Honeywell

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June 20, 2013

To: Diane Carlton, NYSDEC, Region 7 (1 CD)
Holly Sammon, Onondaga County Public Library (1 bound)
Samuel Sage, Atlantic States Legal Foundation (1 bound)
Joseph J. Heath, Esq., Onondaga Nation (cover letter)
Cara Burton, Solvay Public Library (1 bound)

Re: Letter of Transmittal – Wastebeds 1-8 Site Repository Addition

The below document has been approved by the New York State Department of Environmental Conservation (NYSDEC) and is enclosed for your document holdings:

- Wastebeds 1-8 Integrated IRM: Start-Up Plan dated June 13, 2013

Sincerely,

John P. McAuliffe
by CCC

John P. McAuliffe, P.E.
Program Director, Syracuse

Enc.

cc: Tracy A. Smith- Project Manager

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau D, 12th Floor
625 Broadway, Albany, New York 12233-7013
Phone: (518) 402-9676 • **Fax:** (518) 402-9020
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Joe Martens
Commissioner

June 18, 2013

Mr. John P. McAuliffe, P.E.
Honeywell International, Inc.
301 Plainfield Road
Suite 330
Syracuse, NY 13212

Re: Wastebeds 1-8 IRM: Start-Up Plan

Dear Mr. McAuliffe:

The New York State Department of Environmental Conservation has reviewed the "Wastebeds 1-8 Integrated IRM: Start-Up Plan" (plan) submitted in your letter dated June 13, 2013. Based on our review the plan is approved. If you have any questions, please contact me at 518-402-9796.

Sincerely,

Tracy A. Smith

Tracy A. Smith
Project Manager

ecc: J. Gregg, NYSDEC
H. Kuhl
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C. Waterman
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S. Miller, Honeywell
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June 13, 2013

Mr. Tracy A. Smith
Project Manager
NYSDEC Div. of Environmental Remediation
Remedial Bureau D
625 Broadway, 12th Floor
Albany, NY 12233-7016

RE: Wastebeds 1-8 Integrated IRM: Start-Up Plan
Town of Geddes, Onondaga County, New York
Order on Consent: Index # D-7-0002-02-08

Dear Mr. Smith:

Attached is the Wastebeds 1-8 Integrated IRM Start-Up Plan which was prepared by O'Brien & Gere. This Start-Up Plan summarizes the procedures for start-up of the Wastebeds 1-8 IRM Groundwater and Seep Collection Systems.

Please contact Bradley Kubiak at O'Brien & Gere (315-956-6384) or Steve Miller at Parsons (315-741-3723) should you have any questions regarding the information presented herein.

Sincerely,

John P. McAuliffe by CCC

John P. McAuliffe, P.E.
Program Director, Syracuse

Enc. (2 copies, 1 CD)

cc:	Robert Nunes	USEPA (1 copy, 2 CDs)
	Harry Warner	NYSDEC Region 7 (1 copy, 1 CD)
	Justin Deming	NYSDOH (ltr only)
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Jeanne Shenandoah	Onondaga Nation (1 copy and ec ltr only)
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Alma Lowry	(ec ltr only)
Michael Spera	AECOM (1 copy, 1 CD)
David Scheuing	AECOM (1 copy, 1 CD)
William Hague	Honeywell (ec or CD)
Steve Miller	Honeywell (CD/ltr only)
Thomas Conklin	O'Brien & Gere (ec)
Bradley Kubiak	O'Brien & Gere (ec)
Douglas M. Crawford	O'Brien & Gere (ec or ec ltr only)
Christopher C. Calkins	O'Brien & Gere (ec or ec ltr only)

START-UP PLAN

Wastebeds 1-8 Integrated IRM

Honeywell

June 2013

O'BRIEN & GERE

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I, **Brian E. White**, certify that I am currently a NYS-registered Professional Engineer and that this Start-Up Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

This Start-Up Plan was developed pursuant to the Order on Consent (Index D7-0002-02-08) between Honeywell and the New York State Department of Environmental Conservation (NYSDEC).

1. INTRODUCTION

This Start-Up Plan (Plan) summarizes the procedures for start-up the Wastebeds 1-8 Integrated Interim Remedial Measure Groundwater and Seep Collection Systems (Integrated IRM Collection Systems). This plan was developed by O'Brien & Gere on behalf of Honeywell International Inc. (Honeywell) pursuant to the Order on Consent (Index # D7-0002-02-08) between Honeywell and the New York State Department of Environmental Conservation (NYSDEC). The Integrated IRM is summarized in the NYSDEC's 2011 Response Action Document (NYSDEC and United States Environmental Protection Agency [USEPA] 2011).

The Integrated IRM Collection Systems include:

- Three collection trenches, including the Eastern Shoreline Collection Trench, Ninemile Creek Collection Trench, and Remediation Area A Collection Trench, to collect and convey groundwater and seep water to three transfer pumping stations. Piezometers will be installed at approximately 500 foot intervals within the collection trench. The piezometers will include a submersible pressure transducer with an integral data logger for groundwater elevation data collection. Additionally, submersible pressure transducers with integral data loggers will also be installed within the cleanouts located at the extreme ends of the each trench.
- Three wet wells and pumping stations, including the Eastern Shore Pump Station, Ninemile Creek Pump Station, and Northern Shore Pump Station to collect the groundwater and seep water from the collection trenches and convey/pump to the Willis Ave. Groundwater Treatment Plant. Operating equipment associated with these wet wells will monitor and record wet well water elevations and pumping rates.

The Operations, Monitoring, and Maintenance (OM&M) Manual for the Integrated IRM will be submitted separately, which will include the Long Term Performance Verification for the collection systems

2. ROLES AND RESPONSIBILITIES

The table below outlines the members of the project team and their responsibilities as they pertain to Start-Up activities.

Name Title	Representing	Role
Steve Miller System Owner's Representative	Honeywell	▪ Review start-up documents. ▪ Support start-up activities. ▪ Witness start-up activities as desired. ▪ Provide final system acceptance
Chris Killoren WB 1-8 Project Manager	O'Brien & Gere	▪ Overall project leadership. ▪ Review all start-up documents. ▪ Support start-up activities. ▪ Create and track construction punch-list. ▪ Verify completion of construction.
Brad Kubiak WB 1-8 Engineering Manager	O'Brien & Gere	▪ Overall technical leadership. ▪ Review start-up documents. ▪ Support start-up activities. ▪ Verify system has achieved design objective.
David Rigas WB 1-8 I&C Manager	O'Brien & Gere	▪ Provide oversight and technical leadership during installation of process control system ▪ Coordinate control system activities with start-up activities.
Peter Bearkland WB 1-8 Commissioning Manager	O'Brien & Gere	▪ Leadership of start-up. ▪ Preparation of start-up documents. ▪ Supervise onsite execution of start-up documents. ▪ Coordinate start-up activities with construction manager ▪ Verify system has reached functional completion ▪ Ensure orderly project closeout and turnover.

Name Title	Representing	Role
John Formoza WB 1-8 Operations Contractor	CH2M-HILL - OMI	▪ Review the start-up documents. ▪ Participate in operator training. ▪ Provide operators, as available, to participate in start-up activities as an extension to formal training ▪ Coordinate treatment plant operations during start-up. ▪ Provide support for orderly transition from start-up to operations.

3. OBJECTIVE

The objective of this Plan is to demonstrate that the Integrated IRM Collection Systems are accomplishing the respective IRM objectives (O'Brien & Gere 2013).

In accordance with the RAD, the IRM objectives, associated with the Integrated IRM Collection Systems are to mitigate the following, to the extent necessary and practicable within the scope of the IRM:

- Discharge of Ninemile Creek sand and gravel unit and eastern shoreline groundwater to Onondaga Lake and Ninemile Creek
- Discharge of shallow and intermediate groundwater to Ditch A
- Direct contact with and discharge of Ninemile Creek bank seep water and eastern and northern shore seep water to Onondaga Lake and Ninemile Creek
- Discharge of seep water from the upper reach of Ditch A to Ninemile Creek

In addition, the IRM Collection Systems were designed to provide hydraulic control associated with discharge from the NMC sand and gravel unit to Ninemile Creek and Onondaga Lake in Remediation Area A and Ninemile Creek.

In general, these objectives will be accomplished by creating groundwater elevations in the collection trench, associated passive wells, and piezometers that are at least 0.2 ft lower than the Onondaga Lake surface water elevation. The surface water level will be established from measurement available at the United States Geologic Survey (USGS) website (**link**: http://waterdata.usgs.gov/ny/nwis/dv/?site_no=04240495) at a gauging station (referenced to the North American Datum of 1927) located on the northern shore of Onondaga Lake at Onondaga Park Marina basin. This data will then be converted to the North American Vertical Datum of 1988, as this datum was used in the geological modeling in establishing the basis of design. By maintaining groundwater elevations in the collection systems below the lake surface water elevations, preferential groundwater flow will be to the collection trench instead of the adjacent surface water body.

4. START-UP

For the purposes of start-up, with the exception of Eastern Shore pump station which is required for all collection trenches, each collection trench (Ninemile, Northern Shore and Eastern Shore) and associated wet well will be treated as single systems. As such, the same start up procedures will be executed on each wet well and associated collection trench individually.

Once the measurements from the piezometers in the collection system demonstrate groundwater elevations of at least 0.2 ft below lake surface water elevation, the IRM objective shall be considered achieved for the respective collection system. At that time, the collection system will be turned over to the care, custody and control of the Operations Contractor for long term OM&M.

4.1 WET WELL START-UP

Upon completion of construction, the wet well pumping systems will start operation. The wet well water elevation control set point will be initially below lake surface water elevation. The wet well control set point will be updated daily based on the lake surface water elevation. During the initial collection trench drawdown period the pumping station wet well water elevation may exceed the set point for a period of time as the groundwater in the formations surrounding the collection trench are drawn into the trench. The wet well discharge flow and water elevation will be continuously displayed at the control panel HMI screen and recorded by a data logger at a recording rate of one hour. A technician will monitor the wet well water level displayed at the control panel HMI screen daily and manually record the elevation and discharge flow rate and adjust the control set point based on the lake surface water elevation, as necessary.

4.2 COLLECTION TRENCH START-UP

As the wet well water elevation reaches the set point, the discharge flow rate will reduce as the groundwater in the trench, piezometers and passive wells approach the target elevation below lake surface water elevation. Once the wet well water elevation is observed to be below lake surface water elevation, the technician will manually measure the groundwater elevation at the furthest point (observation port or clean-out) and one or two additional points along the respective collection trench. These additional measurement locations will be selected as collection trench start-up progresses. If the groundwater elevation measured at the furthest point from the wet well is found to be above lake surface water elevation, the technician will incrementally lower the wet well elevation control set point daily. This will continue until the measured groundwater elevation at the far end of the collection trench is observed to be below lake surface water elevation and the levels at the additional locations are appropriate with the level at the far end of the collection trench. Once the measured groundwater elevations are observed to be below lake surface water elevation, the technician will record and return after 24 hrs to re-measure. If the second measurements indicate the groundwater elevations are below lake surface water elevation then the technician will manually measure the groundwater level in the piezometers. If the piezometers groundwater elevations are at or below lake level then the groundwater in the collection trench shall be considered operationally verified and turned over to the care, custody and control of the Operations Contractor for daily operations.

4.3 BASELINE SYSTEM PERFORMANCE DATA

After system turnover to the Operations Contractor, O'Brien & Gere will conduct a comprehensive evaluation of the collection system performance by downloading historical data from data loggers located at the piezometers and collection trench cleanouts, as well as logged operational data from the wet wells.

This data will be used to establish baseline values of the following system performance parameters:

- Time required for reaching target groundwater elevation within the collection trenches and piezometers
- The head loss along the length of the trench pipe
- The head loss between the trench pipe and the passive wells
- The head loss between the trench pipe and the piezometers
- The trench efficiency (*i.e.*, a function of comparing the head loss differential throughout the system against the established steady-state head loss) and how the pumping water elevation affects the trench pumping rate.

This information will be used to assist the Operations Contractor to develop standard operating procedures and maintenance schedules.

5. SUMMARY REPORT

At the conclusion of each system start-up, O'Brien & Gere shall prepare a summary report of the start-up and submit to the NYSDEC for review and approval. This report will include lake surface water and groundwater elevation and wet well flow log sheets used during start-up. This information will document that the each of the Integrated IRM Collection Systems has achieved its objective.

REFERENCES

NYSDEC and United States Environmental Protection Agency (USEPA). 2011. *Response Action Document, Wastebeds 1-8 Site, Subsite of the Onondaga Lake Site, Interim Remedial Measure, Onondaga County, New York.* August 2011.

O'Brien & Gere. 2013. *Integrated IRM, Mitigation Wetlands and Remediation Area A Hydraulic Control System 100% Design Report, Wastebeds 1 through 8*. Prepared for Honeywell, Morristown, New Jersey. Revised February 2013.