	10	10	5	10
Acetone	6300	100	100	100	100	100	100	100	10	100
bis(2-ethylhexyl)phthalate	6	6	6	6	6	6	6	6	5	6
chlorobenzene	100	6	6	6	6	6	6	6	1	6
methylene chloride	5	5	5	5	5	5	5	5	1	5
List G5										
Barium, dissolved (ug/L)	--	84.8	43	53	346	36.8	26.4	216	316	1330
Chloride, dissolved (mg/L)	--	72.6	51.4	32.8	193	36.1	35.7	73.7	473.0	162.0
Chromium, dissolved (ug/L)	--	PQL	PQL	PQL	PQL	PQL	PQL	PQL	4	19
Cobalt, dissolved (ug/L)	--	PQL	PQL	PQL	PQL	PQL	PQL	PQL	4	7
Lead, dissolved (ug/L)	--	PQL	PQL	PQL	PQL	PQL	PQL	PQL	10	PQL
Nickel, dissolved (ug/L)	--	PQL	PQL	PQL	PQL	PQL	PQL	PQL	10	151
Zinc, dissolved (ug/L)	--	PQL	PQL	PQL	PQL	PQL	PQL	PQL	10	PQL

Shaded value shall be evaluated in accordance with Condition II.I.4 of the Permit

Attachment B-6, Table 2
CID-RDF Area 3 Landfill
Silurian Dolomite
Intrawell Background Values (ug/L)
December 2019
Illinois EPA Log No. B-27R-M-91

List G2	Concentration Limit	A12D	R15D	G21D	R107	AW01	R16D	R26D	R27D
Toluene	1000	6	6	6	6	6	6	6	6
Benzene	5	5	5	5	5	5	5	5	5
Ethylbenzene	700	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
Xylene (total)	10000	5	5	5	5	5	5	5	5
BTEX (total)	11705	23.2	7	23.2	23.2	23.2	23.2	23.2	23.2
1,4-dioxane	7.7	5	5	5	5	3.6	5	5	5
List G3									
Naphthalene	140	10	10	10	10	10	10	10	10
Acetone	6300	100	100	100	100	100	100	100	100
bis(2-ethylhexyl)phthalate	6	6	6	6	6	6	6	6	6
chlorobenzene	100	6	6	6	6	6	6	6	6
methylene chloride	5	5	5	5	5	5	5	5	5
1,4-dichlorobenzene	75	2	2	2	2	2	2	2	2
vinyl chloride	2	2	2	2	2	2	2	2	2
List G5									
Chloride, dissolved (mg/L)	--	32.4	57.8	41.2	43.7	53	123.3	41.3	44.3

Shaded value shall be evaluated in accordance with Condition III.J.9 of the Permit.

Attachment B-6, Table 3
CID-RDF Area 4 Landfill
Dolton Sand
Intrawell Background Values (ug/L)
December 2019
Illinois EPA Log No. B-27R-M-91

List G2	Concentration Limit	G01S	G04S	G05S	G07S	G09S	G13S	R15S	R17S	G19S	G21S
Toluene	2500	6	6	6	6	6	6	6	6	6	6
Benzene	25	5	5	5	5	5	5	5	5	5	5
Ethylbenzene	1000	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
Xylene (total)	10000	5	5	5	5	5	5	5	5	5	5
BTEX (total)	13525	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2
1,4-dioxane	7.7	5	5	5	PQL	5	498	5	10.3	4.9	3588
List G6											
Arsenic, dissolved(ug/L)	--	PQL	PQL	PQL	NA	NA	PQL	PQL	NA	NA	84
Chromium, dissolved (ug/L)	--	PQL	70.90	PQL	NA	NA	PQL	PQL	NA	NA	11.7
Cobalt, dissolved (ug/L)	--	PQL	PQL	PQL	NA	NA	PQL	PQL	NA	NA	15.44
Vanadium,dissolved(ug/L)	--	PQL	PQL	PQL	NA	NA	PQL	PQL	NA	NA	16.4

Shaded value shall be evaluated in accordance with Condition II.I.4 of the Permit.

Attachment B-6, Table 4
CID-RDF Area 3 Landfill
Dolton Sand
Intrawell Background Values (ug/L)
December 2019
Illinois EPA Log No. B-27-M-91

List G2	Concentration Limit	G12S	R13S	G14S	G15S	G16S
Toluene	2500	6	6	6	6	6
Benzene	25	5	5	5	5	5
Ethylbenzene	1000	7.2	7.2	7.2	7.2	7.2
Xylene (total)	10000	5	5	5	5	5
BTEX (total)	13525	23.2	23.2	23.2	23.2	23.2
1,4-dioxane	7.7	5	5	5	5	5

ATTACHMENT C

POST CLOSURE AND CORRECTIVE ACTION COST ESTIMATES

STATE ID # 0310390001

ILD010284248

POST-CLOSURE PERMIT LOG NO. B-27R2

POST-CLOSURE AND CORRECTIVE ACTION

COST ESTIMATE SUMMARY

CID RDF

These estimates are based on using 2021 dollars and include the cost of: (1) activities carried out each year (i.e., annual costs); and (2) one-time or non-annual costs. Post-closure care for Area 3 began on May 30, 2008. Post-closure care for Area 4 began on February 18, 2010.

COST ESTIMATES

ACTIVITY	Area 1 & Area 2 landfills (SWMUs)	Area 3 landfill (HWMU)	Area 4 landfill (HWMU)	Total
Corrective Action	$10,303,004			**$10,303,004**
Post Closure Care		$12,585,185	$2,901,051	**$15,486,236**

Notes:
Post-closure care shall continue for a minimum of 30 years from the start dates listed above for Area 3 and Area 4.

ATTACHMENT D

POST CLOSURE INSPECTION SCHEDULE

&

POST CLOSURE MAINTENANCE

STATE ID # 0310390001

ILD010284248

POST-CLOSURE PERMIT LOG NO. B-27R2

ATTACHMENT D

Area 3 and Area 4 Post-Closure Inspections

Inspection Schedule

Post-closure inspections will be conducted quarterly during the first two years following closure certification, and semi-annually thereafter. Findings made during each inspection will be recorded on the post-closure inspection log. Copies of all inspection logs will be kept at CID RDF or a local Waste Management, Inc., office or storage facility. Documentation of all repairs performed, or replacements required to properly maintain the site will be kept with the inspection logs. General post-closure inspection procedures will include the following:

1. Visually inspect the perimeter fence and all gates. Check for fence integrity and note any areas of damage. Note the working condition of each gate and check to ensure that all locks and other security systems are in place and functioning.

2. Visually inspect each benchmark. Report any missing benchmarks and note any damage to the benchmarks.

3. Visually inspect the landfill cover, drainage system, and surrounding areas. Note any evidence of cover erosion, settling, or vegetative stress. Also note any unusual conditions such as odors, ponded water, or bubbling. Report any areas requiring further inspection or repairs so arrangements can be made to efficiently make all necessary repairs.

4. Visually inspect each leachate collection riser and note any damage. Check and record the liquid level in each riser. If the liquid level is found to be approaching or above the maximum acceptable level, make arrangements for leachate removal.

5. Check the secondary leachate detection system in Area 4 for the presence of liquids. Make arrangements for leachate removal if liquid is detected. Record the amount withdrawn, if applicable.

6. Visually inspect each groundwater well protective casing for damage. Check the protective casing and lock to ensure they are functioning and have not been tampered with. Note area around wells for erosion, settling or negative stress.

7. Visually inspect any required safety and emergency equipment. Report missing and/or damaged equipment.

8. Visually inspect the run-on and run-off control measures. Note any erosion, missing riprap, or other disrepair.

Following each inspection, a copy of the inspection log will be sent to the appropriate WMI personnel for review. Arrangements will also be made to repair or replace any items in order to maintain the site at a condition equal to that in the application.

Area 3 and Area 4 Post-Closure Maintenance

Post-Closure Maintenance

Maintenance activities will respond to the needs determined from the inspections. Items that may require repair include:

- Inoperative security control devices;
- slopes damaged by erosion;
- areas of differential settlement, subsidence and displacement;
- run-on and run-off control structures; and
- leachate and gas collection and removal systems.

Groundwater monitoring wells will be repaired or replaced as needed and will be decommissioned upon Agency approval.

The final cover system will be mowed at least annually and fertilized as needed (except for areas where shrubbery or other structures are present).

Corrective action for the cover materials will be taken if the following problems occur:

- ponding;
- cracks greater than one inch wide;
- gas problems;
- odor problems;
- larger areas of dead or stressed vegetation (areas greater than 50 square feet);
- vegetation with taproots growing in areas not designed to accommodate such;
- vector problems; or
- leachate popouts or seeps.

Corrective action measures for these types of problems could include regrading, addition of soils to repair cracks or to eliminate ponding, or re-seeding to re-establish vegetation.

ATTACHMENT E

APPROVED PERMIT APPLICATION IDENTIFICATION

STATE ID # 0310390001

ILD010284248

POST-CLOSURE PERMIT LOG NO. B-27R2

ATTACHMENT E
IDENTIFICATION OF APPROVED PERMIT APPLICATION

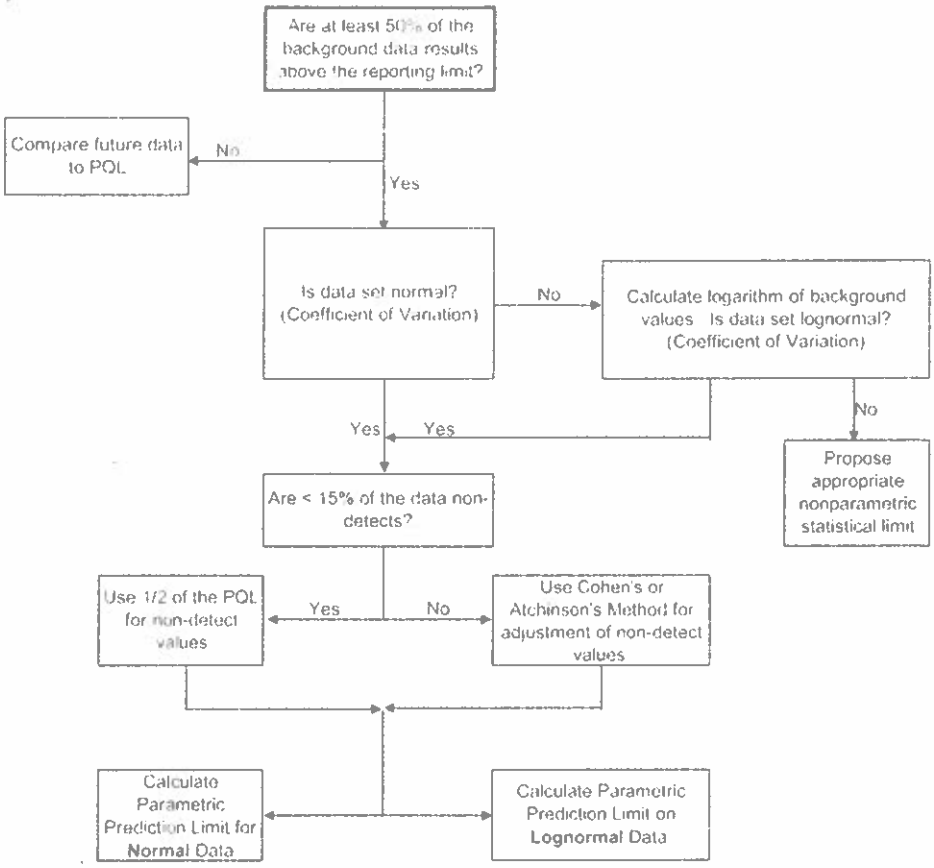
1. RCRA Post-Closure Renewal Application dated May 3, 2019 (completely replaced January 17, 2018 application)
2. Additional Information dated July 9, 2019
3. Additional Information dated August 15, 2019
4. Additional Information dated February 3, 2020
5. Additional Information dated June 30, 2020
6. Additional Information dated August 6, 2020

ATTACHMENT F

STATISTICAL PROCEDURES FLOW CHART

ILD010284248

CID Recycling and Disposal Facility
Background Statistical Calculations
Flow Chart



ATTACHMENT G

CORRECTIVE MEASURES PROGRAM REQUIREMENTS

STATE ID # 0310390001

ILD010284248

POST-CLOSURE PERMIT LOG NO. B-27R2

Attachment G
Corrective Measures Program Requirements

1.0 INTRODUCTION/PURPOSE

RCRA Corrective Action projects typically consist of two phases: (1) A RCRA Facility Investigation (RFI) where an investigation is conducted at the SWMU's of concern at a facility; and (2) implementation of corrective measures needed to properly address any contaminant encountered during the FRI. This document has been developed to outline the procedures to be carried out to implement a corrective measure program.

2.0 BRIEF OVERVIEW OF A RCRA CORRECTIVE MEASURES PROGRAM

Typically, at the end of an RFI, the concentration of contaminants present in the soil/sediments/groundwater/surface waters at a SWMU or other area of concern is compared to remediation objectives developed in accordance with 35 Ill. Adm. Code 742. If the contaminant levels are above these objectives, then some type of corrective measure must be completed to achieve these objectives. In addition, certain corrective measures may need to be carried out to support the established remediation objectives (i.e., the establishment of engineered barriers and/or institutional controls). However, at a unit where waste or high levels of contamination remains, a decision may be made to close the unit as a landfill and then provide post-closure rather than removing the material and/or achieving remediation objectives developed in accordance with 35 Ill. Adm. Code 742.

To allow for a logical and orderly progression in developing and implementing necessary corrective measures, the Corrective Measures Program (CMP) being carried out in accordance with this RCRA permit should be carried out in five phases which build on each other. It is not necessary for a corrective measures program at a given SWMU or other areas of concern to follow these five phases step-by-step; rather, phases can be combined and/or skipped, depending on the actual remedial measure selected. The overall CMP implemented must set forth a logical path for its implementation and allow for Illinois EPA oversight and approval throughout the entire process.

A brief discussion of the five phases of a CMP is as follows:

1. Phase I is the conceptual design of the selected corrective measure(s).

2. Phase II is the development of final design plans for the corrective measure, including installation and operation/maintenance plans.

3. Phase III is the actual construction/installation of the selected corrective measure.

4. Phase IV is the operation, maintenance, and monitoring of the selected corrective measure to ensure it is properly protecting human health and the environment.

5. Phase V is the final demonstration/verification that the implemented corrective measure achieved the approved remedial objectives.

Sections 3.0 through 7.0 which follow provide a more detailed discussion of each of these five phases. Section 8.0 has been developed to describe the corrective measures program which may be used in lieu of the afore-mentioned five phase procedure when soil removal is the selected remedy. It must be noted that work plans, reports, etc. must be developed to document how the Permittee carries out the required corrective measures program at each SWMU or other areas of concern. All such documents must be reviewed and approved by Illinois EPA prior to their implementation.

3.0 PHASE I OF THE CMP

Phase I of the CMP includes selection of the corrective measure to be taken and developing a basis for completing the final design of the measure. This effort should be documented in a Conceptual Design Report which describes the proposed corrective measure for each SWMU and other areas of concern and provides a conceptual design for these measures. The main criteria for Illinois EPA review is whether the proposed corrective measures are able to achieve the final cleanup objectives previously established by the Permittee and the Illinois EPA and/or provide the necessary institutional controls to prevent the migration of contaminants from the SWMU of concern. Based upon a review of the Conceptual Design Report, the Illinois EPA may approve the corrective measures, require revisions to the proposed corrective measures, or require that a totally new corrective measures proposal be submitted to the Illinois EPA.

The Conceptual Design Report should contain the following sections:

1. Introduction/Purpose. This section should contain: (1) general background information regarding the project; (2) the purpose and goals of the submittal; and (3) the scope of the project.

2. Existing Site Conditions. This section should contain a summary of the investigative activities conducted for each of the units of concern. Investigation analytical results should be provided in tabular form, and maps depicting both the horizontal and vertical extent of contamination at the site should be provided.

3. Evaluation for Potential Future Migration. Based on the existing site conditions, a conceptual model of the site should be developed and presented in this section. The potential for additional future migration of contamination for each of the units of concern must then be evaluated, especially those units which have been determined to have released hazardous waste/hazardous constituents to the groundwater. It may be helpful to develop conceptual models for contaminant

migration. Of special concern in this evaluation are (1) the physical properties of the contaminants (solubility, volatility, mobility, etc.); and (2) existing site conditions (types of soil present, location of contamination, hydrology, geology, etc.).

4. Corrective Measures Objectives. This section should discuss the general objectives of the proposed corrective measure to be constructed/installed, and the ability of the proposed corrective measure to achieve the established remediation objectives (unless the selected corrective measure is closure as a landfill which will require proper establishment of a final cover and proper post-closure care of the closed unit.

5. Identification of Options Available. This section should contain a brief discussion of the various options available to achieve the corrective measures objectives for each unit. This discussion should identify: (1) a general overview of each option available, including how the option will achieve the stated objective; (2) the advantages associated with each option; (3) the disadvantages associated with each option and (4) an estimate of the cost associated with choosing each remedial option.

6. Description of Selected Corrective Measure. This section should contain a qualitative discussion of the corrective measure chosen, along with the rationale which was used to select this measure from all those identified initially. This discussion should include documentation that the selected corrective measure will be effective.

7. Identification of Design Criteria. This section should identify what information must be available to design the selected corrective measure.

8. Review of Available Information. This section should contain an evaluation of the existing information to ensure that it is sufficient to complete the design of the selected corrective measure. If insufficient information is available, then the report should contain procedures for collecting the required additional information.

9. Procedures for Completing the Design. This section should contain a description of the procedures which will be followed to complete the design of the corrective measure. This should include as appropriate:

    a. Identification of the references and established guidance which will be used in designing the selected corrective measure. Justification for the selection of this procedure should also be provided.

b. A description of the procedures which will be used to complete the design of the corrective measure.

c. Identification of assumptions to be used in the design, and the impact these assumptions have on the overall corrective measure;

d. Significant data to be used in the design effort;

e. Identification and discussion of the major equations to be used in the design effort (including a reference to the source of the equations);

f. Sample calculations to be used in the design effort;

g. Conceptual process/schematic diagrams;

h. A site plan showing a preliminary layout of the selected corrective measure;

i. Tables giving preliminary mass balances;

j. Site safety and security provisions.

This information will form the technical basis for the detailed design of the remedial measure and the preparation of construction plans/specifications.

10. Identification of Required Permits. This section should identify and describe any necessary permits associated with the selected corrective measure, as well as the procedures which will be used to obtain these permits.

11. Long-lead Procurement Considerations. This section should identify any elements/components of the selected corrective measure which will require a large amount of time to obtain/install. The following issues should also be discussed: (1) the reason why it will take a large amount of time to obtain/install the item; (2) the length of time necessary for procurement and (3) recognized sources of such items.

12. Project Management. This section should contain information regarding the procedures and personnel which will be involved in completing the design of the selected corrective measure. A schedule for completing the design should also be provided.

4.0 PHASE II OF THE CMP

Once the Illinois EPA approves the Conceptual Design Report, the facility should complete the design of the approved corrective action (Phase II of the CMP). Upon final completion of the design, a Final Design Report, consisting of final plans, specifications, construction work plan, etc., must be submitted to the Illinois EPA for review and approval.

Several documents must be submitted to the Illinois EPA as part of Phase II of the CMP. The following text describes the expected contents of the various documents which should be developed and submitted to the Illinois EPA as part of Phase II of the CMP.

1. Final Design Report and Construction Work Plan. The Final Design Report and Construction Work Plan must contain the detailed plans, specifications and drawings needed to construct the corrective measure. In addition, this document must contain (1) calculations, data etc., in support of the final design; and (2) a detailed description of the overall management strategy, construction quality assurance procedures and schedule for constructing the corrective measure. It must be noted that the approved Conceptual Design Report forms the basis for this final report. The information which should be provided in this document includes:

    a. Introduction/Purpose. This portion of the document should: (1) provide background information regarding the project, (2) describe the purpose and goals of the project, and (3) describe the scope of the project.

    b. Detailed Plans of the Design System, including the following:

        1. Plan views;

        2. Section and supplementary views which, together with the specifications and general layouts, facilitate construction of the designed system;

        3. Dimensions and relative elevations of structures;

        4. Location and outline form of the equipment;

        5. Ground elevations; and

        6. Descriptive notations, as necessary, for clarity.

    c. Technical Specifications. Complete technical specifications for the construction of the system, including, but are not limited to, the following:

1. All construction information, not shown in the drawings, which is necessary to inform the contractor in detail as to the required quality of materials, workmanship, and fabrication of the project;

2. The type, size, strength, and operating characteristics of the equipment;

3. The complete requirements for all mechanical and electrical equipment, including machinery, valves, piping and jointing of pipe;

4. Electrical apparatus, wiring and meters;

5. Construction materials;

6. Chemicals, when used;

7. Miscellaneous appurtenances;

8. Instruction for testing materials and equipment as necessary; and

9. Availability of soil boring information.

d. Project Management. A description of the construction management approach, including the levels of authority and responsibility, lines of communication and qualifications if key personnel who will direct corrective measures construction/installation must be provided in the work plan.

e. Construction Quality Assurance/Quality Control. A construction quality assurance/quality control plan describing the procedures which will be followed to ensure the corrective measure is constructed/installed in accordance with the approved plans and specifications.

f. Schedule. The work plan must contain a schedule for completion of all major activities associated with construction/installation of the selected corrective measures. All major points of the construction/installation should be highlighted.

g. Waste Management Practices. This portion of the document should identify the wastes anticipated to be generated during the construction/installation of the corrective measures, and provide a

description of the procedures for appropriate characterization and management of these wastes.

h. Required Permits. Copies of permit applications submitted to other Bureaus of the Illinois EPA for the selected corrective measure must be provided in the report. If it is determined that no permit is required for construction/installation and implementation of the corrective measures, rationale and justification must be provided to support this contention.

i. Cleanup Verification. The report must contain the procedures which will be followed that the approved remediation objectives have been achieved when operation of the system is completed.

2. Operation and Maintenance Plan. An Operation and Maintenance Plan must be developed and submitted as part of Phase II of the CMP. This plan should outline the procedures for performing operations, long term maintenance, and monitoring of the corrective measure.

a. Introduction and Purpose. This portion of the document should provide a brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.

b. System Description. This portion of the document should provide a description of the corrective measure and significant equipment, including manufacturer's specifications. This portion of the permit should also include a narrative of how the selected system equipment is capable of complying with the final engineered design of the corrective measure.

c. Operation and Maintenance Procedures. This portion of the document should provide a description of the normal operation and maintenance procedures for the corrective measures system, including:

1. Description of tasks for operation;

2. Description of tasks for maintenance;

3. Description of prescribed treatment or operation conditions; and

4. Schedule showing the frequency of each operation and maintenance task.

d. Inspection Schedule. This portion of the document should provide a description of the procedures for inspection of the corrective measures system, including problems to look for during the inspection procedure, specific inspection items, and frequency of the inspections.

e. Waste Management Practices. This portion of the document should provide a description of the wastes generated by the corrective measure, and the appropriate procedures for proper characterization/management of these wastes.

f. Contingency Procedures. This portion of the document should provide a description of the procedures which will address the following items:

1. System breakdowns and operational problems including a list of redundant and emergency backup equipment and procedures;

2. Alternative procedures (i.e., stabilization) which are to be implemented in the event that the corrective measure fails. The alternative procedures must be able to prevent release or threatened releases of hazardous wastes/hazardous constituents which may endanger human health and the environment, or exceed cleanup standards.

3. Notification of facility and regulatory personnel in the event of a breakdown in the corrective measures, including written notification identifying what occurred, what response action is being taken and any potential impacts on human health and the environment.

5.0 PHASE III OF THE CMP

Once the final design report is approved by the Illinois EPA, construction/installation of the approved corrective measure must commence. During this period, quarterly reports should be submitted which contain the following information:

1. Summary of activities completed during the reporting period;

2. An estimate of the percentage of the work completed;

3. Summaries of all actual or proposed changes to the approved plans and specifications or its implementation;

4. Summaries of all actual or potential problems encountered during the reporting period;

5. Proposal for correcting any problems; and

6. Projected work for the next reporting period.

Upon completion of construction/installation of the approved corrective measure, a Construction Completion Report must be submitted to the Illinois EPA documenting that these efforts were carried out in accordance with the Illinois EPA approved plans and specifications. This report should contain a thorough description of the efforts that went into constructing/installing the corrective measure and demonstrate that the procedures in the Illinois EPA-approved Final Design Report were followed during this effort. Such a report should be formatted in a logical and orderly manner and contain the following information:

1. An introduction discussing the background of the project and the purpose and scope of the corrective measure described in the report.

2. Identification of the plans, technical specifications and drawings which were used in constructing/installing the corrective measure. These specifications and drawings should have been approved by the Illinois EPA during Phase II.

3. Identification of any variations from the Illinois EPA approved plans, technical specifications and drawings used in construction/installing the corrective measure. Justification regarding the need to vary from the approved plans and specifications must also be provided.

4. A description of the procedures used to construct/install the corrective measure, including the procedures used for quality assurance and quality control.

5. As-built drawings, including identification of any variations from the approved plans, technical specifications and drawings.

6. A summary of all test results from the construction/installation effort, including quality assurance/quality control testing.

7. Actual test results, including quality assurance/quality control test results. These results should be located in an attachment/appendix and be well organized.

8. Identification of any test results which did not meet the specified value and a description of the action taken in response to this failure, including re-testing efforts.

9. Photographs documenting the various phases of construction.

10. A detailed discussion of how the construction/installation effort met the requirements of the approved Final Design Report.

11. A certification meeting the requirements of 35 Ill. Adm. Code 702.126 by an independent qualified, licensed professional engineer and by an authorized representative of the owner/operator.

6.0 PHASE IV OF THE CMP

Once the corrective measure has been constructed/installed, it must be operated, maintained and monitored in accordance with the approved plans and specifications (this is Phase IV of the CMP). During this period, quarterly reports must be submitted to the Illinois EPA documenting the results of these efforts. These reports include the following:

1. Introduction. -- A brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.

2. System Description. -- A description of the corrective measures constructed/installed at the site, and identify significant equipment. Describe the corrective measure and identify significant equipment.

3. Monitoring Results. -- A description of the monitoring and inspection procedures to be performed on the corrective measures. A summary of the monitoring results for the corrective measures, including copies of any laboratory analyses which document system effectiveness, provide a description of the monitoring procedures and inspections performed, and include a summary of the monitoring results for the corrective measure. Copies of all laboratory analytical results which document system monitoring must be provided.

4. Effectiveness Determination. -- Calculations and other relevant documentation which demonstrates the effectiveness of the selected corrective measure in remediating/stabilizing contamination to the extent anticipated by the corrective measures final design. Copies of relevant analytical data should be provided to substantiate this determination.

5. System Effectiveness Recommendation. -- Based upon the results of the effectiveness determination required under Item 4 above, recommendations on continued operation of the corrective measure must be provided. If the corrective measure is not performing in accordance with the final design, a recommendation on revisions or expansion of the system should be provided.

7.0 PHASE V OF THE CMP

Once all corrective measures have been completed, a report must be developed documenting all the efforts which were carried out as part of implementing the corrective measure and demonstrating, as appropriate, that the approved remediation objectives have been achieved. This report should contain a compilation of all previous reports and also contain sufficient information to demonstrate that the approved remediation objectives have been achieved. It must be noted that such a report will not be developed for a unit closed as a landfill until the post-closure care period has been completed.

8.0 PROCEDURES WHICH SHOULD BE FOLLOWED WHEN SOIL REMOVAL IS THE SELECTED CORRECTIVE MEASURE

Sections 2.0 through 6.0 above describe the procedures which should be followed when it is necessary to design some type of physical corrective measure (e.g., a final cover system, some type of treatment system, etc.). However such detail is not necessary if excavation/removal is selected as the remedial action for the contaminated soil encountered at the site. In general, a work plan should be developed for this effort (for Illinois EPA review and approval) which fully describes each step to be used in removing the contaminated soil from the property. This includes a description of (1) the equipment utilized in the removal effort, (2) the pattern followed in removing the soil; (3) the depth to which the soil will be removed; (4) management of the soil on-site after it is removed from the ground; (5) loading areas; (6) the ultimate destination of the soil; and (7) any other steps critical to the removal effort.

One way to conduct a soil removal effort is to collect and analyze a sufficient number of soil samples to clearly determine the horizontal and vertical extent of soil contamination prior to conducting the soil removal effort. The boundaries of soil which must be removed are defined by the Illinois EPA established cleanup objectives for the project. Soil excavation must extend to sample locations where soil test results indicate that the remediation objectives are met. Closure verification sampling is not necessary in such cases, if a registered professional engineer oversees the soil removal effort and certifies that the remediation limits extend to these boundaries.

Another way to conduct a soil removal effort is to collect and analyze a limited number of soil samples prior to the soil removal effort and to rely mainly on field observation to

determine the extent of the soil removal. In such cases closure verification sampling is necessary. Soil samples must be collected for analysis from the bottom and sidewalls of the final excavation. The following sampling/analysis effort is necessary to demonstrate that the remaining soil meets the established cleanup objectives:

1. A grid system should be established over the excavation.

2. Samples should be collected from the floor of the excavation at each grid intersection, including intersections along the perimeter of the excavation.

3. Samples should be collected at 6"-12" below the ground surface (bgs) along the excavation sidewalls at each grid intersection around the excavation perimeter. Samples must also be collected at the midpoint of the excavation wall at each grid intersection along the excavation perimeter.

4. Collection/analysis of all required samples must be in accordance with the procedures set forth in the approved plan.

5. Soil samples which must be analyzed for volatile organic compounds (VOCs) must be collected in accordance with the procedures set forth in Method 5035 of SW-846. In addition, such samples must be collected 6"-12" beneath the floor/sidewalls of the excavation to minimize the possibility of volatilization of the contaminants prior to the collection of the samples.

6. No random sampling may be conducted to verify achievement of cleanup objectives have been met.

7. Additional soil must be removed, as necessary, until it can be demonstrated that the remaining soil in and around the area of concern meets the established cleanup objectives. Additional samples must be collected and analyzed in accordance with the procedures described above from areas where additional soil has been removed.

ATTACHMENT H

CERTIFICATION OF COMPLETION OF POST-CLOSURE CARE

STATE ID # 0310390001

ILD010284248

POST-CLOSURE PERMIT LOG NO. B-27R2

CERTIFICATION OF COMPLETION OF POST-CLOSURE CARE

CID Recycling and Disposal Facility (0310390001) – Cook County
USEPA ID: ILD010284248
RCRA Permit Log No. B-27R2

To meet the requirements of 35 Ill. Adm. Code 724.220, this statement is to be completed by both a responsible officer of the owner/operator (as defined in 35 Ill. Adm. Code 702.126) and by a qualified professional engineer upon completion of post-closure care of the UNIT NAME. Submit one copy of the certification with original signatures and two additional copies.

The hazardous waste management unit closed as a landfill, known as the UNIT NAME, has been closed in accordance with the specifications in the approved closure plan. Post-Closure care required for the UNIT NAME has been provided and completed in accordance with the RCRA Permit. A report documenting that required post-closure care have been carried out and completed in accordance with the approved post-closure care plan is attached.

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 fine and imprisonment for knowing violations.

A 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 ILCS5/44(h))

Facility Name	**Printed Name of Responsible Officer**
Signature of Owner/Operator Responsible Officer **Date**	**Printed Title of Responsible Officer**
Signature of Licensed P.E. **Date**	**Printed Name of Licensed P.E. and Illinois License Number**
Mailing Address of P.E.:	**Licensed P.E.'s Seal:**

ATTACHMENT I

APPROVED REDUCED LISTS FOR APPENDIX I PARAMETERS

LEACHATE SAMPLING POINTS

L311, L312, L313, L331

STATE ID # 0310390001

ILD010284248

POST-CLOSURE PERMIT LOG NO. B-27R2

Reduced Appendix I Sampling List (LEACHATE) for Calendar Year 2019, 2020, and 2021

L311	
Storet	**Parameter**
00720	Cyanide
00745	Sulfide
01002	Arsenic
01007	Barium
01027	Cadmium
01034	Chromium
01037	Cobalt
01042	Copper
01067	Nickel
01087	Vanadium
01092	Zinc
01097	Antimony
01102	Tin
34010	Toluene
34030	Benzene
34205	Acenaphthene
34220	Anthracene
34301	Chlorobenzene
34381	Fluorene
34408	Isophorone
34423	Methylene Chloride
34461	Phenanthrene
34571	1,4-Dichlorobenzene
34606	2,4-Dimethylphenol
34626	2,6-Dinitrotoluene
34671	Aroclor 1016
34694	Phenol
34696	Naphthalene
39300	4,4'-DDT
39310	4,4'-DDD
39337	Alpha-BHC
39480	Methoxychlor
39492	Aroclor 1232
39496	Aroclor 1242
39760	2,4,5-TP (Silvex)
39782	gamma-BHC (Lindane)
46323	Delta-BHC
77033	Isobutyl alcohol
77041	Carbon disulfide
77089	ANILINE
77146	4-Methylphenol (p-cresol)
77147	Benzyl alcohol
77151	3-Methylphenol (m-cresol)
77152	2-Methylphenol (o-cresol)
77416	2-Methylnaphthalene

L311 Continued	
Storet	**Parameter**
78113	Ethylbenzene
78133	4-Methyl-2-pentanone
81302	Dibenzofuran
81551	Xylenes (total)
81552	Acetone
81582	1,4-Dioxane
81595	2-Butanone (MEK)

L312	
01007	Barium
01034	Chromium
01037	Cobalt
01042	Copper
01067	Nickel
01087	Vanadium
01092	Zinc
39310	4,4'-DDD
39782	gamma-BHC(Lindane)
81582	1,4-Dioxane

L313	
00720	Cyanide
00745	Sulfide
01002	Arsenic
01007	Barium
01027	Cadmium
01034	Chromium
01037	Cobalt
01042	Copper
01051	Lead
01067	Nickel
01087	Vanadium
01092	Zinc
01102	Tin
34010	Toluene
34030	Benzene
34220	Anthracene
34301	Chlorobenzene
34606	2,4-Dimethylphenol
39782	Gamma-BHC(Lindane)
46323	Delta-BHC
77089	ANILINE
78113	Ethylbenzene
81551	Xylenes (total)
81582	1,4-Dioxane

L331	
Storet	**Parameter**
00720	Cyanide
00745	Sulfide
01002	Arsenic
01007	Barium
01027	Cadmium
01034	Chromium
01037	Cobalt
01042	Copper
01051	Lead
01067	Nickel
01087	Vanadium
01092	Zinc
01147	Selenium
34010	Toluene
34030	Benzene
34301	Chlorobenzene
34408	Isophorone
34423	Methylene Chloride
34496	1,1-Dichloroethane
34586	2-Chlorophenol
34591	2-Nitrophenol
34601	2,4-Dichlorophenol
34606	2,4-Dimethylphenol
34621	2,4,6-Trichlorophenol
34646	4-Nitrophenol
34694	Phenol
34696	Naphthalene
39310	4,4'-DDD
39730	2,4-D
39782	gamma-BHC(Lindane)
46323	Delta-BHC
73501	2-Acetylaminofluorene
77033	Isobutyl alcohol
77041	Carbon disulfide
77045	Pyridine
77089	ANILINE
77146	4-Methylphenol (p-cresol)
77147	Benzyl alcohol
77151	3-Methylphenol (m-cresol)
77152	2-Methylphenol (o-cresol)
78133	4-Methyl-2-pentanone
81551	Xylenes (total)
81552	Acetone
81553	Acetophenone
81582	1,4-Dioxane
81595	2-Butanone (MEK)

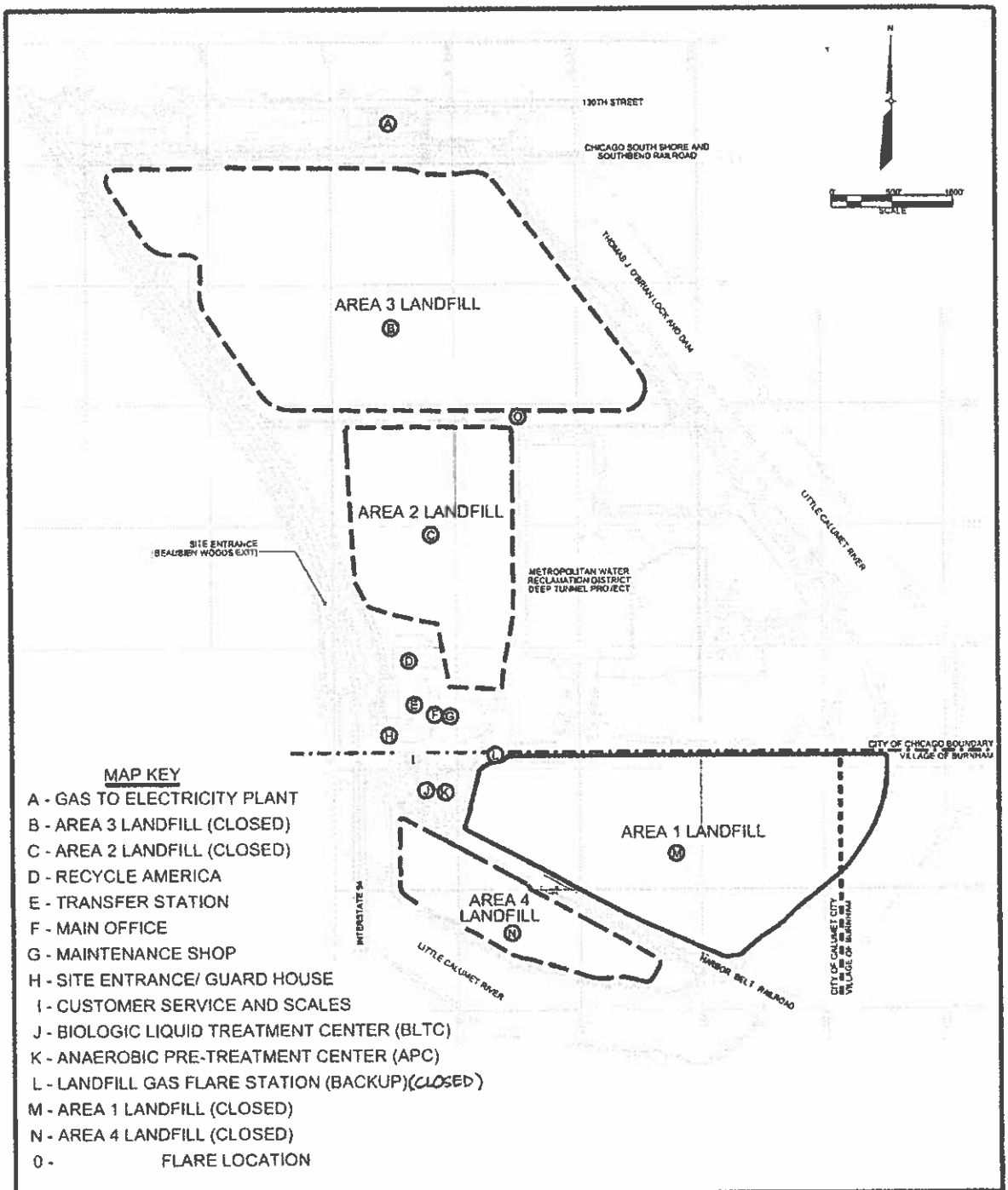
ATTACHMENT J

SITE LAYOUT MAP

STATE ID # 0310390001

ILD010284248

POST-CLOSURE PERMIT LOG NO. B-27R2



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