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**Performance Materials and Technologies**

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www.honeywell.com

March 28, 2018

Ted Dragovich  
Manager, Permit Section  
Bureau of Land  
Illinois Environmental Protection Agency  
1021 North Grand Avenue East  
Springfield, IL 62794

Subject: 1278540002 – Massac County  
Honeywell International Inc.  
ILD006278170  
Permit No. B-65R2  
Pond Closure – Class 1\* Permit Modification Request

Dear Mr. Dragovich:

In accordance with Condition II.J.1 of Honeywell International Inc.'s (Honeywell) RCRA permit, enclosed is an original and two copies of a Class 1\* modification request proposing a finalized closure plan for the surface impoundments referred to as Ponds B through E. A copy of this modification request has been sent directly to the Illinois EPA's Marion regional office. Attachment 1 contains the required Illinois EPA permit application form.

In accordance with 35 Ill. Adm. Code 703.281(a)(1), this modification request:

- Specifies the changes to be made to the permit and supporting documents referenced by the permit and explains why the changes are necessary; and
- Provides applicable information required by 35 Ill. Adm. Code 703.181 through 185, 703.201 through 207, 703.221 through 225, and 230.

**Necessity of Changes**

As discussed in Honeywell's July 21 and December 21, 2016 letters, Honeywell intends to close Ponds B through E by removal by December 31, 2020 consistent with Honeywell's current RCRA permit and the U.S. EPA minimum technology requirements waiver. The Illinois EPA's January 12, 2017 response (PS16-122) indicated the closure plan submittal should:

- a. Be in the form of a Class 1\* modification
- b. Detail the activities to be performed
- c. Include a sampling and analysis plan to demonstrate "clean" closure of the ponds
- d. Update the current closure plan in Attachment I-1 of the approved permit application
- e. Remove references to the temporary cover systems that will not be installed.

An initial Class 1\* modification request was submitted to Illinois EPA on March 31, 2017, and was conditionally approved on July 11, 2017 (Permit No. B-65R2-M-26). The Illinois EPA approval modified Condition II.J.1 to identify information that must be included in the final closure plan.

On December 14, 2017, Honeywell submitted a Class 1 permit modification proposing to discharge calcium fluoride solids from wastewater treatment tanks U-845 and U-846 to Pond D. The Illinois EPA approved this request on December 28, 2017 (Log No. B-65R2-M-29). Illinois EPA's approval indicated the closure cost estimate in the final pond closure plan must include costs for the additional solids added to Pond D from tanks U-845 and U-846.

This permit modification request contains a finalized pond closure plan including items requested by the Illinois EPA's July 11 and December 28, 2017 permits

**Changes to Permit**

It is proposed to delete Condition II.J.1 and replace it with the following:

*On March 30, 2018 the Permittee submitted a Class 1\* permit modification proposing a plan to "clean" close Ponds B, C, D, and E. This proposed plan is approved.*

It is proposed to change the Surface Impoundments Closure cost in Condition IV.1 from \$51,974,000 to \$59,521,000.

**Changes to Supporting Documents Referenced by the Permit**

The RCRA permit application has been modified as follows.

- Section I, Closure and Post-Closure Requirements
- Attachment I-1, Finalized Pond Closure Plan
- Attachment I-2, Surface Impoundment Closure Schedule
- Attachment I-4, Pond Closure and Post-Closure Cost Estimates

**Public Notice Requirements**

In accordance with 35 Ill. Adm. Code 703.281(a)(2), within 90 days of Illinois EPA approval a notice of this modification will be sent to all persons on Honeywell's RCRA facility mailing list.

If you have any questions regarding this matter please contact Sean Chisek at (618) 309-9061. Thank you.

Sincerely,



Jeff Fulks  
Plant Manager

Attachments: 1 – Permit Application Form  
Section I – Closure and Post-Closure Requirements  
Attachment I-1 – Pond Closure and Contingent Post-Closure Care Plan  
Attachment I-2 – RCRA Closure Schedule (Pond Closure Schedule Only)  
Attachment I-4 – Surface Impoundment Closure and Post-Closure Cost Estimate

cc: Sean Chisek/Honeywell  
Sean Patterson/Honeywell  
John Mojka/Honeywell  
Mara Hollinbeck/CH2M

## Attachment 1 – Permit Application Form



# Illinois Environmental Protection Agency

Bureau of Land • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

## RCRA Permit Application Form LPC-PA23

This form must be used for any permit application for a hazardous waste management facility regulated in accordance with RCRA, Subtitle C, including all requests to modify an existing permit. One original and three (3) copies, of all permit applications must be submitted. Attach the original and appropriate number of copies of a cover letter, any necessary plans, specifications, reports, forms, (e.g., corrective action certification form), and any other certifications etc. to fully support and describe the activities or modifications being proposed. Attach sufficient information to demonstrate compliance with all applicable regulatory requirements. Applications without this form will be deemed incomplete. Please refer to the RCRA checklist and decision guide documents for further guidance. For RCRA corrective action, this form should only be used if requesting an actual modification to a RCRA permit. A RCRA Corrective Action Certification form should be used in all other instances.

**Note:** Permit applications which are hand-delivered to the Bureau of Land, Permit Section must be delivered to 1021 North Grand Avenue East between the hours of 8:30 a.m. to 5:00 p.m., Monday through Friday (excluding State holidays).

Please type or print all information legibly.

### I. Site Identification

Site # (Illinois EPA): 1278540002 USEPA ID Number: ILD006278170  
Site Name: Honeywell International Inc.  
Physical Site Location (street, road, etc.): 2768 N US 45 Rd.  
City: Metropolis Zip Code: 62960 County: Massac  
Existing RCRA Permit (if applicable): B-65R2

### II. Owner/Operator Identification

#### Owner Information

Name: Honeywell International Inc.  
Mailing Address:  
2768 N US 45 Rd  
P.O. Box 430  
Metropolis, IL 62960  
Contact Name: Sean Chisek  
Phone #: 618-309-9061

#### Operator Information

Name: SAME AS OWNER  
Mailing Address:  
  
  
  
Contact Name:   
Phone #:

### III. Permit Application Identification

#### Application Type

- |  |   |
|--|---|
| <input type="checkbox"/> New Part B Permit   | <input type="checkbox"/> Class 1 Modification                                       |
| <input type="checkbox"/> Part B Permit Renewal   | <input checked="" type="checkbox"/> Class 1* (prior approval required) Modification |
| <input type="checkbox"/> Class 2 Modification  | <input type="checkbox"/> Class 3 Modification                                       |
| <input type="checkbox"/> Additional information to supplement UIC Class I application Log Number |   |

Application Type contd.

- ☐ Remedial Action Plan Permit (RAPP) ☐ Sig RAPP Modification  
☐ Non Sig RAPP Modification ☐ Major UIC Modification  
☐ Minor UIC Modification

This Application Involves

- ☒ Storage ☐ Treatment ☐ Disposal ☐ Incineration  
☐ Groundwater ☐ Corrective Action ☐ UIC Class I ☐ UIC Class V

Description of This Permit Request: (Include a brief narrative description here.)

This request for a Class 1\* Modification proposes to finalize the closure plan for the surface impoundments referred to as  
Pond B, C, D, and E and the associated closure and post-closure estimates

IV. **SIGNATURES** Original signatures required. Signature stamps or applications transmitted electronically or by facsimile are not acceptable. All applications shall be signed by the person in accordance with 35 IAC 702.126(a).

Please check the box of the appropriate certification.

**Owner**

- ☒ I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Alternative owner certification. For remedial action plans (RAPs) permit under Subpart H of 35 IAC 703, the owner may choose to make the following certification instead of the certification above.

- ☐ Based on my knowledge of the conditions of the property described in the RAP and my inquiry of the person or persons that manage the system referenced in the operator's certification, or those persons directly responsible for gathering the information, the information submitted is, upon information and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner Name (Printed or Typed): Jeff Fulks

Owner Signature: 

Date: 3/26/18

Title: Plant Manager

**Operator**

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Operator Name (Printed or Typed): Jeff Fulks

Operator Signature: 

Date: 3/26/18

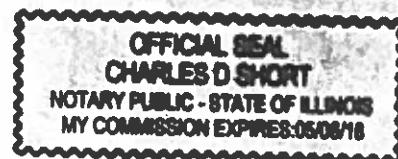
Title: Plant Manager

NOTARY: (Required for both owner and operator signatures)

Subscribe and sworn before me this 26 day of March 2018.

Notary Signature: Charles D. Short Notary Seal:

My commission expires on: 05-06-18



### Engineer

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Engineer Name (Printed or Typed): Sean C. Chisek

Engineer Signature: Sean C. Chisek

Illinois License No.: 062-053724

Expiration Date of License: 11/30/2019

Engineer Seal:

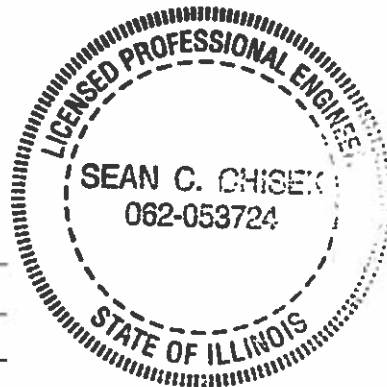
Engineer Phone No. 618-309-9061

Engineer Address:

Honeywell International Inc.

2768 N US 45 Rd

Metropolis, Illinois 62960



All information submitted as part of the Application is available to the public except when specifically designated by the Applicant to be treated confidentially as a trade secret or secret process in accordance with Section 7(a) of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Illinois EPA rules and guidelines.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

# Section I – Closure and Post Closure Requirements

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- ATTACHMENT I-1: POND CLOSURE AND POST-CLOSURE CARE PLANS - UPDATED
- ATTACHMENT I-2: RCRA CLOSURE SCHEDULE - UPDATED
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- ATTACHMENT I-5: COPIES OF FINANCIAL ASSURANCE MECHANISMS

## SECTION I NOTES – MAJOR REVISIONS

Major revisions to consider during review of Section I – Closure and Post-Closure Requirements are listed below.

1. The closure plan and cost estimate for RCRA Small and RCRA Large are unchanged while the closure plan and cost estimate for Ponds B, C, D, and E have been updated.

The table below summarizes revisions to Section I since approval of the permit renewal application in October 2013.

Date	Description
June 2014	Section I.1.5.1 – Remove references to partial closure of RCRA Large (approved on October 22, 2013)
	Section I.5 – Revised surface impoundment (pond) closure cost estimate.
	Attachment I-4 – Revised pond closure cost estimate
July 2015	Section I.5 – Revised surface impoundment (pond) closure cost estimate.
	Attachment I-4 – Revised pond closure cost estimate
March 2017	Updated text to reference updated pond closure and post-closure care plans and cost estimates. Updated attachments below. Attachment I-1 – Revised Pond Closure and Post-closure Care Plans Attachment I-2 – Revised Surface Impoundment Closure Schedule Attachment I-4 – Revised Surface Impoundment Closure and Post-closure Cost Estimates
<u>March 2018</u>	<u>Updated text to reference further updates to the pond closure and post-closure care plans and cost estimates. Updated attachments include:</u> <u>Attachment I-1 – Revised Pond Closure and Post-Closure Care Plans</u> <u>Attachment I-2 – Revised Surface Impoundment Closure Schedule</u> <u>Attachment I-4 – Revised Surface Impoundment Closure and Post-Closure Cost Estimates</u>

## **I. CLOSURE AND POST-CLOSURE REQUIREMENTS**

The closure plan presented herein describes how hazardous waste management units (HWMUs) RCRA Small, RCRA Large and Ponds B through E will be closed in accordance with applicable RCRA regulations. Under the current closure plan RCRA Small, RCRA Large and Ponds B through E will be closed by removal (i.e., “clean” closed).

### **I.1 Closure Plan: 703.183(m), 724.212**

#### **I.1.1 Closure Performance Standard: 724.211**

##### **I.1.1.1 General Requirements**

RCRA Small and RCRA Large, and Ponds B through E will be closed by removal (i.e., “clean” closed). In general, closure by removal involves:

- Removal and disposal of wastes and waste residue;
- Decontamination of structures and equipment;
- Sampling and analysis;
- Visual inspection; and
- Documentation, including certification.

Consistent with 35 Ill. Adm. Code 724.211, the overall goals of closure are:

- Minimize the need for further maintenance;
- Control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous decomposition products to groundwater, surface water, or the atmosphere; and
- Comply with the unit specific closure requirements for container storage areas (35 Ill. Adm. Code 724. 278) and surface impoundments (35 Ill. Adm. Code 724.328).

A detailed description of the approved closure plan for RCRA Small and RCRA Large is contained in Sections I.1.4 and I.1.5. The proposed closure and post-closure care plan for Ponds B through E is included in Attachment I-1. These plans describe procedures to be implemented to meet the RCRA closure performance standards.

##### **I.1.1.2 Specific Requirements**

Closure of RCRA Small, RCRA Large, and Ponds B through E will be performed in accordance with the RCRA closure performance standards of 35 Ill. Adm. Code 724.211, 278 (RCRA Small and RCRA Large) and 328 (Ponds B through E).

Sections I.1.4 and I.1.5 describe the procedures to be used during closure of RCRA Small and RCRA Large. The closure plan for Ponds B through E (see Attachment I-1) describes the procedures for closure of Ponds B through E.

#### **I.1.2 Maximum Operations and Waste inventory: 724.212(b)(2) & (3)**

As documented in Sections A and D1, and the closure plan for Ponds B through E, the maximum capacities of the regulated units are shown in the following table.

Unit	Maximum Capacity (in gallons)
RCRA Small	5,280
RCRA Large	81,840
Ponds B through E	20,609,745

### I.1.3 Partial Closure

Partial closure refers to the closure of a portion of the RCRA-permitted units, without closure of all RCRA-permitted units.

As documented in Section D1, the capacity and footprint of RCRA Large will be reduced. The portion of the unit to be removed from the permitted operation area for storage of hazardous waste will undergo partial closure as described herein. For purposes of this closure plan, it is assumed:

1. RCRA Small or RCRA Large may be closed independently of the other;
2. RCRA Small or RCRA Large may be closed independently of Ponds B through E; and
3. Ponds B through E may be closed independently of RCRA Small or RCRA Large.

### I.1.4 Closure Methods: 724.212(b)(3)

A detailed description of methods to be used during closure of RCRA Small or RCRA Large is presented in Section I.1.5. A detailed description of methods to be used during closure of Ponds B through E is presented in Attachment I-1.

### I.1.5 Removal and Decontamination Procedures: 724.212(b)(4)

#### I.1.5.1 Container Storage Areas

During closure, waste will be removed by trained personnel. Waste will be transported to offsite treatment and/or disposal facilities by permitted/licensed transporters. As listed below the type(s) of offsite waste management facilities may vary depending on the type of waste.

- Non-hazardous, non-radiological waste will be transported to facilities authorized to accept the material.
- Hazardous waste will be transported to permitted facilities.
- Radiological waste will be transported to licensed facilities.
- Mixed wastes will be transported to licensed facilities permitted to receive both radiological and hazardous wastes.

Following waste removal, the base of the containment area will be inspected by an Illinois registered Professional Engineer to identify potential unsealed cracks or gaps in the concrete base that penetrate the depth of the base. If present, these cracks or gaps could allow waste constituents to migrate to subsurface soils. Cracks or gaps that could allow waste constituents to migrate to subsurface soils will be temporarily sealed prior to decontamination. At the time of this submittal the routine inspections and maintenance performed at RCRA Small and RCRA Large, indicate there are no cracks or gaps that penetrate the full depth of the base. This condition is anticipated to continue until closure.

Decontamination of the container storage area containment system (i.e., floors, dike walls, and sumps) will be performed by steam cleaning and triple rinsing. If deemed necessary to remove waste residue, portions of the surface may also require abrasive cleaning. Wash

and rinse water and used abrasives (if applicable) will be collected, containerized and transported offsite for disposal at approved facilities.

The final rinse water will be collected in separate containers from the wash and first two rinse waters. One sample of the final rinse water will be obtained and analyzed for the constituents below. The constituents selected for analysis are based upon the types of waste currently approved for storage in RCRA Small and RCRA Large, and the types of waste proposed to be stored in RCRA Large.

Unit	Constituents to be Analyzed in Final Rinse Water <sup>a</sup>
RCRA Small	<ul style="list-style-type: none"> <li>• pH</li> <li>• RCRA TCLP constituents in 35 Ill. Adm. Code 721.124(b)</li> </ul>
RCRA Large	<ul style="list-style-type: none"> <li>• pH</li> <li>• RCRA TCLP constituents in 35 Ill. Adm. Code 721.124(b)</li> </ul>

<sup>a</sup> Laboratory methods are specified in SW-846, current edition. The laboratory Method Detection Limit (MDL) will be at or below the criteria used to determine if decontamination is complete (discussed below).

Rinse water samples will be placed in laboratory-provided sample jars containing the appropriate preservative. At a minimum, sample jars will be labeled with sample identification, sample date, sample time, and sampler's initials. Filled sample jars will be placed in coolers with ice or cold packs and shipped to a National Environmental Laboratory Accreditation Council (NELAC) accredited laboratory under chain-of-custody.

Decontamination activities will be considered complete if the final rinse water sample contains constituent concentrations meeting the limits identified below.

Constituent(s) <sup>a</sup>	Rinse Water Closure Criteria
pH	>2 <12.5
RCRA TCLP Constituents in 35 Ill. Adm. Code 721.124(b)	Concentrations Must Be Less than those in 35 Ill. Adm. Code 721.124(b)

<sup>a</sup> Laboratory methods are specified in SW-846, current edition. The laboratory Method Detection Limit (MDL) will be at or below the rinse water closure criteria, listed above.

If cracks or gaps penetrating the depth of the concrete base were not observed, subsurface soil sampling will not be required.

If cracks or gaps penetrating the concrete base were observed, a soil sample beneath the crack or gap will be obtained and analyzed for the following constituents:

Unit	Constituents to be Analyzed in Soil <sup>a</sup> (if necessary)
RCRA Small	<ul style="list-style-type: none"> <li>• pH</li> <li>• RCRA constituents in 35 Ill. Adm. Code 721.124(b) <ul style="list-style-type: none"> <li>○ Organics (total concentrations)</li> <li>○ Metals (total and TCLP concentrations)</li> </ul> </li> </ul>
RCRA Large	<ul style="list-style-type: none"> <li>• pH</li> <li>• RCRA constituents in 35 Ill. Adm. Code 721.124(b) <ul style="list-style-type: none"> <li>○ Organics (total concentrations)</li> <li>○ Metals (total and TCLP concentrations)</li> </ul> </li> </ul>

<sup>a</sup> Laboratory methods are specified in SW-846, current edition. The laboratory Method Detection Limit (MDL) will be at or below the TACO Tier 1 remediation objectives.

These analyses allow the analytical results to be compared to the Tiered Approach to Corrective Action Objectives (TACO) Tier 1 remediation objectives, as discussed below.

Soil samples will be collected from as close to the surface of the soil profile as practicable, just below the gravel underlying the concrete. Soil samples will be placed in laboratory provided sample jars containing the appropriate preservative. At a minimum, sample jars will be labeled with sample identification, sample date, sample time, and sampler's initials. Filled sample jars will be placed in coolers with ice or cold packs and shipped to a NELAC-accredited laboratory under chain of custody.

If soil sample(s) are obtained, the analytical results will be compared to the TACO Tier 1, Class I groundwater remediation objectives in 35 Ill. Adm. Code 742.

During implementation of closure activities described in this section, documentation of waste removal, decontamination, inspection, and sampling will be maintained. Such documentation may include, but is not limited to:

- Photographs;
- Manifests or bills of lading;
- Chain-of-custody forms and analytical reports; and
- Field inspection notes and logs.

#### I.1.5.2 Surface Impoundments

The surface impoundment closure plan is included in Attachment I-1.

#### I.1.6 **Other Activities: 724.212(b)(5)**

It is not anticipated other activities will be required to close RCRA Small, RCRA Large, or Ponds B through E in accordance with the applicable RCRA closure performance standards.

#### I.1.7 **Unit Specific Closure Activities: 724.212(a)(2)**

The only RCRA permitted units at Honeywell are container storage areas RCRA Small and RCRA Large, and Ponds B through E. To maintain consistency with the Illinois EPA's RCRA Part B Permit Application Decision Guide (Revised July 2006), Section I.1.7.2, Closure of Tank Systems is included in this section although there are no RCRA permitted tank systems at Honeywell.

**I.1.7.1 Closure of Container Storage Areas 724.278**

The activities described in Sections I.1.4 and I.1.5 document how closure of the following container storage areas will meet the requirements of 35 Ill. Adm. Code 724.211 and 278.

- RCRA Small
- RCRA Large and
- Partial closure of RCRA Large as part of its reconfiguration

**I.1.7.2 Closure of Tank Systems 724.297, 724.410**

There are no RCRA regulated tank systems at Honeywell. Therefore, this section is not applicable.

**I.1.7.3 Closure of Surface Impoundments 724.328**

The closure plan for Ponds B through E is included in Attachment I-1.

**I.1.8 Closure Schedule: 724.212(b)(6), 724.213**

Attachment I-2 presents a closure schedule for:

- RCRA Small;
- RCRA Large; and
- Ponds B through E.

These schedules may be subject to change as closure activities occur. However, closure of RCRA Small and RCRA Large will be completed within 180 days after the determination is made to close the unit(s). Removal of the pond materials, liner, and contaminated soil from Ponds B through E will be completed by December 31, 2020.

**I.1.9 Expected Year of Final Closure: 724.212(b)(7)**

Currently, Honeywell does not use a trust fund as its financial assurance mechanism under 35 Ill. Adm. Code 724.243 or 245. As such, the requirement in 35 Ill. Adm. Code 724.212(b)(7) to provide an expected year of final closure is not applicable.

**I.1.10 Alternate Requirements: 724.212(b)(8)**

Honeywell is not subject to alternate requirements established under 35 Ill. Adm. Code 724.190(f), 724.210(c) or 724.240(d). As such, this section is not applicable.

**I.2 Post-Closure Plan: 703.183(m), 703.203(f), 703.204(h), 703.207(e), 724.218, 724.297(b) and (c), 724.328(b), 724.328(c)(1)(B), 724.380(c), 724.410(b)**

A post-closure care plan for RCRA Small and RCRA Large is not applicable. As discussed herein, the goal is to obtain certification of closure by removal for RCRA Small and RCRA Large.

A post-closure care plan for Ponds B through E has been included in Attachment I-1, as required under 35 Ill. Adm. Code 724.328(c)(1)(B).

**I.2.1 Applicability**

Closure plans submitted with this permit renewal application propose to close all regulated units by removal. Although it is proposed to close Ponds B through E by removal, a post-closure care plan for Ponds B through E is included in Attachment I-1.

**I.2.2 - Post-Closure Inspection Plan: 724.218(b), 724.328(b), 724.328(c)(1)(B),  
I.4.3 Notice in Deed and Certification; Existing Facilities with Closed Disposal Units**

Because RCRA Small and RCRA Large are not disposal units, these sections are not applicable.

Ponds B through E will be closed by removal. ~~However, Assuming clean closure,~~ a 2-year post-closure care plan is proposed and detailed in Attachment I-1.

**I.5 Closure Cost Estimate: 703.183(o), 724.242**

A copy of the closure cost estimate for RCRA Small and RCRA Large is contained in Attachment I-3.

The closure cost estimate for Ponds B through E was prepared in accordance with 35 Ill. Adm. Code 724.242. The detailed closure cost estimate for Ponds B through E is contained in Attachment I-4.

The closure cost estimates for RCRA Small, RCRA Large and Ponds B through E are:

Unit	Closure Cost Estimate (\$)
RCRA Small	95,000
RCRA Large	4,750,000
Ponds B through E	<del>59,521,000</del> 51,974,000

In accordance with 35 Ill. Adm. Code 724.242(c), Honeywell will revise the closure cost estimates no later than 30 days after Illinois EPA approves a modification of the closure plan, if the change in the closure plan increases the cost of closure.

In accordance with 35 Ill. Adm. Code 724.242(d), the operating record will contain copies of the latest closure cost estimate prepared in accordance with 35 Ill. Adm. Code 724.242(b).

**I.5.1 Third-Party Costs**

In accordance with 35 Ill. Adm. Code 724.242(a)(2), the closure cost estimates are based upon third-party costs and do not incorporate costs for on-site disposal. In accordance with 35 Ill. Adm. Code 724.242(a)(3), the closure cost estimates do not include salvage value for sale of wastes, facility structures or equipment.

**I.5.2 Maximum Cost Estimate**

In accordance with 35 Ill. Adm. Code 724.242(a)(1), the closure cost estimates have been prepared to cover the cost of closure when the cost would be the greatest.

As discussed in Section I.1.3, partial closure may occur. The closure cost estimates presented in Attachments I-3 and I-4 are presented as unit-specific costs to facilitate the Illinois EPA's review of costs associated with partial closure.

**I.5.3 Unit Costs**

The cost estimate presented in Attachment I-3 includes the cost for all activities and is calculated to cover the cost of closure when the cost would be the greatest for each permitted unit.



#### **I.5.4 Annual Updates**

In accordance with 35 Ill. Adm. Code 724.242(b), the closure cost estimates will be updated annually for inflation.

#### **I.6 Financial Assurance Mechanism for Closure: 703.183(o), 724.243**

At the time of submittal of this permit renewal application Honeywell uses an Irrevocable Letter of Credit as the financial assurance mechanism for RCRA closure. A copy of the financial assurance mechanism is contained in Attachment I-5. This mechanism will be updated as required by the Part B permit and applicable regulations.

Honeywell may change the type of financial assurance mechanism in the future. A change in the type of financial assurance mechanism will not constitute a modification to the RCRA Part B permit. Prior to changing the type of financial assurance mechanism, the required forms will be submitted to the Illinois EPA. Only after the Illinois EPA approves the new mechanism will the mechanism be changed.

#### **I.7 Post-Closure Cost Estimate: 703.183(p), 724.244**

RCRA Small and RCRA Large will be closed by removal; as such, post-closure care of these units will not be required. Therefore, a cost estimate for post-closure care of these units is not applicable.

For purposes of providing a post-closure cost estimate, a 2-year period of post-closure care is being provided as a contingency following “clean closure” via removal of the ponds. Corrective action cost estimates have been provided for the Creosote Area, Kickback Area and the Chlorinated Solvent / Arsenic Area. The post-closure cost estimate for Ponds B through E and the corrective action cost estimates are contained in Attachment I-4.

#### **I.7.1 – Third-Party Costs** **I.7.3 Annual Cost Estimate**

As described previously, RCRA Small and RCRA Large will be closed by removal; as such, post-closure care of these units will not be required.

A post-closure care cost estimate for Ponds B through E is included in Attachment I-4.

#### **I.7.4 Post-Closure Cost Estimate**

As described previously, RCRA Small and RCRA Large will be closed by removal; as such, post-closure care of these units will not be required. However, costs for 2 years of post-closure care at Ponds B through E is provided as a contingency.

The post-closure care cost estimate for Ponds B through E and the Creosote Area and corrective action cost estimates for the Creosote Area, Kickback Area, and Chlorinated Solvent/Arsenic Area are provided in Attachment I-4. The updated post-closure and corrective action cost estimates are summarized below.

- Ponds B through E: \$172,080
- Creosote Area:
  - Interim Remedial Measures: \$2,470,000
  - Groundwater Monitoring: \$259,440
- Kickback Area: \$259,440
- Chlorinated Solvent/Arsenic Area: \$104,150

In accordance with 35 Ill. Adm. Code 724.244(c), Honeywell will revise the post-closure cost estimate no later than 30 days after Illinois EPA approves a modification of the post-closure care plan, if the change increases the cost.

In accordance with 35 Ill. Adm. Code 724.244(d), the operating record will contain copies of the latest post-closure cost estimate, and the latest adjusted cost estimate.

**I.7.5 Annual Updates**

The post-closure cost estimate for Ponds B through E will be updated annually for inflation in accordance with 35 Ill. Adm. Code 724.244(b).

**I.8 Financial Assurance Mechanism for Post-Closure Care: 703.183(p), 724.245**

At the time of submittal of this permit renewal application Honeywell uses an Irrevocable Letter of Credit as the financial assurance mechanism for RCRA post-closure. A copy of the financial assurance mechanism is contained in Attachment I-5. This mechanism will be updated as required by the Part B permit and applicable regulations.

Honeywell may change the type of financial assurance mechanism in the future. A change in the type of financial assurance mechanism will not constitute a modification to the RCRA Part B permit. Prior to changing the type of financial assurance mechanism, the required forms will be submitted to the Illinois EPA. Only after the Illinois EPA approves the new mechanism will the mechanism be changed.

**I.9 Liability Requirements: 703.183(q), 724.247**

Honeywell maintains financial assurance coverage for sudden and nonsudden occurrences in accordance with 35 Ill. Adm. Code 724.247.

**I.9.1 Provide copies of the financial assurance required to document compliance with applicable liability requirements for sudden and non-sudden accidental occurrences.**

At the time of submittal of this permit renewal application Honeywell uses an Irrevocable Letter of Credit as the financial assurance mechanism for sudden and nonsudden accidental occurrences. A copy of the financial assurance mechanism is contained in Attachment I-5. This mechanism will be updated as required by the Part B permit and applicable regulations.

Honeywell may change the type of financial assurance mechanism in the future. A change in the type of financial assurance mechanism will not constitute a modification to the RCRA Part B permit. Prior to changing the type of financial assurance mechanism, the required forms will be submitted to the Illinois EPA. Only after the Illinois EPA approves the new mechanism will the mechanism be changed.

**I.9.2 Request for variance**

This permit application does not request an adjusted level of liability coverage. As such, this section is not applicable.

**I.10 State Mechanisms: 40CFR 264.149, 40 CFR 264.150, 40 CFR 264.151, 40 CFR 220.14(b)(18)**

The State of Illinois has not assumed legal responsibility for compliance with closure, post-closure, or liability requirements. As such, this section is not applicable.

**ATTACHMENT I-1**

**POND CLOSURE AND POST-CLOSURE CARE PLANS - UPDATED**

# Attachment I-1: Pond Closure and Contingent Post-Closure Care Plan

## 1. Closure Plan: 35 Ill. Adm. Code 724.328

The closure plan presented herein describes how Resource Conservation and Recovery Act (RCRA) permitted surface impoundments referred to as Ponds B through E (Figure I-1) will be closed in accordance with 35 Ill. Adm. Code 724.328.

Ponds B through E are regulated by several documents, including:

- Honeywell International Inc.'s (Honeywell's) RCRA Permit, Illinois Environmental Protection Agency (EPA) Permit No. B-65R2, which includes operating, monitoring, and closure requirements;
- The U.S. Environmental Protection Agency (USEPA) Minimum Technology Requirements (MTR) waiver; and
- The Nuclear Regulatory Commission (NRC) License, including demonstrating the pond materials meet the Title 10 of the Code of Federal Regulations (CFR) Part 40.13(a) definition of unimportant quantities of source material.

The ponds will be closed through removal; however, to support pond material removal, site preparation activities will be conducted in 2018. Site preparation will include tree cutting, clearing, grading, and constructing a new rail turnout from the main line (for transportation of pond material); road improvements and modification of the existing vehicle barrier; installation of new security gates and checkpoints; and construction of work support areas. The majority of pond material removal will take place in 2019 and 2020 with potential for some initial excavation activities at Pond D in 2018. Pond material will be excavated and placed into supersacks to be loaded into lined gondola rail cars for transportation and disposal at a permitted disposal facility.

Polymer or other reagent will be added to each supersack to absorb potential free liquid that may separate from the pond materials during handling or in transit to the disposal facility. Contact water and decontamination water will be managed either through the Plant's existing wastewater treatment system or through a temporary wastewater treatment system if the Plant's wastewater treatment system is not operating during pond closure activities. Honeywell will work with the Illinois EPA Bureau of Water to modify its National Pollutant Discharge Elimination System (NPDES) permit for either the use of a temporary wastewater treatment system or for the modified use of the Plant's existing wastewater treatment system.

A lock system will be constructed and used to maintain security and radiological control of any materials moved from the restricted area into the lock for loading prior to release for offsite transport. Additionally, dust control measures will be put in place to prevent visible airborne emissions while loading or moving the material.

After the pond material, liner, and underdrain system has been removed, confirmation soil samples will be collected and compared against the Illinois EPA Tiered Approach to Corrective Action Objectives (TACO) Tier 1 soil remediation objectives (ROs). The ponds will then be backfilled and graded to provide positive drainage, create a generally flat area usable by the Plant after closure, and to minimize net cut and fill volumes.

The closure methods and activities are described in further detail below.

## 2. Maximum Inventory and Closure Method: 724.212(b)(3)

The ponds contain approximately 110,400 tons of material. This closure plan describes how the ponds will be closed by removal.

A Pond Closure and Contingent Post-Closure Care Plan was submitted to the Illinois EPA on March 31, 2017. At that time, closure design and planning for removal of pond material, site improvements to support offsite transport, and related activities were still in the process of being finalized. This updated closure plan includes the final design elements for pond closure. Honeywell intends to proceed with implementation as proposed and in accordance with the schedule provided in Attachment I-2.

### 2.1 Removal and Decontamination Procedures: 724.212(b)(4)

Pond removal procedures will take place in two areas that operate under different levels of security. An outer security fence provides the initial security protection and has been established to maintain initial access/egress controls. The inner security fence is considered the restricted zone with only permitted personnel allowed access. In this document, the area between the outer security fence and the inner security fence is referred to as the “neutral zone,” whereas the area inside the inner fence is referred to as the “restricted area.”

To facilitate loading and offsite transportation of the pond material by rail, the outer and inner fences will be modified. The outer fence will be moved to the west and a “lock” will be installed at the inner fence to allow a smooth flow of rail cars in and out of the restricted zone (see Figure I-2). The proposed modifications will require no permanent changes to the restricted area configuration. The current outer fence was screened to confirm no radiological impacts to support disposal as construction debris.

#### 2.1.1 Site Preparation

##### 2.1.1.1 Utility and Lysimeter Abandonment

Aboveground and underground utilities in the work areas will be removed, relocated, or abandoned by Honeywell prior to the respective contractor’s mobilization.

Any specific Plant utilities that are considered essential to Plant operations (such as lighting or security cameras) that cross through the work zone will be protected or relocated and remain operational during constructions. Utilities and structures outside the perimeter of the ponds, including groundwater monitoring wells, the idled Plant wastewater treatment system, and permitted Outfall 002, will remain in place and will be protected during construction except for two monitoring wells. Monitoring wells G105 and G106 (located in the neutral zone) will be relocated approximately 50 feet west as described below after grading in the neutral zone is complete (Figure I-2). Relocation of monitoring wells as proposed will be conducted based on Illinois EPA approval of the March 2017 plan and in coordination with other activities such that quarterly monitoring is not interrupted.

The leak detection sump risers will be preserved and protected until the pond material and liner have been removed from the associated pond(s), after which they will be removed as described in Section 2.1.5. During construction, lysimeters (Figure I-2) will be protected, and accessibility will be maintained as reasonably as practicable based on considerations of constructability. Quarterly sampling and analysis will continue as currently approved during pond closure until the lysimeters are abandoned. Lysimeters will be abandoned at the last reasonable time before closure activities that could damage the lysimeters take place. Lysimeters will be abandoned in accordance with Illinois EPA and Illinois Department of Public Health (IDPH) requirements. Documentation of lysimeter abandonment will be submitted to the Illinois EPA and the IDPH within 30 days following completion of abandonment.

### **2.1.1.2 Monitoring Well Relocation**

Two monitoring wells in the neutral zone, G105 and G106, will require relocation. Both G105 and G106 will be relocated approximately 50 feet west of their current locations. Based upon Illinois EPA's conditional approval letter (Log No. B-65R2-M-26), the relocated wells will be referred to as G111 and G112 (Figure I-2). The monitoring wells will be relocated within the neutral zone for future access but will be kept close to the outer fence to minimize the potential for damage during pond closure. The groundwater monitoring program at the ponds will continue to be implemented during closure activities until such time as the Illinois EPA approves a request to discontinue monitoring.

The relocated monitoring wells will be screened in the same zone as the existing wells; however, rather than the 25-foot screens in the current wells, the new well screens will be 10 feet. Final depths and screened intervals will be confirmed by observed soil conditions so that the relocated wells intersect the same water-bearing units as the original wells.

The relocated monitoring wells will be installed using a hollow-stem auger or direct-push drill rig. Soil will be continuously sampled and logged by an Illinois-licensed professional geologist. Monitoring well surface completions will consist of a stick-up-type, aboveground completion. Final well locations and surface elevations will be surveyed following installation. Bollards will be installed surrounding the new monitoring wells. The bollards will consist of a solid steel pipe or a steel pipe filled with concrete. Well completion reports and soil boring logs for the relocated wells will be submitted to the Illinois EPA within 30 days following completion of installation.

Existing monitoring wells G105 and G106 will be plugged and abandoned in accordance with the Illinois EPA "Monitor Well Plugging and Abandonment Procedures" as outlined in Attachment A of Honeywell's RCRA permit and with IDPH requirements. After the wells are abandoned and reinstalled, Honeywell will submit a Class 1 modification within 30 days to the Illinois EPA to request a revision to the well details in the permit. The permit modification request will include (1) boring logs, construction diagrams, well location map, and data sheets for the installation and development of new monitoring wells G111 and G112; (2) abandonment forms for wells G105 and G106; and (3) revised pages of Section E of the approved permit application.

### **2.1.1.3 Site Improvements—Neutral Zone and Restricted Area**

Site improvements are required within the restricted area near the ponds and in the neutral zone, along the western Plant boundary, to facilitate loading and offsite transportation of the pond material by rail. Neutral zone site preparation will include installing erosion and sedimentation controls, clearing, grading, and undertaking drainage modifications; construction of a new rail turnout from the main line (by BNSF Railway); construction of a new rail siding on Honeywell property in accordance with BNSF Railway standards; road improvements and modification of the existing vehicle barrier; installation of new security gates and checkpoints; and construction of work support areas, such as those for contractor parking and construction trailers.

The new rail siding consists of a new alignment in the neutral zone, as shown in Figure I-3. This new alignment connects via a new turnout off the BNSF mainline siding and runs directly into the neutral zone on a curved section of track. Under this layout, tree cutting, clearing, grubbing, and grading of a portion of the Honeywell wooded area to the west of the existing Plant's western rail siding is necessary to create a clear and level area for this rail siding. BNSF Railway will construct a turnout from their existing main line running parallel to Highway 45 north of the Plant up to a point south of the main line, where it will tie into the new rail siding constructed on Honeywell-owned property (Figure I-3). In general, the new rail siding consists of two tracks, one to stage empty gondola cars waiting to be filled, and another to hold filled gondolas awaiting pickup. A gondola car holding and security area or lock system will be used to facilitate efficient loading and screening of gondola rail cars. The lock system will be constructed within the neutral zone along the restricted area fence near Pond E (Figure I-4). The lock

system is intended to maintain separation between work activities within the restricted area and in the neutral zone to meet NRC license requirements (see Section 2.2.1.3).

Preparation of work zones within the restricted area will be limited to the area in and immediately surrounding the ponds. Site preparation will include installation of construction fencing, grading, construction of access roadways or equipment pads, and construction of the lock system to allow material and containers to move between the restricted area and the neutral zone without crossing the active Plant area.

To provide equipment access to the work areas, temporary access roads and equipment pads may be constructed, as necessary. Access roads and equipment pads will be constructed by first performing limited grading and compaction (if necessary), placing geotextile, and placing crushed stone on the graded surface (Figure I-2).

The areas within the neutral zone will be filled with cut materials from the grading operations associated with site preparations. In the proposed design, there is an excess of material from cuts, and additional borrow material will not be required to achieve final design grades. The proposed finished elevation of the neutral zone will provide a level ground for rail and appropriately sloped areas for stormwater management.

An additional support area will be required in the restricted area to house in a trailer laboratory equipment and health physics and security personnel who will be supporting the loading and container screening activities in the lock system. The Remediation Contractor's support trailer will also be located in this area. The proposed location for this support area is immediately northwest of Pond B within the restricted area. As a contingency, a portion of the inactive rail spur and adjacent area could provide additional staging or support area if needed. Removal of the inactive rail spur and grading would be required if this area were needed.

### **2.1.2 Supplemental Sampling to Support Future Site Decommissioning**

As part of its NRC requirements, Honeywell has conducted and will conduct additional radiological screening and soil sampling to support update of cost estimates required by the NRC regulation for future Plant decommissioning. This screening and sampling is separate from the soil confirmation sampling (Section 2.1.6) proposed to achieve RCRA closure. Initial surface soil screening and sampling for uranium and other radiological isotope analysis was conducted in the neutral zone area on January 25, 2018. Additional radiological screening and sampling will be conducted during and following pond closure activities. This sampling will not influence closure plans to meet Illinois EPA requirements. The analytical and survey results for the radiological screening and soil sampling will be submitted under separate cover to the Illinois EPA. Honeywell will provide Illinois EPA with copies of documentation submitted to or received from the NRC that pertains to the closure of surface impoundments.

### **2.1.3 Pond Material Removal**

The specific pond dewatering and material removal methods are further outlined in Section 2.2.1.2. However, existing standing water on the surface of the ponds will be removed by pumping the water to Pond D and then, if the existing Plant system is not operational, to a temporary wastewater treatment system provided by the Remediation Contractor to meet NPDES discharge permit requirements. A permit application will be submitted to the Illinois EPA, Bureau of Water to modify the existing NPDES permit (see Section 2.2.1.2).

The excavation method will minimize the potential for contamination of the subsurface below the liner by protecting the liner to the extent possible during pond material removal. Protections of the liners will include using additional liners and/or crane mats or by leaving a protective 2 to 6 inches of pond material over the liner until the liner is inspected. The Remediation Contractor will be required to repair or isolate significant tears that may occur to the liner during excavation to protect the material below

the liner from contamination. The location of smaller tears or seams that are not sealed will be noted, and the location of confirmation soil samples will be biased to these locations. Under the current RCRA permit, liner repairs are required to be certified by an Illinois registered Professional Engineer (P.E.). To facilitate expeditious closure, liner repairs will not be certified by a P.E. Removal of the liner itself is described in Section 2.1.5.

Equipment used for excavation will be dedicated for work within the restricted area, and will be staged within the restricted area in an area established as described in Section 2.2.1.3. During periods of pond material removal and excavation, a representative sample of the pond material will be sampled at a regular frequency for field paint filter testing using USEPA Method 9095A in SW-846. A soil moisture meter will also be used to measure moisture content of pond material periodically in support of field management. The pond material has been analyzed to meet disposal facility requirements; therefore, the paint filter and moisture analyses are for field verification only. The material will be disposed at the permitted offsite disposal facility, US Ecology Idaho, Inc., Grand View, Idaho (IDD073114654).

The Remediation Contractor will be required to remove standing water and perform initial mass dewatering through the use of material stacking for a minimum of 72 hours to allow drainage to occur before the material is loaded into supersacks. Pond materials will be analyzed by the paint filter test and then placed in supersacks for shipment offsite. Polymer or other reagent will be added before closing each supersack as a means to prevent free liquid generation prior to or during transit. Water management details are provided in Section 2.2.1.2.

Throughout closure activities, onsite personnel will have access to weather forecasts and conditions to allow adequate time to institute contingency measures for the staging area. If a precipitation event is forecast, any pond material that has been staged for loading into supersacks will be covered with a minimum 6-mil polyethylene sheeting, or similar substitute, and secured prior to leaving the work site. If an unexpected precipitation event occurs during the workday, the staged pond material will be covered for the duration of the precipitation event. After all precipitation events, staged material to be loaded into supersacks will be subject to paint filter verification before loading resumes.

In the unlikely event that part or all of the staged pond material does not pass the paint filter test initially, it may be segregated and staged in a manner to allow for further natural drying or incorporation of an absorbent additive (or similar material). A combination of these methods may be used in response to field conditions. Once the pond material passes the paint filter test, it will be loaded directly in supersacks, or moved to a central loading area and loaded in supersacks. Polymer or other reagent will be added before closing each supersack as a means to prevent free liquid generation during subsequent handling and in transit (see Section 2.2). The Remediation Contractor will use a rigid frame and hopper or other apparatus to facilitate loading, hygroscopic polymer addition, and closing.

#### **2.1.4 Disposal Acceptance Criteria and the Unimportant Quantity of Source Material**

Pond material will be disposed of as an unimportant quantity of source material (i.e., < 500 ppm or 0.05% uranium). In general, Pond D has higher radiological characteristics than the other ponds; therefore, it is anticipated that some of the materials from Pond D will be combined with materials from other ponds to meet the unimportant quantity criteria and acceptance criteria at US Ecology Idaho, Inc. Limited areas of other ponds with higher uranium concentrations or radiological dosage may also be combined with material of lower concentration/dose. The purpose of combining material is to meet the unimportant quantity criteria and the disposal facility's acceptance criteria. Material will be combined within the footprint of the ponds prior to loading into supersacks. Each supersack will have an "as-filled" radionuclide concentration determined by screening each bag. The supersacks will be labeled and segregated in the staging area based on concentration to facilitate selection of bags during rail car loading.



Supersacks will be placed into lined gondolas based on concentration such that the combined concentration in the lined gondola is less than the unimportant quantity of source material (i.e., below the 0.05 percent threshold). Removal of pond materials and offsite disposal does not require an NRC license amendment. However, a demonstration that management of the pond material meets the Title 10 CFR 40.13(a) definition of unimportant quantities of source material will be maintained.

### 2.1.5 Removal of the Pond Liner and Underdrain System

After the pond material is removed from each pond, the EPDM liner and leak detection system will be removed with the exception of Pond D which will continue to be used for water management for the duration of the project. Visibly contaminated soil under the liner will be identified by white calcium fluoride staining. Prior to its removal, the leak detection system piping and the pond influent and effluent piping will be drained to remove free liquids. Generated water will flow by gravity to the collection sump. The leak detection system piping will be sized as needed and loaded into lined gondola cars and disposed of at the permitted offsite disposal facility, US Ecology Idaho, Inc. Similarly, the crushed stone drainage layer in the leak detection system trenches and the pond sumps will be removed and disposed. The lateral piping below the berms will be abandoned in place.

Following the removal of the pond material, liner, visibly contaminated soil, and leak detection system components from each pond, the underlying soil will be sampled as described in Section 2.1.6.

### 2.1.6 RCRA Confirmation Soil Sampling

Following removal of the leak detection system and visibly contaminated soils, soil samples from beneath the former pond materials will be collected from 0 to 6 inches beneath the completed excavation depth and from the sides of each of the pond excavations. Sample locations will be laid out in a 50-foot grid pattern. Given the size of the pond closure area, the 50-foot grid pattern will sufficiently characterize the excavated area. Additional contingency confirmation samples will be collected where significant tears in the liners (either currently known or identified during field inspections) are observed or from areas where visibly contaminated soils were identified and removed for disposal.

Samples will be collected using a hand auger, trowel, or similar equipment and placed into clean sample jars provided by the laboratory. Samples will be shipped to the laboratory using chain-of-custody protocols in a cooler with ice. Proposed sampling locations are displayed in Figure I-2 and number of samples per pond are summarized in Table 1.

Table 1. Confirmation Sampling

Pond	Confirmation Samples	Contingency Samples
Pond B	28	10
Pond C	28	10
Pond D	25	10
Pond E	55	20
<b>Total</b>	<b>136</b>	<b>50</b>

Confirmation soil samples will be analyzed by USEPA SW-846 Method 6010 for arsenic, chromium, and lead, SW-846 Method 9056 for fluoride, and SW-846 Method 9045D for pH. Confirmation samples will also be analyzed using the SW-846 Test Method 1312 Synthetic Precipitation Leaching Procedure so that confirmation samples can be compared to the soil component of the groundwater ingestion exposure route as further outlined in Section 2.1.7. These constituents were selected based on knowledge of the material in the pond characterization data in Attachment D4-15 (submitted in March 2017), and comments from the Illinois EPA on the March 2017 plan.

### 2.1.7 Proposed Remedial Objectives

Confirmation samples will be compared to soil ROs for the industrial/commercial or construction worker exposure routes (Table 2). The most conservative value of the Illinois EPA TACO Tier 1 ROs are proposed as the initial objectives. In the event that other ROs are appropriate for particular constituents, these will be proposed separately. The aquifer has been previously determined to be a Class I aquifer, and the Class I remediation objectives for the soil component of the groundwater ingestion route are included here. While the confirmation soil samples will be compared to the soil component of the groundwater ingestion route pathway for completeness as requested by Illinois EPA, it is anticipated that this pathway will be excluded once the site Environmental Land Use Control is in place. Therefore, additional excavation will not be conducted should a soil confirmation sample exceed a Tier 1 RO for this pathway. The indoor inhalation exposure route is excluded from consideration as none of the chemicals of concern are listed in 35 Ill. Adm. Code 742, Appendix A, Table J, and none of the contaminants of concern are volatile chemicals as defined in 35 Ill. Adm. Code 742.200.

Table 2. Proposed Soil Remediation Objectives

Tier 1 Exposure Route-Specific Values for Soils					Soil Component of the Groundwater Ingestion Exposure Route, Class I (mg/L)
Constituent Name	Industrial/ Commercial		Construction Worker		
	Ingestion (mg/kg)	Inhalation (mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	
Arsenic	11.3	1,200	61	25,000	0.05
Chromium	6,100	420	4,100	690	0.1
Fluoride	120,000	—	12,000	—	4.0
Lead	800	—	700	—	0.0075

Note:

mg/kg = milligram(s) per kilogram

mg/L = milligrams(s) per liter

### 2.1.8 Potential Pond D Activities in 2018

Honeywell is considering two options for potential removal of materials from Pond D in 2018 and seeks approval for both. A final decision on early removal and preferred option will be made with considerations of water management and material handling.

In the first option, Honeywell would remove Pond D material in 2018 prior to the completion of the rail siding yet after the installation of a temporary wastewater treatment system or modifications to use a portion of the existing wastewater treatment system. After initial dewatering (as described in Section 2.2.1.2), Pond D material would be removed and staged in another pond(s) for dewatering and/or combining with other pond material to meet the unimportant quantity of source material described in Section 2.1.4. This combined pond material may remain within the pond area until the rail siding is complete and offsite transport via rail begins in 2019.

The second option being considered for removal of Pond D material in 2018 involves removal of material for offsite transport via truck to US Ecology Wayne Disposal, Inc. in Belleville, Michigan (MID04809633). This disposal facility has the same radiological and waste material acceptance criteria as US Ecology's Idaho facility where the majority of pond materials will be disposed. If material is excavated and disposed in 2018, the pond material handling procedures will be completed as discussed previously with the exception of direct loading into lined trucks instead of lined gondolas. Trucks would be screened and exit the Plant through the main gate under current procedures.

For either option, Pond D would then serve as an initial settling pond for contact water, stormwater, and decontamination water during pond closure activities. A Class I permit modification will be submitted to

notify Illinois EPA whether Honeywell intends to conduct Pond D activities in 2018 and which of the two options above are selected.

## 2.2 Unit-Specific Closure Activities: 724.212(a)(2)

### 2.2.1 Closure of Surface Impoundments: 724.328

The sections that follow describe how the proposed closure plan will remove all waste residues and contaminated soils from the ponds.

#### 2.2.1.1 Material Handling Procedures

The excavated pond material, liners, underdrain trench material, and contaminated soil will be placed into waterproof supersacks capable of being lifted and transported to the gondola loading area. The supersacks will hold up to 14 cubic yards of material, and the maximum supersack weight will be 21 tons. Smaller-capacity bags may be used. The supersacks will be weighed and screened for radiological activity prior to loading into gondolas. Sets of supersacks will be staged for loading into lined gondolas such that the combined concentration in the lined gondola is less than the unimportant quantity of source material (that is, less than the 0.05 percent threshold).

The Remediation Contractor will load supersacks into the gondola car. The gondolas will be weighed to ensure the car is not overloaded. The use of the supersacks is expected to provide a secure way to transport the pond materials onsite and provide added protection against spills or liquid releases during transport.

During pond excavation and loading into supersacks, control measures will be put in place to prevent visible airborne emissions should the pond material be too dry. Control measures to be implemented by the Remediation Contractor may include wetting equipment and excavation faces with potable water, spraying potable water on equipment buckets during excavation and loading, and covering stockpiles and disturbed areas when excavation is not occurring to minimize dust generation. The use of supersacks will prevent dust generation during the staging and loading of the material into lined gondolas. A combination of these methods or additional methods may be used in response to field conditions.

#### 2.2.1.2 Water-Handling Procedures

Water may be generated from equipment decontamination, from the accumulation of stormwater within the ponds, or during excavation of the pond materials. As discussed previously, a modification to Honeywell's NPDES permit will be obtained to operate a temporary wastewater treatment system or a portion of the existing wastewater treatment system if not idled. In addition, Honeywell's Storm Water Pollution Prevention Plan (SWPPP) will be updated as necessary. A Notice of Intent for Construction Activities was submitted separately to the Illinois EPA to allow for construction of the new rail spur under the General NPDES permit (ILR10). Revisions to both the Plant and the Construction Project SWPPPs will be implemented and maintained onsite for review.

#### ***Management of Pond Material Moisture***

Prior pond-related activities, including Pond A closure, have shown that the pond material will typically meet paint filter tests as-is (that is, without combining with other material). The Remediation Contractor will be required to stack the material and allow it to drain within the pond footprint for a minimum of 72 hours after initial removal of the standing water within the ponds through use of pumps, sumps, and hoses.

Sorbent material (polymer or other reagent) will be added to each supersack to entrain water that may be generated during handling prior to loading and/or due to vibrations in transit. The Remediation Contractor will conduct sorbent material addition testing prior to the handling of pond materials to

select the optimal type and amount of sorbent material that may be needed based on pond material moisture content and other factors. Additionally, the supersacks will be lined and will be placed within lined gondolas as a further precaution.

Additional methods may be used in response to field conditions. The use of these additional methods will not require a modification to the RCRA closure plan.

### ***Contact Water and Stormwater Management***

A combination of methods will be used to manage contact water during pond closure activities. Pumps, sumps, and hoses will be used to transfer contact water (including stormwater that collects in the low point of each pond) to Pond D. All contact water will be managed through either a temporary wastewater treatment system (described further below) or modified use of the existing Plant wastewater treatment system if not idle. Ponds will be excavated in a manner that will allow for the collection and pumping of contact water and drained liquids from the pond material.

For non-contact water, best management practices (BMPs) will be maintained throughout pond closure to protect surface water receptors. These BMPs may include, but will not be limited to, the use of earthen berms, filter logs, silt fences, and diversion dikes.

### ***Temporary Wastewater Treatment System***

The Plant's wastewater treatment system may not be operational during pond closure. If the Plant's wastewater treatment system is not operational during pond closure, the Remediation Contractor will provide a temporary wastewater treatment system to handle contact water and decontamination water that is generated during pond closure activities. In general, pumps will be placed in the low points of the ponds to transfer the water to Pond D, where initial settling will take place. Remediation Contractors may need to cut channels and create sumps to facilitate the collection of surface water in the ponds. Although the specifics have not been finalized, it will generally consist of pumping water from Pond D for removal of suspended solids and pH adjustment. After the design is finalized, a permit application will be submitted to the Illinois EPA, Bureau of Water. Treated water will be discharged in accordance with Honeywell's NPDES Permit No. IL0004421. The temporary wastewater treatment system will be equipped with an alarm or notification system to alert personnel of situations that may cause treatment system shutdowns.

### ***Wastewater Permitting***

The site has an existing NPDES discharge permit for treatment and discharge of site wastewater, for which Pond D is used for temporary holding prior to discharge to surface water. On February 6, 2017, Honeywell submitted a permit application to the Illinois EPA Bureau of Water proposing to allow treated wastewater discharges to bypass Pond D for direct discharge to Outfall 002 in accordance with the discharge criteria specified in the site NPDES Permit No. IL0004421. The application was approved on May 4, 2017 as Permit No. 2017-EB-61968. Honeywell will also work with Illinois EPA Bureau of Water to modify its NPDES permit for the use of a temporary wastewater treatment system and/or modified use of the Plant's wastewater treatment system during pond closure activities.

#### **2.2.1.3 Material Staging and Loading**

A graded staging area will be constructed with concrete, gravel, geomembrane, or similar materials so that pond material is contained and is not placed directly on the ground. As excavation progresses, additional staging areas are expected to be established within the pond footprint where excavation has been completed.

To meet disposal facility acceptance criteria, some pond materials may be combined with material from other ponds or other areas within the same pond. At the time of filling, supersacks will be weighed and screened for radiological activity and free liquid (paint filter) before transport to a staging area within the restricted area. Each supersack will have an "as-filled" radionuclide concentration determined by

screening the bag. The supersack will then be labeled, marked with a unique identifier, and documented in a tracking system.

The full supersack will be transported to the staging area and segregated in the staging area based on concentration to facilitate more efficient loading into the gondolas. When a supersack is selected for loading, it will be transferred to the loading area adjacent to the lock, and a crane or excavator will load the supersacks into gondola cars positioned within the lock. The Remediation Contractor will place a waterproof U.S. Department of Transportation-compliant IP-1-rated liner into each gondola car prior to loading the supersacks. The liner will be placed into the gondola prior to transport into the lock to minimize personnel required to access the restricted area.

Gondola car drain caps will be open until the cars are lined and then closed prior to loading and will remain closed during transit. Supersacks will be selected for loading into the gondolas based on concentration so that the combined concentration in the gondola is less than the unimportant quantity of source material (that is, less than the 0.05 percent threshold, or 500 ppm).

The lock system will be used to maintain security and radiological control of any materials moved from the restricted area into the lock for loading prior to release to the neutral zone for offsite transport. No personnel will be allowed to exit the restricted area and enter the neutral zone or from the neutral zone and into the restricted area through this lock. Personnel working in the restricted area (that is, the ponds area) will enter and exit through the main Plant gate in the same manner as other personnel working at the Plant. Only equipment and pond material will pass between the neutral zone and restricted area through the lock.

The following procedures will apply for loading material in the lock:

1. The restricted area sliding gates are closed and then the neutral zone end gates are opened. A railcar mover positions the empty gondola cars into the **NEUTRAL** lock area and exits the lock to the neutral zone. All employees exit the lock area and move into the neutral zone.
2. Neutral zone end gates are closed and then the restricted area gate is opened. Interior of lock is now **RESTRICTED**.
3. Gondola cars are loaded, then screened and cleared when full and while the interior of lock is still **RESTRICTED**, the concrete floor of the lock is decontaminated (if necessary) and all employees exit from the lock area and into the restricted area.
4. Restricted area gates are closed, then the neutral zone gates are opened. The interior of the lock is now **NEUTRAL**, and the railcar mover enters the lock and pushes the full gondola cars onto the staging spur.

An integrated gate interlocking system will be used that will prevent the restricted area gates from opening unless neutral zone gates are locked, and neutral zone gates from opening unless restricted area gates are locked. This process will provide an efficient way to allow gondola cars to enter and exit rapidly. In addition, by using the integrated gate interlocking system, the possibility of neutral zone personnel entering the restricted area is mitigated. The lock operations are graphically depicted on Figure I-4.

Once loaded, the gondola liners will be closed. Depending on liner configuration, they may be folded over or zipped up to contain the waste properly. The gondola car may be covered or tarped at the discretion of the transportation and disposal contractor.

All loaded rail cars must meet shipping weight limitations. It is anticipated gondolas will have a maximum capacity of approximately 110 tons. For the purposes of transportation production rates, the gondola cars will be loaded to approximately 105 tons. Gondola cars will be weighed using weigh-in-motion (or equivalent) rail scales to confirm that the gondolas are loaded to no more than the maximum

allowed gondola capacity (stenciled on the side of the individual car). The rail scale will be installed just outside the lock and will weigh the gondolas as they roll over the scale.

Gondolas will be staged on two parallel rail spurs constructed within the neutral zone. Typically, one spur will contain empty gondolas, and one spur will contain loaded and cleared gondolas. A dedicated railcar mover will be used to move empty gondolas from the rail spur into the lock area. Once loaded and cleared by radiological and security personnel, the loaded gondola will be transported back to the rail spur, and an empty car will be transported to the lock.

#### **2.2.1.4 Waste Characterization, Transportation, and Disposal of Pond Materials**

The ponds were originally used for the disposal of hazardous wastes with the corrosivity characteristic (elevated pH; waste code D002). However, sampling completed in 2009 indicated the pond material is no longer hazardous (see Attachment D4-15, submitted March 31, 2017). The pond material did not have the corrosivity characteristic because it was not aqueous (35 Ill. Adm. Code 721.122), and the pond material did not have the toxicity characteristic as shown by the toxicity characteristic leachate procedure.

The transportation and disposal contractor will coordinate with BNSF to pick up filled and screened railcars and deliver empty, contaminant-free containers. Following loading of the pond material, liner, piping, soil, and other waste material into the lined gondola cars, the waste material will be transported to US Ecology Idaho, Inc. with some portions potentially being transported to US Ecology Belleville. Prior to removing the cars from the Plant, the containers will be screened and inspected, as described in Section 2.2.1.5. Information regarding potential transportation of pond material via trucks is provided in Section 2.1.8.

#### **2.2.1.5 Waste-Screening Procedures**

Honeywell's waste-screening and release procedures meet all applicable waste disposal facility and NRC requirements. Waste-screening and release procedures were developed from existing Plant procedures and modified to support pond closure. During excavation, the pond material will be field analyzed for paint filter on a regular basis supplemented by periodic moisture content measurements using a soil moisture meter.

Following the 72-hour free draining period, a paint filter test will be field performed on the material planned for loading that day. The material at the bottom of the pond will most likely have the most moisture; therefore, the sample obtained for testing will comprise a composite of "upper" and "lower" material based on the vertical limits of the day's planned loading. It is expected based upon work at Pond A, and evaluations of available moisture content data, that each day's composite pond material will pass the paint filter test. Should the contractor decide to employ two or more excavation crews, each will perform a paint filter test for their planned work area.

In the unlikely event that part or all of the staged pond material does not pass the paint filter test initially, it may be segregated and staged in a manner to allow for further natural drying or incorporation of an absorbent additive (or similar material). A combination of these methods may be used in response to field conditions. To prevent free liquid generation that may occur prior to or during transportation, polymer or other reagent (selected based on testing) will be added to each supersack.

Radiological screening to inform the selection of a set of supersacks meeting Plant release and disposal facility acceptance criteria will be accomplished through establishment of a correlation between total uranium content and radiation dose rate.

To meet the unimportant quantity of source material, supersacks with a uranium content of greater than 2,000 ppm uranium based on the screening will be emptied back to the excavation site where the material was obtained. The supersack may not be reused but should be placed in the next supersack for disposal with pond material that meets the screening criteria. The value of 2,000 ppm uranium was

selected as a practical upper limit for averaging purposes considering that each gondola car can contain only five full supersacks without exceeding the maximum weight capacity of the gondola car. Material handling after the pond material has been loaded in supersacks is described in Section 2.2.1.3.

#### **2.2.1.6 Backfill and Grading of Closed Ponds Area**

The final elevations of the restored ponds are depicted on Figure I-5. This elevation plan was developed to (1) provide positive drainage, (2) provide a generally flat area usable by the Plant after closure, and (3) minimize net cut and fill volumes. Most of the existing pond berms will be regraded, with some of the perimeter berms left in place for future stormwater management.

It is expected that final grading will result in a reduction of flow to Outfall 002, since a portion of stormwater that would have been captured in the ponds area will now sheet flow overland to natural ravines located southwest and southeast of Pond E.

Following grading, the surface of the former ponds area will be finished with a nominal 12 inches of dense-graded aggregate crushed stone to provide a usable surface for future Plant operations and to minimize erosion.

Improvements to the neutral zone area, including roadways, the lock decontamination pad, and rail spurs, will remain in place for potential future use. The fencing modifications will also remain in place. Lighting and security cameras will be restored. Stormwater controls, including riprap and channels, will be installed to manage stormwater.

Imported fill materials, either onsite or offsite borrow as described further in Section 2.2.2, may be used to augment onsite cut materials to meet final design grades, if needed.

### **2.2.2 Borrow Source Sampling and Analysis Plan**

During a pre-design geotechnical investigation conducted in January 2017, a composite sample was collected from the three soil borings collected in the potential onsite borrow area (the intervals of 0–5 feet for GT-201 and GT-203 and of 5–10 feet for GT-202) and analyzed for herbicides, pesticides, total and TCLP metals, polychlorinated biphenyls, and semivolatile organic compounds, while a grab sample was collected from GT-202 for analysis of volatile organic compounds. Of the constituents analyzed, only a limited number of metals were detected. All detected metals were below Tier 1 ROs except for arsenic, which at 18 mg/kg is slightly above the 11.3 mg/kg Tier 1 RO. At this time, there is an excess of cut materials from the grading operations associated with site preparations, and additional borrow materials are not expected to be required to achieve final design grades. In the event that borrow material is needed, additional sampling will be conducted as needed to meet the design criteria, intended use, and applicable remedial objectives in Section 2.1.9.

### **2.2.3 Pond Closure Reporting**

Two completion reports (one in each construction season) with a potential third if work is performed in 2018, will be submitted to the Illinois EPA during pond closure activities on or March 15 after each construction season. The proposed construction completion reports will be submitted by March 15 along with a certification of closure (Attachment H of the Permit). These reports will include information on the following:

- Closure activities
- Waste shipment documentation
- Confirmation sampling and analysis
- Final site restoration documentation

### 3. Closure Schedule: 724.212(b)(6), 724.213

Attachment I-2 presents a closure schedule for Ponds B, C, D, and E. Due to the amount of pond material to be removed and the limited access to the restricted area of the site, closure will out of necessity take longer than 180 days. Pond excavation and transportation will take place primarily over two construction seasons, in 2019 and 2020, with potentially limited activity in 2018. This closure plan proposes greater than 180 days for closure activities in accordance with 35 Ill. Adm. Code 724.213(b).

### 4. Contingent Post-Closure Plan: 724.218

Under 35 Ill. Adm. Code 724.328(c)(1)(B) and 724.218, a contingent post-closure care plan is required.

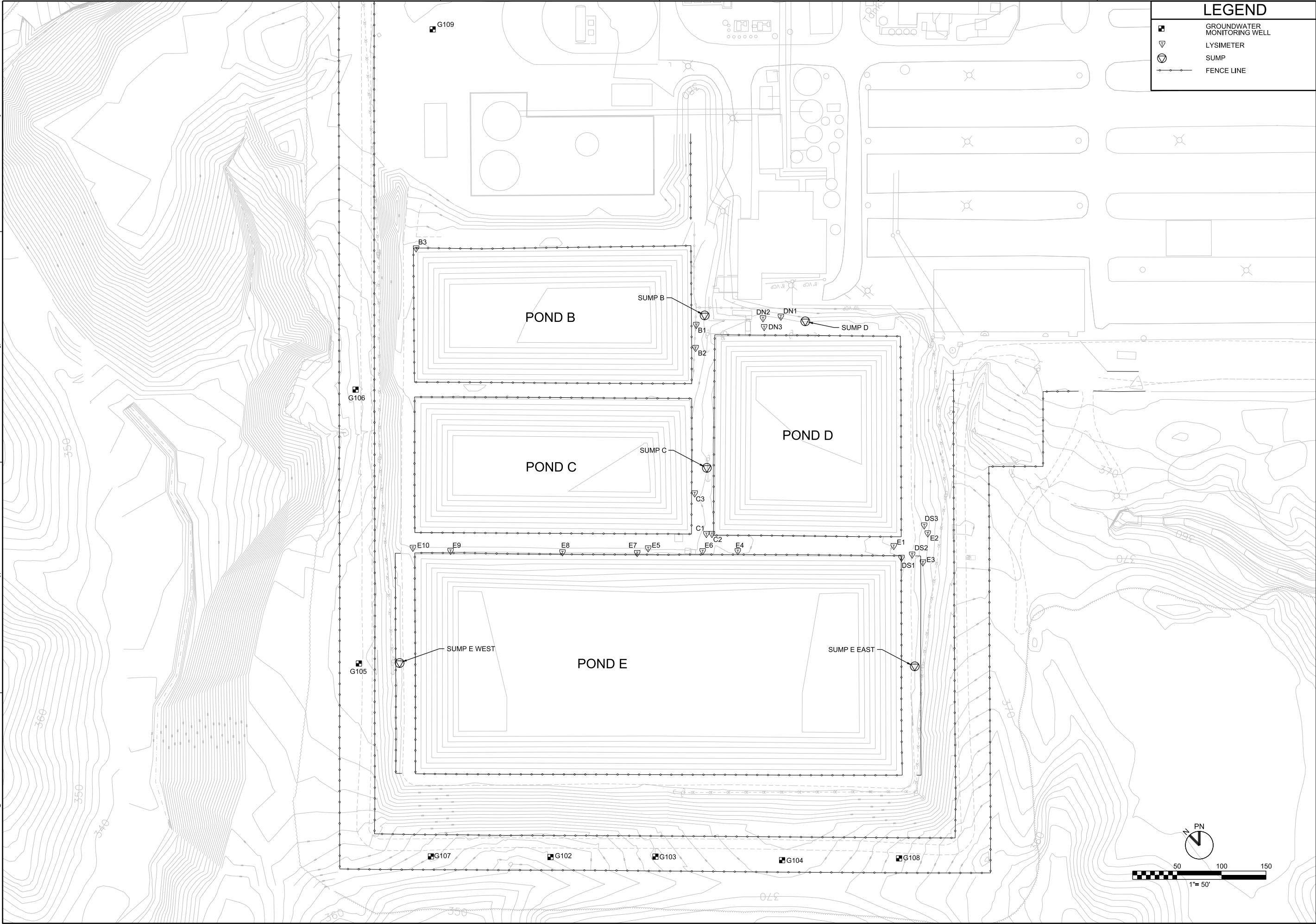
Post-closure groundwater monitoring will continue in accordance with the RCRA Part B Permit for a period of two years after completion of waste removal. The post-closure monitoring includes quarterly sampling of the permitted groundwater monitoring wells. During this time, semi-annual inspections of the closed, graded area will be conducted. During inspections, signs of erosion in the cover will be noted and, if necessary, additional crushed stone will be added. At the end of the 2-year monitoring period, a report will be submitted to the Illinois EPA documenting the results of the monitoring and, if necessary, any future actions. If warranted, a proposal will be submitted to end the post-closure care period, abandon monitoring wells, and remove the ponds from the RCRA permit. The groundwater detection monitoring program of the ponds will continue to be implemented until such time as the Illinois EPA approves a request to discontinue this monitoring. If this request is approved, the monitoring wells will be abandoned.

In the event “clean” closure standards outlined in 35 Ill. Adm. Code 724.328(a)(1) cannot be met, an updated 30-year post-closure plan will be submitted along with an updated post-closure cost estimate for approval. This submittal will include the proposal of additional monitoring devices if necessary.



# Attachment I-1

## Figures



ch2m

FIGURE I-1  
POND AREA

VERIFY SCALE

BAR IS ONE INCH ON  
ORIGINAL DRAWING.  
0 1"

DATE MAR 2017

PROJ 681165

DWG FIGURE I-1

SHEET of

NO. DATE DSGN

REVISION

BY APVD

DR

CHK

APVD

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METROPOLIS WORKS PONDS CLOSURE

METROPOLIS, IL

HONEYWELL INTERNATIONAL INC.

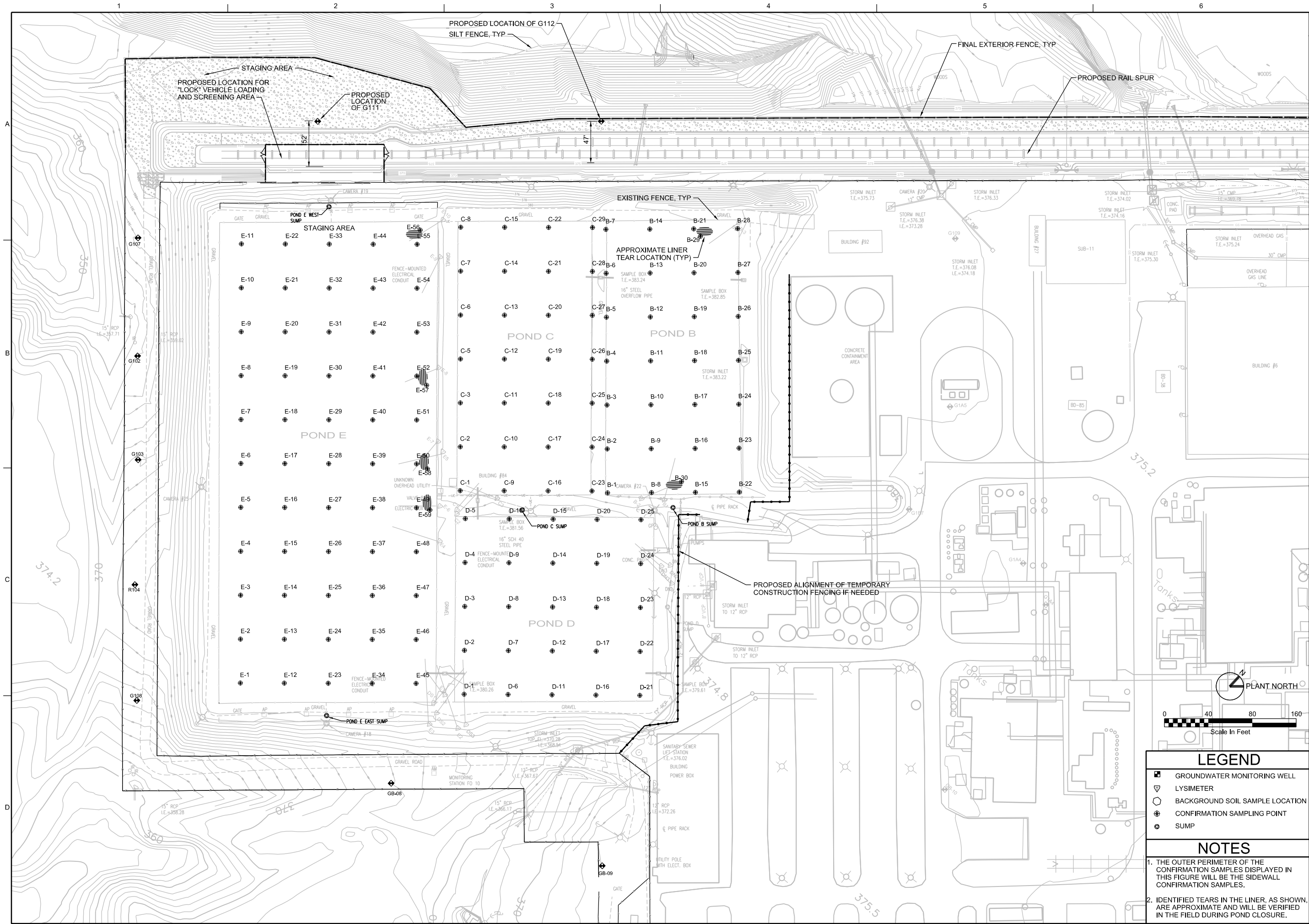
MORRIS PLAINS, NJ

D SCHAULER

FILENAME: FIGURE-I-1\_681165.dgn

PLOT DATE: 3/15/2017

PLOT TIME: 12:32:20 PM



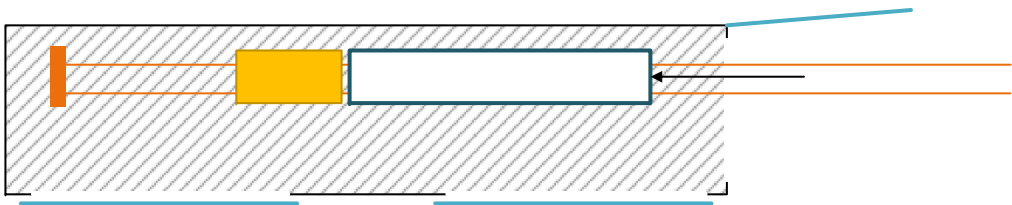
METROPOLIS WORKS PONDS CLOSURE		METROPOLIS, IL	
HONEYWELL INTERNATIONAL INC.		MORRIS PLAINS, NJ	
FIGURE I-2 EXISTING CONDITIONS AND PROPOSED POND CLOSURE PLAN		CIVIL	
VERIFY SCALE		DATE	
BAR IS ONE INCH ON ORIGINAL DRAWING.		PROJ 681165	
DWG FIGURE I-2		SHEET of	
NOTES		REVISION	
1. THE OUTER PERIMETER OF THE CONFIRMATION SAMPLES DISPLAYED IN THIS FIGURE WILL BE THE SIDEWALL CONFIRMATION SAMPLES.		CHK	
2. IDENTIFIED TEARS IN THE LINER, AS SHOWN, ARE APPROXIMATE AND WILL BE VERIFIED IN THE FIELD DURING POND CLOSURE.		D SCHAUER	
LEGEND		NO. DATE	
GROUNDWATER MONITORING WELL		DGN	
LYSIMETER		BY APVD	
BACKGROUND SOIL SAMPLE LOCATION		APVD	
CONFIRMATION SAMPLING POINT		APVD	
SUMP		APVD	



FIGURE I-4  
Proposed Lock Loading/Clearing Operation

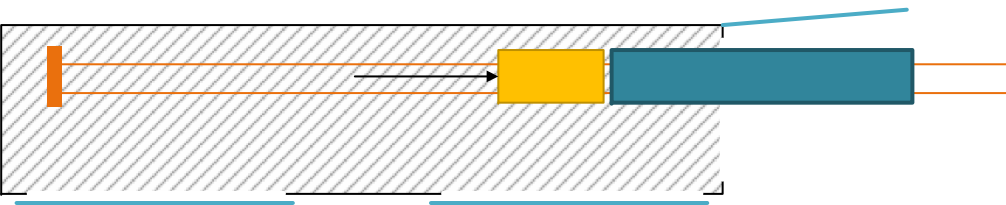
1

Neutral zone gates are open; restricted area gates are closed\*. Trackmobile pulls empty gondola car into NEUTRAL lock area.



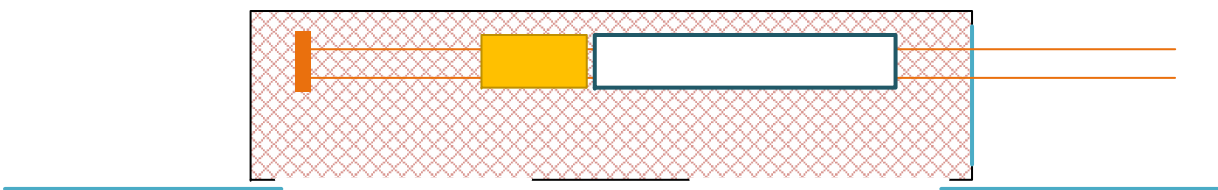
4

Restricted area gates are closed; neutral zone gates are opened\*. Interior of lock is now NEUTRAL. Trackmobile pushes full gondola car onto staging spur.



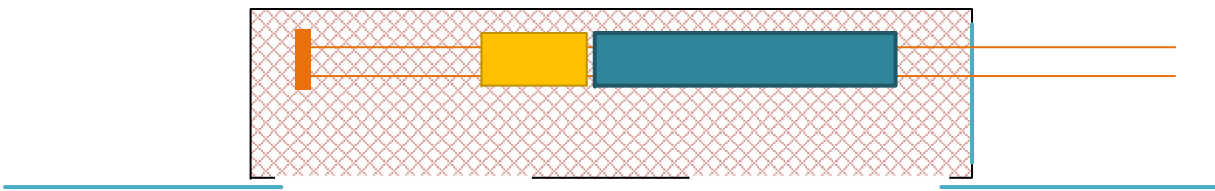
2

Neutral zone gates are closed; restricted area gates are opened\*. Interior of lock is now RESTRICTED.



3

Gondola car is loaded, screened, and cleared while interior of lock is RESTRICTED. Floor of lock is decontaminated (if necessary).



LEGEND

- Trackmobile
- Gondola railcar, full
- Gondola railcar, empty
- Rail spur
- Restricted Area
- Neutral Area

\*Interlock system will be used preventing restricted area gates from opening unless neutral zone gates are locked, and neutral zone gates from opening unless restricted area gates are locked.





ATTACHMENT I-2  
RCRA CLOSURE SCHEDULE - UPDATED

**RCRA SMALL AND RCRA LARGE  
CLOSURE SCHEDULE**



**REVISED SURFACE IMPOUNDMENT CLOSURE SCHEDULE**

## Attachment I-2. Surface Impoundment Closure Schedule <sup>a</sup>

*Honeywell International Inc. Metropolis Works, Metropolis, Illinois*

	<b>Task</b>	<b>Anticipated Start</b>	<b>Anticipated Finish</b>
1	Submittal of Class 1* Permit Modification (Closure Plan) to Illinois EPA <sup>b</sup>	March 2017	March 2017
2	Illinois EPA Review and Conditional Approval of Closure Plan	April 2017	July 2017
3	Civil (Neutral Zone Preparation and Rail Construction) and Remedial Final Design	February 2017	December 2017
4	Transportation and Disposal Contractor Procurement	February 2017	December 2017
5	Civil Contractor Procurement	November 2017	March 2018
6	Remediation Contractor Procurement	November 2017	May 2018
7	Submittal of Class 1* Permit Modification (Closure Plan) Update to Illinois EPA <sup>b</sup>	March 2018	March 2018
8	Illinois EPA Review and Approval of Closure Plan	April 2018	July 2018
9	Pre Mobilization Planning Activities for Civil and Remediation Contractors	March 2018	February 2019
10	Neutral Zone Site Preparation	March 2018	September 2018
11	Initial Pond D Activities (Potential)	August 2018	December 2018
12	Rail Construction	September 2018	December 2018
13	Material Removal and Handling, Transportation and Disposal	April 2019	December 2020
	Construction Season 1	April 2019	December 2019
	Construction Season 2	April 2020	November 2020
14	Site Restoration	October 2020	January 2021
15	Submit Closure Completion Report to IEPA	March 2021	March 2021

<sup>a</sup> This schedule is subject to change based on weather and field conditions during closure.

<sup>b</sup> Copies will also be provided to NRC and USEPA.

**ATTACHMENT I-3  
RCRA SMALL AND RCRA LARGE CLOSURE COST ESTIMATE  
AND SUPPORTING DOCUMENTATION**

ATTACHMENT I-4

SURFACE IMPOUNDMENT CLOSURE AND POST-CLOSURE COST ESTIMATES - UPDATED

## RCRA Ponds Closure Cost Estimate

Honeywell International Inc. Metropolis Works, Metropolis, Illinois

Activity	Unit Cost	Units	Number of Units	Total
Mobilization	\$ 186,000	LS	1	\$ 186,000
Pre-Disposal Activities				
Site Improvements <sup>a</sup>	\$ 5,612,000	LS	1	\$ 5,612,000
Grading and Road Construction	\$ 1,149,000	LS	1	\$ 1,149,000
Rail Siding Construction	\$ 2,113,000	LS	1	\$ 2,113,000
Material Excavation and Packaging for Railcar Transport <sup>b</sup> (includes pond material, liner, leachate collection system, and soil)	\$ 13,888,000	LS	1	\$ 13,888,000
Onsite Water Treatment	\$ 669,000	LS	1	\$ 669,000
Material Disposal				
Disposal Fee <sup>b</sup>	\$ 23,161,000	LS	1	\$ 23,161,000
Fuel Surcharge	\$ 92,000	LS	1	\$ 92,000
Pond Area Regrading, Seeding, and Site Restoration	\$ 2,671,000	LS	1	\$ 2,671,000
Demobilization	\$ 85,000	LS	1	\$ 85,000
Oversight and Management				
Project Management	\$ 4,061,000	LS	1	\$ 4,061,000
Construction Oversight	\$ 3,793,000	LS	1	\$ 3,793,000
Health and Safety / Health Physics	\$ 1,346,000	LS	1	\$ 1,346,000
Construction Documentation and Permitting	\$ 695,000	LS	1	\$ 695,000
<b>TOTAL</b>				<b>\$ 59,521,000</b>

<sup>a</sup> Site improvement costs include the abandonment and installation of two monitoring wells estimated at \$28,000

<sup>b</sup> The quantity of material to be excavated, packaged, transported, and disposed includes the following:

Pond Material: 112,000 tons (approximated based on design information and surveys of the pond material and including 5% polymer/admix); EPDM Liner, Leachate Collection System, Bedding and Soil: 6,470 tons (approximate); and Solids from tanks U-845 and U-846.

# Annual Post-closure Costs Estimate for RCRA Ponds

Honeywell International Inc. Metropolis Works, Metropolis, Illinois

Activity	Unit Cost	Units	Number of Units per Event	Subtotal	Number of Events per Year	Total
Groundwater Monitoring						
Groundwater Sampling and Closed Pond Cover Inspection <sup>a</sup>	\$ 70	\$/hr	40	\$ 2,800	4	\$ 11,200
Groundwater Analytical (RCRA Pond Wells) <sup>b</sup>	\$ 65	\$/well	9	\$ 585	4	\$ 2,340
Contingent Groundwater Analytical (radium-226) <sup>b,c</sup>	\$ 100	\$/sample	1	\$ 100	4	\$ 400
Data Validation, Management, and Reporting including the Annual Groundwater Flow Evaluation <sup>d</sup>	\$ 8,740	\$/quarter	1	\$ 8,740	4	\$ 34,960
Annual Cost Estimate Update	\$ 120	\$/hr	2	\$ 240	1	\$ 240
Biennial Groundwater Well Survey <sup>e</sup>	\$ 14,400	\$/survey	1	\$ 14,400	1	\$ 14,400

<sup>a</sup> Based on estimated rates for two personnel from GHD to conduct quarterly events in 2017.

<sup>b</sup> Analytical costs are based upon 2017 pricing from TestAmerica, Inc. and Teledyne Brown.

<sup>c</sup> It is assumed one contingent radium-226 analysis will be necessary per quarter.

<sup>d</sup> Based on estimate from CH2M for 2017.

<sup>e</sup> The cost of the biennial well survey is based on a December 2016 CH2M proposal based on pricing from Siteworx Survey and Design.

#### One-Time Post-closure Care Cost Estimates for RCRA Ponds

Honeywell International Inc. Metropolis Works, Metropolis, Illinois

Activity	Unit Cost	Units	Number of Units	Subtotal
Certification of Completion of Post-Closure Care	\$ 25,000	lump sum	1	\$ 25,000
Plugging & Abandonment of Groundwater Monitoring Wells (9)	\$ 20,000	lump sum	1	\$ 20,000
<b>One-Time Cost</b>				<b>\$ 45,000</b>

<sup>a</sup> The cost of well abandonment is estimated based upon 2016 pricing from Bulldog Drilling for well abandonment at the site. Note that sump and lysimeter removal is part of closure costs.

#### Total Post-closure Care Cost Estimate for RCRA Ponds

Honeywell International Inc. Metropolis Works, Metropolis, Illinois

Total Annual Cost	\$ 63,540
Number of Years in Post-Closure Care Period	2
<b>Annual Cost Subtotal</b>	<b>\$ 127,080</b>
<b>One-Time Cost Subtotal</b>	<b>\$ 45,000</b>
<b>POST-CLOSURE CARE COST TOTAL</b>	<b>\$ 172,080</b>

**ATTACHMENT I-5**  
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