SHALLOW GROUNDWATER REMEDIAL ACTION REPORT

STUDY AREA 7
JERSEY CITY, NEW JERSEY

Prepared for

Honeywell

115 Tabor Road
Morris Plains, New Jersey 07950

Prepared by

Amec Foster Wheeler Environment & Infrastructure, Inc.
200 American Metro Boulevard, Suite 113
Hamilton, New Jersey 08619

NOVEMBER 2017

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1.0 INTRODUCTION

On behalf of Honeywell, Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) prepared this Remedial Action Report (RAR) for shallow groundwater at Study Area 7 (SA-7) for submission to New Jersey Department of Environmental Protection (NJDEP). This report addresses remedial action reporting requirements in accordance with the NJDEP Technical Requirements for Site Remediation (TRSR). Forms required by NJDEP for RARs are attached to this document.

A No Further Action for soils at SA-7 was issued by NJDEP on December 23rd, 2010. This RAR summarizes shallow groundwater conditions at SA-7 and indicates that the shallow groundwater is not impacted by chromium. Therefore, a Remedial Action Permit or Classification Exception Area (CEA) are not required for shallow groundwater at SA-7. The existing NJDEP-approved regional CEA for shallow groundwater excludes SA-7, thus no modification to the existing CEA is required. (The CEA is discussed in more detail in Section 10.0). Honeywell requests NJDEP acknowledgment and concurrence with the above and that this RAR meets the requirements of the TRSR.

Groundwater sampling was performed to obtain data for completion of shallow groundwater requirements for SA-7. The sampling approach was discussed at a meeting with the NJDEP on March 29, 2017, and included the collection and analysis of two rounds of groundwater samples separated by at least 30 days to address requirements for shallow groundwater at SA-7. The samples were collected from four piezometers installed at the Site. The data indicate that total and hexavalent chromium results were non-detect or less than the NJDEP groundwater quality standard (GWQS) of 70 micrograms per liter (µg/L) for total chromium.

Additional shallow groundwater samples were collected on September 14, 2017 from two temporary well points (TWPs) to provide data for the technically impracticable (TI) area at the western perimeter of SA-7, between the bulkhead and the western sheet-pile barrier wall. The results of the September 2017 groundwater samples indicated total chromium concentrations were <70 µg/L and hexavalent chromium was not detected (see Section 9.0 for details on groundwater sampling and results).

Based on the groundwater sampling results, no further action for shallow groundwater at SA-7 is warranted.

Deeper groundwater zones are being addressed by the regional groundwater remedy pursuant to a court order as discussed later in this report.

2.0 SITE LOCATION AND SETTING

SA-7 is a 34-acre parcel of primarily man-made land located on the west side of Jersey City. A Site Location Map is included as **Figure 1**. The SA-7 property is designated as Block 21901, Lots 6, 7, and 8 (formerly Block 1290.A, Lots 14J, 14H, and 14D) on the City of Jersey City tax maps and lies between Study Area 6 (SA-6) North to the north and SA-6 South to the south. SA-7, SA-6 North, and SA-6 South lie between Route 440 to the east and the Hackensack River to the west. Collectively, all three Sites comprise approximately 100 acres and will be redeveloped together by Bayfront Redevelopment LLC, a wholly owned subsidiary of Honeywell.

SA-7 includes three sites designated by the NJDEP as follows:

NJDEP Site No. Interest No.	Site Name	NJDEP Program
115	Roosevelt Drive-In	G000002548
120	Trader Horn	G000008737
157	Clean Machine Car Wash	G000008771

3.0 SA-7 SOIL REMEDY AND NO FURTHER ACTION

The soils remedy at SA-7 was performed by Honeywell in compliance with a court order in *Interfaith Community Organization v. Honeywell International Inc.* ("Court Order"). Work was conducted in accordance with the Court Remedy 100% Design dated September 24, 2004. Honeywell implemented remediation of chromium-impacted soils at SA-7 from 2005 to 2009, including soil excavation and backfilling with clean fill. A Completion and Documentation Report was submitted by Honeywell to the Court-Appointed Special Master in August 2010. Honeywell submitted a Remedial Action Report for Soils (Soils RAR) to the NJDEP in October 2010. NJDEP approved the Soils RAR in a letter dated December 20, 2010 and issued a No Further Action (NFA) letter on December 23, 2010 (see **Appendix A**).

The NJDEP NFA letter specified unrestricted use NFA for the entire Site property, with the exception of a limited portion of the property along the bulkhead (approximate 30-foot wide area between the bulkhead and sheet pile barrier) that contains soils that meet the court-mandated level of 240 milligrams per kilogram (mg/kg) but exceed the NJDEP current soil remediation criteria of 20 mg/kg for hexavalent chromium. Chromium-impacted soil in this area was partially excavated, but complete excavation was technically impracticable due to the potential for impacting the structural integrity of the existing bulkhead. This TI area is shown on **Figure 2**. Engineering controls for this area consist of approximately 7 to 14 feet of clean fill (crushed stone) used as backfill for the excavation area. This portion of the Site is within the proposed Riverwalk area associated with the Bayfront redevelopment project and Honeywell will establish a deed notice for this portion of the Site.

4.0 COMPLIANCE WITH NJDEP TECHNICAL REQUIREMENTS FOR SITE REMEDIATION

A Special Master was appointed by the federal court to oversee the remediation of SA-7. While the court order required removal of all materials greater than 240 mg/kg hexavalent chromium, the remedial action achieved compliance with the NJDEP current most stringent soil cleanup criterion of 20 mg/kg, with the exception of a limited area along the bulkhead as described in the previous section. The remedy was implemented in accordance with the Court Remedy 100% Design and in conformance with NJDEP regulations in effect at the time of remediation. A Remedial Investigation Report and a Remedial Action Work Plan were not submitted for SA-7 because the remedial actions were implemented in accordance with the court-mandated remedy and documented in the Completion and Documentation Report (August 2010) submitted to the Special Master. The Soils RAR was submitted to and approved by NJDEP as indicated in Section 3.

This Shallow Groundwater RAR was prepared in accordance with the remedial action reporting requirements specified in NJDEP's TRSR (New Jersey Administrative Code [N.J.A.C.] 7:26E-5.7). The following is a summary of several required elements for RARs prepared under the current TRSR as they relate to SA-7:

- Applicable reporting requirements for RARs under N.J.A.C. 7:26E-1.6 were followed in preparing this RAR with exceptions noted below.
- All documents, forms, spreadsheets and worksheets required for RARs are provided with this RAR.
- Case Management personnel from NJDEP's Site Remediation Program has oversight of this Site; there is no Licensed Site Remediation Professional.
- An initial receptor evaluation for this Site was submitted in February 2011. Updated well searches were conducted for SA-6 North and SA-6 South in December 2015. The area addressed by the updated SA-6 well searches covered SA-7.
- There were no areas of concern designated for SA-7 in the Soils RAR.

- The contaminants of concern for shallow groundwater at the Site are total and hexavalent chromium.
- The remedial action objectives involved reduction of concentrations of total dissolved chromium in shallow groundwater to below the NJDEP Groundwater Quality Standard of 70 µg/L by removing chromite ore processing residue above the underlying confining layer (meadow mat).
- The remedial investigation regulatory timeframe pursuant to N.J.A.C. 7:26E-4.10 is not applicable to SA-7, because the remedial actions were completed under court oversight prior to current regulatory timeframe requirements.
- Since this RAR addresses shallow groundwater, reporting requirements pertaining to soil remediation, site disturbance, or waste disposal, backfill documentation, site restoration, and waste manifests pursuant to N.J.A.C. 7:26E-5.7 are not applicable.
- The NJDEP-approved existing CEA includes deeper groundwater zones at SA-7, which is discussed in more detail below.
- Since the groundwater sample results did not exceed the NJDEP GWQS, a remedial action permit is not required for shallow groundwater for SA-7.
- Descriptions of the remedy, tabular data presentation, sample locations, and permitting requirements are provided herein in accordance with N.J.A.C. 7:26E-5.7.
- Data Usability is presented in the sub-section below.

Deeper groundwater zones (beneath the meadow mat) are being addressed by the regional groundwater remedy pursuant to the court-approved remedy. The source of the deeper groundwater impacts was related to historical operations at the former Mutual Chemical Company plant located on the east side of Route 440 (at Study Area 5). The regional groundwater remedy and post-remediation monitoring results for the intermediate, deep overburden, and bedrock groundwater are detailed in annual monitoring reports; the most recent Integrated Annual Groundwater Performance Report is dated August 2017 (Cornerstone, 2017). The remedy includes a Groundwater Extraction and Treatment (GWET) system with pumping from one well north of SA-7 in each of the three groundwater zones: intermediate zone, deep zone, and upper bedrock zone; and a fixed duration mass removal program via periodic injection of calcium polysulfide into three wells at SA-6 North over multiple

events per year (completed in September 2017). Groundwater recovered from the extraction wells is treated at the onsite GWET treatment system located at SA-6 North. Ongoing monitoring and maintenance requirements include implementation of a Long-Term Monitoring Plan referred to as the Integrated Groundwater Sampling and Analysis Plan for Study Areas 5, 6 and 7, with annual progress reports submitted to the court-appointed Special Master. Remedial action permit applications will be submitted to the NJDEP for the deeper groundwater zones that are part of the regional CEA.

5.0 DATA VALIDATION AND DATA USABILITY EVALUATION

All samples were analyzed by SGS Accutest Laboratories, Inc. of Dayton, New Jersey (SGS Accutest). Total chromium analysis was performed using United States Environmental Protection Agency (USEPA) SW846 200.7 and hexavalent chromium analysis was performed using USEPA Method 7199. Data validation was performed by a third-party data validation specialist with Validata, LLC (Validata) of Seattle, Washington. Additionally, Honeywell employs Dr. Rene Surgi of Analytical & Environmental Services, Inc. (AESI) of Glencoe, Illinois, to provide third-party analytical quality assurance/quality control (QA/QC). Once the data packages are issued by Accutest to Validata, the hexavalent chromium (and total chromium, if performed) data are validated. Employing such a protocol provides a high degree of confidence that the hexavalent chromium analytical data that has passed the internal laboratory QA/QC standards and was not rejected by the validator is accurate, precise, representative and, thus, usable. Rejected data, although reported, is flagged with an "R" and is not used for the intended purpose of the associated sampling. Data validation reports will be provided upon request.

Honeywell prepared a Data Management Plan (DMP) for the SA-6 Chromium Remedy (**Appendix G**). Honeywell revised the DMP in August 2014 to clarify data validation level and frequency based upon the purpose of the sampling and end use of the data. This revised DMP was submitted to NJDEP and all Parties on August 22, 2014. The DMP outlines the specific data validation objectives and procedures involved in producing quality, usable analytical data during implementation of the SA-6 Chromium Remedy. Similar procedures related to groundwater samples analyzed for total and hexavalent chromium were employed during sampling, analysis, and data management/validation of the shallow groundwater samples collected at SA-7 presented in this RAR.

A summary of the data validation level and frequency for groundwater samples analyzed for total and hexavalent chromium collected during the SA-7 post-remedy groundwater sampling per the revised DMP follows:

- Level IV data validation 100% of total chromium samples analyzed; and

- Level V data validation 100% of hexavalent chromium samples analyzed.

The NJDEP issued guidance for Data of Known Quality Protocols (DKQPs) in April 2014, approximately 1 year after the start of the SA-6 Chromium Remedy and after completion of the SA-7 soils remedy. The NJDEP was consulted regarding whether the questionnaire that is part of the DKQP process needed to be filled out for samples collected during the implementation of the Chromium Remedy. NJDEP concluded that the DKQP questionnaires were not required for the Chromium Remedy since the laboratory follows rigorous QA/QC protocols specifically developed for the chromium program in Jersey City which results in the generation of data of known quality and because the third-party validation process covers the data assessment and usability evaluation promoted in the DKQP guidance. We note that the validation process essentially asks the same questions as those on the questionnaire. As indicated above, 100% of the groundwater samples analyzed were validated by Validata.

Given the high level of internal and external QA/QC that is conducted by Honeywell, the 100% data validation that Honeywell employs for hexavalent chromium, and validation of 10% of samples for analytical parameters other than hexavalent chromium, the analytical data meets NJDEP's standards of precision, accuracy, and usability.

Electronic Data Deliverable (EDD) documentation is included in **Appendix B**.

6.0 PIEZOMETER INSTALLATION

As part of the SA-7 Remedy, a series of terraced pools were constructed inside the site perimeter to maintain an outward gradient across the perimeter SCB barrier to prevent recontamination (see "perimeter pools" on **Figure 2**). The pools were created by compacting a clay foundation and interior dams to separate the pools and hold static groundwater levels inboard of the perimeter barrier above groundwater levels outboard of the perimeter barrier. By virtue of the construction of the perimeter pools, an interior pool was created within the remainder of the Site. Groundwater elevation within the interior pool is controlled by a steel sheetpile wall at the western end of the Site near the Hackensack River which is set at elevation +4.0 above mean sea level. The interior pool consists of general purpose granular fill placed following excavation of chromium-impacted soils.

Four shallow piezometers were installed within the interior pool as shown on **Figure 2**. The piezometers were designated as 115-PZ-500 through 115-PZ-503. The purpose of these piezometers was to allow for the collection of groundwater samples and measurement of groundwater elevation within the interior pool. This RAR presents the data collected from the groundwater sampling.

Drilling and piezometer construction was provided by B&B Drilling, Inc. (B&B Drilling), a New Jersey-licensed well driller. Prior to piezometer drilling, B&B Drilling obtained well permits from NJDEP. The well permits, records, and Form As are provided in **Appendix C.** Boreholes were drilled with a hollow stem auger drill rig using augers with an outside diameter of 6-5/8 inches. All drilling and piezometer construction activities were overseen by a representative of Amec Foster Wheeler and well construction diagrams were prepared and are provided in **Appendix D**. The piezometers were constructed of 2-inch diameter polyvinyl chloride (PVC) casing and 10-foot long screens. The tops of the PVC casing/risers are protected with a steel flush-mount well lid affixed in a concrete pad. The bottom of the screens were set approximately 1 foot above the "Stratum D" (meadow mat) layer. The elevation of the top of Stratum D was determined during the SA-7 soil excavation which exposed the top of Stratum D throughout the Site. Thus, only shallow groundwater, that perched above the Stratum D, is monitored by the piezometers.

Following installation, B&B Drilling developed the piezometers using a peristaltic pump. The pump was pulled up and down within the water column while pumping to provide some surging and flushing action. Pumping continued until the water ran clear. Following development, the horizontal position and elevation of the tops of the piezometers were surveyed by Maser Surveying (Maser), a New Jersey-licensed land surveyor. Monitoring well Form B certifications provided by Maser are contained in **Appendix C**.

Because of a detection of total chromium in the unfiltered sample collected from one of the piezometers (115-PZ-503) during the first round of sampling, this piezometer was re-developed on 3/13/2017 prior to the second round of sampling.

7.0 GROUNDWATER SAMPLING AND ANALYSIS

Samples were collected from the piezometers on February 15-16, 2017 and March 20-21, 2017. Samples were collected via low-flow purging/sampling protocols per the NJDEP Field Sampling Procedures Manual. Submersible pumps were utilized to extract the water from the wells and all non-dedicated/disposable sampling equipment was decontaminated before and after sampling of each well. Field parameters, including temperature, specific conductivity, pH, dissolved oxygen (DO), salinity, turbidity and oxidation-reduction potential (ORP), were measured using a multiparameter water quality meter (Horiba U-52) and recorded during purging. Groundwater Field Parameter Sampling Forms summarizing the field sampling parameters for both sampling rounds are provided in **Appendix E**.

Once purging was completed, laboratory-provided sample containers with appropriate preservatives were filled. Additionally, a portion of the water obtained from the piezometers was also field-filtered, utilizing a 0.45 micron (μ) filter. After filtering, the samples were placed in sample containers. Once filled, all containers were placed in coolers with ice and samples were transported to SGS Accutest for analysis under chain of custody. Samples were analyzed as described above. Additional analyses included field pH, which was measured in accordance with N.J.A.C 7:18, Subchapter 8, in a portion of the unfiltered water, and ORP. Laboratory analytical reports are provided in **Appendix F**.

8.0 ANALYTICAL RESULTS

Table 1 provides a summary of the analytical results of both rounds of sampling during 2017. As indicated on **Table 1**, hexavalent chromium concentrations in all samples were below the detection limit of 0.0055 milligrams per liter (mg/L). Total chromium concentrations were below the detection limit of 10 µg/L in all samples, except for the unfiltered sample collected from 115-PZ-503 (33.9 µg/L) during the first round of sampling on February 16, 2017. As indicated above, this piezometer was redeveloped prior to the second round of sampling. During the second round, the unfiltered sample from 115-PZ-503 was below 10 µg/L.

9.0 SUPPLEMENTAL GROUNDWATER SAMPLING FOR TI AREA - SEPTEMBER 2017

This section presents a discussion of supplemental groundwater sampling of TWPs during September 2017 in the TI area between the bulkhead and western sheet-pile barrier wall at SA-7.

9.1 TEMPORARY WELL INSTALLATION AND GROUNDWATER SAMPLING

On September 14, 2017, two TWPs (115-TWP-01 and 115-TWP-02) were installed in the TI area by B&B Drilling, with field oversight by Amec Foster Wheeler as shown on **Figure 2**. TWP construction consisted of 1-inch diameter, schedule 40 PVC with screened intervals set within the shallow fill zone (well screen 5 to 10 feet bgs).

Groundwater samples were collected via low-flow purging/sampling protocols per the NJDEP Field Sampling Procedures Manual. A peristaltic pump was utilized to extract water from the TWPs. Field parameters, including temperature, specific conductivity, pH, DO, salinity, turbidity and ORP, were measured using a multiparameter water quality meter (Horiba U-52) and recorded at the time of sampling, after the well had stabilized. Groundwater Field Parameter Sampling Forms summarizing the field sampling parameters are provided in **Appendix E**.

Once purging was completed, laboratory-provided sample containers with appropriate preservatives were filled. Additionally, a portion of the water obtained from the piezometers was also field-filtered, utilizing a 0.45 µ filter. After filtering, the samples were placed in sample containers. Once filled, all containers were placed in coolers with ice and samples were transported to SGS Accutest for analysis under chain of custody. Samples were analyzed for total and hexavalent chromium. Laboratory analytical reports are provided in **Appendix F**.

9.2 ANALYTICAL RESULTS

Table 2 provides a summary of the analytical results of the September 2017 groundwater samples. Hexavalent chromium results in all samples were below the detection limit of 0.006 mg/L. With the exception of a minor detection of total chromium in the unfiltered sample collected from 115-TWP-01 (11.4 µg/L), total chromium concentrations were below the detection limit of 10 µg/L in all samples.

All data was validated as described in Section 5.0.

10.0 EXISTING CLASSIFICATION EXCEPTION AREA

Honeywell has established regional CEAs for groundwater for the SA-5/6/7 sites as an institutional control to identify chromium-impacted groundwater above the NJDEP GWQS and prevent the use of groundwater within the designated CEA areas. The NJDEP approved the CEA on February 16, 2012 (see approval letter in **Appendix A**). The CEAs address the shallow fill, deep overburden, and bedrock groundwater zones. The shallow zone refers to groundwater within fill material (above the Stratum D and underlying native soils), generally to a depth of 20 feet bgs. The shallow zone CEA excludes SA-7. The data presented in this RAR supports this exclusion.

11.0 CONCLUSIONS

The groundwater data indicates that remedial objectives for shallow groundwater at SA-7 for attainment of the NJDEP GWQS for chromium have been completed. Therefore, Honeywell concludes that no further action is required for shallow groundwater at SA-7 and Honeywell requests written acknowledgment from the NJDEP regarding the following:

- This RAR is in compliance with the NJDEP TRSR;
- Since chromium concentrations in shallow groundwater do not exceed the GWQS, a remedial action permit is not required for shallow groundwater at SA-7; and
- The NJDEP-approved existing CEA for shallow groundwater, which excludes SA-7, is acceptable and does not require modification.

12.0 REFERENCES

Cornerstone, 2017, Integrated Annual Groundwater Performance Report for 2016, Study Areas 5, 6 and 7; August 2017.

Honeywell, 2010, Remedial Action Report, Study Area 7; October 2010.

NJDEP, 2005; revised 2011; Field Sampling Procedures Manual, August 2005.

NJDEP, 2012; Technical Requirements for Site Remediation, N.J.A.C. 7:26E. Last amended May 7, 2012.

13.0 LIST OF ACRONYMS AND ABBREVIATIONS

CEA	classification exception area
DKQPs	Data of Known Quality Protocols
DMP	Data Management Plan
DO	Dissolved Oxygen
EDD	Electronic Data Deliverable
GWQS	groundwater quality standard
µ	micro
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
N.J.A.C.	New Jersey Administrative Code
NFA	No Further Action
NJDEP	New Jersey Department of Environmental Protection
ORP	oxidation-reduction potential
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
RAR	Remedial Action Report
SCB	Soil-Cement Barrier
TI	technical impracticable
TMW	temporary monitoring well
TRSR	Technical Requirements for Site Remediation
USEPA	United States Environmental Protection Agency

NJDEP FORMS

Case Name: Study Area 7

PI #: G000002548, G000008789, G000008737, G00008771

IMPORTANT: *1) Do not delete or copy and paste across multiple columns because it can disrupt hidden equations.*

2) If pasting from a Word document, use the Paste option: ***Match Destination Formatting***

3) If the text turns ***red*** *you have exceeded the character limit for that column*

Case Inventory Document Version 1.4 02/23/17

AOC ID	AOC Type	AOC Description	Confirmed Contamination	AOC Status	Status Date	Incident #	DEP AOC Number	Contaminated Media	Contaminants of Concern	Additional Contaminants of Concern	Additional Contaminants of Concern	Applicable Remediation Standard
N/A	Other areas of concern - Any area suspected of containing contaminants	Former location of hexavalent chromium-impacted soil/fill. All impacted material excavated and replaced with clean backfill	Yes	RAR	9/11/2017	N/A		Soil	Metals	Not Applicable	Not Applicable	Remediation Standards

Case Name: Study Area 7

PI #: G000002548, G000008789, G000008737, G00008771

Case Inventory Document Version 1.4 02/23/17

AOC ID	AOC Type	Exposure Route	Additional Exposure Route	RA Type	Additional RA Type	Additional RA Type	Was an Order of Magnitude Evaluation Conducted?	Activity
N/A	Other areas of concern - Any area suspected of containing contaminants	Ingestion/Dermal		Excavation	Capping		No	2005-2010- Soil Chromium Remedy Completed. Soils RAR submitted in October 2010. NFA for Soils received December 2010. 2017- Shallow Groundwater Sampling conducted - no Chromium above GWQS. RAR submitted May 2017 and revised October 2017. 2017- Soil Deed Notice to be filed

DocuSign Envelope ID: C2C1E0B1-6081-4EDF-8BD1-D41106052FCD

New Jersey Department of Environmental Protection
Site Remediation Program

COVER/CERTIFICATION FORM

(Submit with Remedial Phase Report, Receptor Evaluation, and CEA Forms)

Date Stamp
(For Department use only)

SECTION A. SITE INFORMATION

Site Name: Study Area SA-7

AKAs: See RAR

Street Address: 445, 465, 485 Rt 440

Municipality: Jersey City (*Township, Borough or City*)

County: Hudson County Zip Code: 07305-4806

Program Interest (PI) Number(s): G000002548, G000008789, G000008737, G00008771

Case Tracking Number(s) for this submission:

Date Remediation Initiated Pursuant to N.J.A.C. 7:26C-2: 01/06/2005

State Plane Coordinates for a central location at the site: Easting: 603079 Northing: 684573

List current Municipal Block and Lot Numbers of the Site:

Block # 21901	Lot #(s) 6, 7, 8	Block #	Lot #(s)
Block #	Lot #(s)	Block #	Lot #(s)
Block #	Lot #(s)	Block #	Lot #(s)
Block #	Lot #(s)	Block #	Lot #(s)

SECTION B. SUBMISSION STATUS

1. Indicate how the Electronic Data Deliverable (EDD) for this submission is being provided to the NJDEP:
   - ☒ Via Email at srpedd@dep.state.nj.us (attach NJDEP confirmation email); or
   - ☐ CD (attach to this submission)
   - ☐ Not Applicable – No EDD
2. Complete the following Submission and Permit Status Table:

Remedial Phase Documents	N/A	Included in this Submission	Previously Submitted	Date of Submission	Date of Revised Submission	Date of Previous NJDEP Approval	Date of Document Withdrawal
Preliminary Assessment Report	☐	☐	☐				
Site Investigation Report	☐	☐	☐				
Remedial Investigation Report	☐	☐	☐		Soils RAR		
Remedial Action Work Plan	☐	☐	☐				
Remedial Action Report	☐	☒	☐	10/12/2010		12/23/2010	
Response Action Outcome	☐	☐	☐				
Other Submissions							
Alternative Soil Remediation Standard and/or Screening level Application Form	☐	☐	☐				
Case Inventory Document		☒					
Classification Exception Area / Well Restriction Area (CEA/WRA)	☐	☐	☒	06/08/2009		02/16/2012	
Discharge to Ground Water Permit by Rule Authorization Request	☐	☐	☐				

IEC Engineered System Response Action Report	☐	☐	☐				
Immediate Environmental Concern Report	☐	☐	☐				
LNAPL Interim Remedial Measure Report	☐	☐	☐				
Public Notification	☐	☐	☐				
Receptor Evaluation	☐	☐	☒	02/28/2011			
Technical Impracticability Determination	☐	☐	☒	10/12/2010			
Vapor Concern Mitigation Report	☐	☐	☐				
Permit Application – list:	☐						
		☐	☐				
		☐	☐				
		☐	☐				
		☐	☐				
Radionuclide Remedial Action Report	☐	☐	☐				
Radionuclide Remedial Action Workplan	☐	☐	☐				
Radionuclide Remedial Investigation Report	☐	☐	☐				
Radionuclide Remedial Investigation Workplan	☐	☐	☐				

SECTION C. SITE USE

Current Site Use: (*check all that apply*)

☐ Industrial ☐ Agricultural
☐ Residential ☐ Park or recreational use
☐ Commercial ☒ Vacant
☐ School or child care ☐ Government
☐ Other: _____

Intended Future Site Use, if known: (*check all that apply*)

☐ Industrial ☒ Park or recreational use
☒ Residential ☐ Vacant
☐ Commercial ☐ Government
☐ School or child care ☐ Future site use unknown
☐ Other: _____

SECTION D. CASE TYPE: (*check all that apply*)

☐ Administrative Consent Order (ACO)
☐ Brownfield Development Area (BDA)
☐ Child Care Facility
☒ Chrome Site (Chromate chemical production waste)
☐ Coal Gas
☐ Due Diligence with RAO
☐ Hazardous Discharge Remediation Fund (HDSRF) Grant/Loan
☐ ISRA
☐ Landfill (SRP subject only)
☐ Regulated Underground Storage Tank (UST)
☐ Remediation Agreement (RA)/Remediation Certification
☐ School Development Authority (SDA)
☐ School facility
☐ Spill Act Defense – Government Entity
☐ Spill Act Discharge
☐ UST Grant/Loan
☐ Other: _____

Federal Case (*check all that apply*)

☐ RCRA GPRA 2020 ☐ CERCLA/NPL ☐ USDOD ☐ USDOE

1. Is the party conducting remediation a government entity? ..... ☐ Yes ☒ No

If "Yes," check one: ☐ Federal ☐ State ☐ Municipal ☐ County

SECTION E. PUBLIC FUNDS

Did the remediation utilize public funds? ..... ☐ Yes ☒ No

If "Yes," check applicable:

☐ UST Grant ☐ UST Loan ☐ Brownfield Reimbursement Program
☐ HDSRF Grant ☐ HDSRF Loan ☐ Landfill Reimbursement Program
☐ Spill Fund ☐ Schools Development Authority ☐ Environmental Infrastructure Trust

SECTION F. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: Honeywell International Inc.

Representative First Name: William Representative Last Name: Hague

Title: Global Director, Remediation Design and Construction

Phone Number: (973) 455-2175 Ext: Fax:

Mailing Address: 115 Tabor Road

City/Town: Morris Plains State: NJ Zip Code: 07950

Email Address: William.Hague@Honeywell.com

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: DocuSigned by: William J. Hague 824A20F975DB4DD... Date: 6/27/2017

Name/Title: William Hague, Global Director, Remediation Design and Construction

For CEA Submissions:

☐ Check this box if the person above is also the property owner of the site or their representative. If this person is not the site property owner, please ensure the site property owner's name and address is in the first line of the table in Section E.2 of the Classification Exception Area / Well Restriction Area (CEA/WRA) Fact Sheet Form.

SECTION G. LICENSED SITE REMEDIATION PROFESSIONAL INFORMATION AND STATEMENT

LSRP ID Number: _____

First Name: _____ Last Name: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This statement shall be signed by the LSRP who is submitting this notification in accordance with N.J.S.A. 58:10C-14, and N.J.S.A. 58:10B-1.3b(1) and (2).

I certify that I am a Licensed Site Remediation Professional authorized pursuant to N.J.S.A. 58:10C to conduct business in New Jersey. As the Licensed Site Remediation Professional of record for this remediation, I:

[SELECT ONE OR BOTH OF THE FOLLOWING AS APPLICABLE]:

☐ *directly oversaw and supervised all of the referenced remediation, and\or*

☐ *personally reviewed and accepted all of the referenced remediation presented herein.*

I believe that the information contained herein, and including all attached documents, is true, accurate and complete.

It is my independent professional judgment and opinion that the remediation conducted at this site, as reflected in this submission to the Department, conforms to, and is consistent with, the remediation requirements in N.J.S.A. 58:10C-14.

My conduct and decisions in this matter were made upon the exercise of reasonable care and diligence, and by applying the knowledge and skill ordinarily exercised by licensed site remediation professionals practicing in good standing, in accordance with N.J.S.A. 58:10C-16, in the State of New Jersey at the time I performed these professional services.

I am aware pursuant to N.J.S.A. 58:10C-17 that for purposely, knowingly or recklessly submitting false statement, representation or certification in any document or information submitted to the board or Department, etc., that there are significant civil, administrative and criminal penalties, including license revocation or suspension, fines and being punished by imprisonment for conviction of a crime of the third degree.

LSRP Signature: _____ Date: _____

LSRP Name/Title: _____

Company Name: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

New Jersey Department of Environmental Protection
Site Remediation Program

REMEDIAL ACTION REPORT FORM

Date Stamp
(For Department use only)

SECTION A. SITE

Site Name: Study Area SA-7

Program Interest (PI) Number(s): G000002548, G000008789, G000008737, G00008771

Case Tracking Number(s) for this submission: _____

This form must be attached to the Cover/Certification Form

SECTION B. SCOPE OF REMEDIAL ACTION REPORT

1. Does the RAR address:
   - ☒ Area(s) of Concern (AOCs) Only Groundwater - Chromium Only
   - ☐ Entire Site (Based on a completed and submitted Preliminary Assessment/Site Investigation)
2. Total number of contaminated AOCs associated with the case: 1
3. Total number of contaminated AOCs addressed in this submission: 1
4. Are there any outstanding contaminated AOCs associated with the case where the remedial action has NOT been performed? ☐ Yes ☒ No
5. Does this RAR address a discharge/release from a federally regulated UST? ☐ Yes ☒ No

When answering the remaining questions on this form consider only the AOCs addressed in this submission.

SECTION C. GENERAL

1. Does this submission include Remedial Action Permit Application(s) that require Site Remediation Program approval? ☐ Yes ☒ No
2. Was a remediation initiated after May 6, 2010, for new construction / change in the use of the site proposed for the purpose of residential use, use as a licensed child care center or use as a school? ☒ Yes ☐ No
   If "Yes," was an unrestricted use or a presumptive remedy implemented? ☒ Yes ☐ No
3. Was an alternative remedy approved by the NJDEP? ☐ Yes ☒ No
   If "Yes," provide the date of the approval: _____
4. Has the remediation varied from the Technical Rules? ☐ Yes ☒ No
   If "Yes." provide the citation(s) from which the remediation has varied and the page(s) in the attached document where the rationale for the variance is provided.
   N.J.A.C. 7:26E- _____ Page _____
   N.J.A.C. 7:26E- _____ Page _____
   N.J.A.C. 7:26E- _____ Page _____
5. Were the laboratory Reporting Limits below applicable remediation standards/screening levels criteria required for the contaminants of concern for the AOCs addressed in this submission? ☒ Yes ☐ No
6. Have past NJDEP-documented deficiencies been addressed in this submission? ☐ Yes ☐ No ☒ N/A
7. Did the remediation deviate from that proposed in the Remedial Action Workplan? ☐ Yes ☒ No
   If "Yes," specify the section/page(s) in the report where the deviation(s) are discussed:
   _____
8. Did the remedial action render the property unusable for future redevelopment or for recreational use (N.J.A.C. 7:26C-6.4(b)? ☐ Yes ☒ No

SECTION D. SITE CONDITIONS

1. At any time, was there any radiological contamination detected at the AOCs addressed in this submission? ☐ Yes ☒ No
2. At any time, did any of the AOCs addressed in this submission contain Ordnance and Explosives/ Unexploded Ordnance (OE/UXO)? ☐ Yes ☒ No
3. Did the remedial action involve containment of free product? ☐ Yes ☒ No
4. Has dioxin been detected at levels above NJDEP's interim direct contact soil screening level of 50 ppt dioxin TEQ (TCDD Toxicity Equivalence Quotient) in any AOCs addressed in this submission? ☐ Yes ☒ No
5. Have any of the following contaminants *ever* been detected in sediment above the ecological screening levels at the AOCs addressed in this submission? ☐ Yes ☒ No

   If "Yes," check all that apply:

   ☐ Arsenic ☐ Dioxin ☐ Mercury ☐ PCBs ☐ Pesticides
6. Is remediation complete in all affected media at the AOCs addressed in this submission? ☒ Yes ☐ No
7. Did contaminants from the AOCs addressed in this submission discharge to surface water? ☐ Yes ☒ No
8. Did contaminants from the AOCs addressed in this submission discharge to an Environmentally Sensitive Natural Resource (ESNR)? ☐ Yes ☒ No
9. Are any of the following conditions currently present for the AOCs addressed in this submission? *(check all that apply):*

Groundwater:

- ☐ Contaminated ground water in the overburden aquifer
- ☐ Contaminated ground water in a confined aquifer
- ☐ Contaminated ground water in the bedrock aquifer
- ☐ Contaminated ground water in multiple aquifer units
- ☐ Multiple distinct ground water plumes
- ☐ Contaminated ground water migrating off-site
- ☐ Natural background ground water contamination
- ☐ Contaminated ground water discharging to surface water or Environmentally Sensitive Natural Resource (ESNR)
- ☐ Residual or free product
- ☐ Radionuclides

Soil:

- ☐ On-site discharge(s) impacting soil off-site
- ☐ Chromate Chemical Production Waste/COPR
- ☐ Munitions and explosives of concern
- ☐ Contaminated soil in the saturated zone
- ☐ Historic pesticide impacts to soil
- ☐ Residual or free product
- ☐ Radionuclides
- ☐ Historic Fill
- ☐ Natural background only above Impact to Ground Water Cleanup Criteria
- ☐ Natural background above Direct Contact Remediation Standards
- ☐ Soil contamination in an ESNR

SECTION E. APPLICABLE REMEDIATION STANDARDS

1. Were Default Remediation Standards used for all contaminants? ☒ Yes ☐ No

   If "Yes," check all that apply:

   Chromium Policy

   ☐ Direct Contact
   ☐ Impact to Ground Water Soil Screening Levels
   ☐ Ecological Screening Levels
2. Has compliance averaging been utilized to determine compliance with the Soil Remediation Standards? ☐ Yes ☒ No

   If "Yes," check all that apply:

	Compliance Averaging Method Utilized			
Pathway	Arithmetic Mean	95 Percent UCL	Spatially Weighted Average	75 Percent/ 10X Procedure
☐ Ingestion-Dermal Pathway	☐	☐	☐	☐
☐ Inhalation Pathway	☐	☐	☐	☐
☐ Impact to Ground Water Pathway	☐	☐	☐	☐

3. Has a compliance option been utilized to determine compliance with the Impact to Ground Water Pathway? (If "Yes," check all that apply) ☐ Yes ☒ No

   ☐ Immobile Compounds
   ☐ Data evaluation for metals and semi-volatiles
   ☐ Data evaluation for volatile organics derived from discharges of petroleum mixtures

4. Was an interim standard used for a contaminant where a standard does not exist? ☐ Yes ☒ No
5. Were Alternate Remediation Standards used for the Ingestion/Dermal Pathway? ☐ Yes ☒ No
6. Were Alternate Remediation Standards used for the Inhalation Pathway? ☐ Yes ☒ No
7. Were Site Specific Standards used for the Impact to Ground Water Pathway? ☐ Yes ☒ No
   If "Yes," check all that apply:
   ☐ Soil-Water Partitioning Equation ☐ SPLP ☐ Sesoil ☐ Sesoil/AT123D
   ☐ DAF Modification
8. Were Site Specific Ecological Remediation Goals used? ☐ Yes ☒ No
9. What is the ground water classification for this site as per N.J.A.C. 7:9C? (check all that apply)
   ☐ Class I-A ☒ Class II-A
   ☐ Class I-PL Pinelands Protection Area ☐ Class III-A
   ☐ Class I-PL Pinelands Preservation Area ☐ Class III-B

SECTION F. ALTERNATIVE AND CLEAN FILL USE

1. Was alternative fill used? ☐ Yes ☒ No
2. Was clean fill used? ☒ Yes ☐ No
3. Was material sent off-site for use as alternative and/or clean fill? ☐ Yes ☒ No
   If "Yes," specify the section/page in the RAR where it states the SRP site receiving this alternative and/or clean fill: _____
4. Was material sent off-site for use as alternative and/or clean fill at a non-SRP site? ☐ Yes ☒ No
   If "Yes," specify the section/page in the RAR where it states the non-SRP site receiving this alternative and/or clean fill: _____
5. Was alternative fill used in excess of the amount required for the remedial action? ☐ Yes ☒ No
   If "Yes," was the NJDEP's preapproval obtained pursuant to N.J.A.C. 7:26E-5.2(b)3? ☐ Yes ☐ No

SECTION G. REMEDIAL ACTION REPORT INFORMATION

Soils

1. Did the remedy include a remedial action for soils? ☐ Yes ☒ No
   If "No," skip to **Ground Water**
2. Is a restricted use required? ☐ Yes ☐ No
   If "Yes," indicate the type of restriction being implemented. _____
3. If applicable, has consent from all involved property owners been obtained (i.e., for institutional or engineering controls)? ☐ Yes ☐ No
4. Was an engineering control required? ☐ Yes ☐ No
   If "Yes," indicate the receptor(s) each engineering control is intended to protect. *(check all that apply)*
   ☐ Human ☐ Ecological ☐ Offsite Impacts

Ground Water

5. Did the remedy include a remedial action for ground water? ☒ Yes ☐ No
   If "No," skip to **Ecological**
6. Is a restricted use required for ground water? ☐ Yes ☒ No

7. Is a revised CEA required? ☐ Yes ☒ No

8. Do any contaminant levels in ground water currently exceed the vapor intrusion ground water trigger? ☐ Yes ☒ No

Ecological

9. Did the remedy include a remedial action for Environmentally Sensitive Natural Resources (ESNRs)? ☐ Yes ☒ No
   If "No," skip to **Indoor Air**

10. Was post-remedial sampling performed to determine whether contaminant levels currently meet ecological screening levels or ecological remediation goals? ☐ Yes ☐ No

11. Did the remedial action require filling of State open waters or wetlands? ☐ Yes ☐ No

12. Have ecological risk-based remediation goals been developed? ☐ Yes ☐ No
    If "Yes," have the ecological risk-based remediation goals been approved by NJDEP? ☐ Yes ☐ No

13. Have Risk Management Decision (RMD) goals been developed? ☐ Yes ☐ No
    If "Yes," have the RMD goals been approved by NJDEP? ☐ Yes ☐ No

Indoor Air

14. Have any vapor intrusion engineering controls/mitigation systems been installed in order to mitigate a vapor condition in a structure? ☐ Yes ☒ No
    If "Yes," check each type of engineering control that was implemented:
    - ☐ Subsurface Depressurization System
    - ☐ Subsurface Ventilation System
    - ☐ Soil Vapor Extraction System
    - ☐ HVAC Positive Pressure
    - ☐ Other (specify): _____

SECTION H. LABORATORY DATA

1. Were all data submitted in the appropriate full and/or reduced formats according to the deliverables defined in N.J.A.C. 7:26E-2? ☒ Yes ☐ No

2. Do all data submitted meet the quality assurance/quality control (QA/QC) requirements incorporated by reference in N.J.A.C. 7:26E-2 for:
   sampling ☒ Yes ☐ No
   analysis ☒ Yes ☐ No

3. How was it determined that the data complied with the QA/QC requirements?
   - ☒ Laboratory non-conformance summary/narrative
   - ☐ Laboratory correspondence
   - ☐ LSRP review
   - ☒ Independent contractor review
   - ☐ Other: _____

4. Has any data been qualified and used? ☐ Yes ☒ No

5. Has any data been rejected and used? ☐ Yes ☒ No

6. Provide the page number for the "Reliability of Data" section of the report: 5

TABLE 1

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS - FEBRUARY & MARCH 2017

TABLE 1
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS - FEBRUARY & MARCH 2017

Study Area 7
Honeywell International Inc.
Jersey City, New Jersey

Client Sample ID:	Ground Water Quality Standard (GWQS)	Units	115-PZ-502-021517		115-PZ-502-F-021517		115-PZ-502-032117		115-PZ-502-F-032117		115-PZ-502-DP-021517		115-PZ-502-DP-F- 021517		115-PZ-502-DP-032117		115-PZ-502-DP-F- 032117		115-PZ-501-021517		115-PZ-501-F-021517		115-PZ-501-032017		115-PZ-501-F-032017	
Lab Sample ID			JC37249-1		JC37249-1F		JC39283-2		JC39283-2F		JC37249-2		JC37249-2F		JC39283-3		JC39283-3F		JC37249-3		JC37249-3F		JC39227-1		JC39227-1F	
Date Sampled:			02/15/2017		02/15/2017		03/21/2017		03/21/2017		02/15/2017		02/15/2017		03/21/2017		03/21/2017		02/15/2017		02/15/2017		03/20/2017		03/20/2017	
Matrix:			Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater	
Filtered:			Unfiltered		Filtered		Unfiltered		Filtered		Unfiltered		Filtered		Unfiltered		Filtered		Unfiltered		Filtered		Unfiltered		Filtered	
Metals Analysis																										
CHROMIUM	70	ug/L	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
General Chemistry																										
HEXAVALENT CHROMIUM	-	mg/L	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U

Notes:
GWQS: NJDEP Ground Water Quality Standards (GWQS), N.J.A.C 7:9C; last amended 7/20/2010
Bold concentrations were detected above the method detection limit
U: Not detected above method detection limit

Prepared By: JLD 03/27/2017
Checked By: DEN 03/27/2017

TABLE 1
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS - FEBRUARY & MARCH 2017

Study Area 7
Honeywell International Inc.
Jersey City, New Jersey

Client Sample ID:	Ground Water Quality Standard (GWQS)	Units	115-PZ-500-021517		115-PZ-500-F-021517		115-PZ-500-032117		115-PZ-500-F-032117		115-PZ-503-021517		115-PZ-503-F-021517		115-PZ-503-032117		115-PZ-503-F-032117		FB-021517		FB-032117	
Lab Sample ID			JC37249-4		JC37249-4F		JC39283-1		JC39283-1F		JC37351-1		JC37351-1F		JC39283-4		JC39283-4F		JC37249-5		JC39283-5	
Date Sampled:			02/15/2017		02/15/2017		03/21/2017		03/21/2017		02/16/2017		02/16/2017		03/21/2017		03/21/2017		02/15/2017		03/21/2017	
Matrix:			Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Field Blank		Field Blank	
Filtered:			Unfiltered		Filtered		Unfiltered		Filtered		Unfiltered		Filtered		Unfiltered		Filtered		Unfiltered		Unfiltered	
Metals Analysis																						
CHROMIUM	70	ug/L	10.0	U	10.0	U	10.0	U	10.0	U	**33.9**		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
General Chemistry																						
HEXAVALENT CHROMIUM	-	mg/L	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U

Notes:
GWQS: NJDEP Ground Water Quality Standards (GWQS), N.J.A.C 7:9C; last amended 7/20/2010
Bold concentrations were detected above the method detection limit
U: Not detected above method detection limit

Prepared By: JLD 03/27/2017
Checked By: DEN 03/27/2017

TABLE 2

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS –
TECHNICAL IMPRACTICABLE AREA – SEPTEMBER 2017

TABLE 2
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS
TECHNICAL IMPRACTICABLE AREA - SEPTEMBER 2017

Study Area 7
Honeywell International Inc.
Jersey City, New Jersey

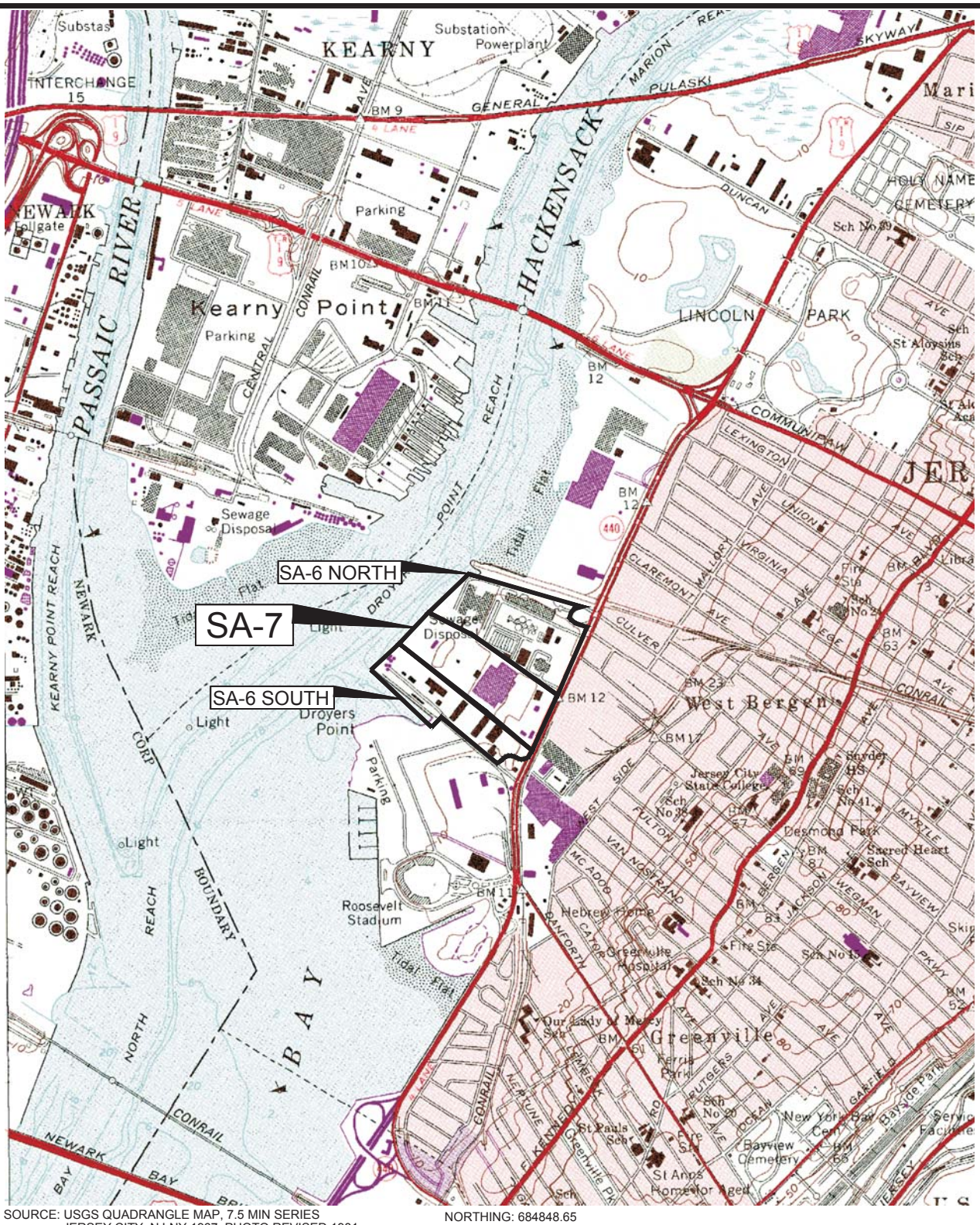
Client Sample ID:	Ground Water Quality Standard (GWQS)	Units	115-TWP-01-091417		115-TWP-01-091417F		115-TWP-02-091417		115-TWP-02-091417F		115-FB-091417	
Lab Sample ID			JC50882-1		JC50882-1F		JC50882-2		JC50882-2F		JC50882-3	
Date Sampled:			09/14/2017		09/14/2017		09/14/2017		09/14/2017		09/14/2017	
Matrix:			Groundwater		Groundwater		Groundwater		Groundwater		Field Blank	
Filtered:			Unfiltered		Filtered		Unfiltered		Filtered		Unfiltered	
Metals Analysis												
CHROMIUM	70	ug/L	**11.4**		10.0	U	10.0	U	10.0	U	10.0	U
General Chemistry												
HEXAVALENT CHROMIUM	NC	mg/L	0.0060	U	0.0060	U	0.0060	U	0.0060	U	0.0060	U

Notes:
GWQS: NJDEP Ground Water Quality Standards (GWQS), N.J.A.C 7:9C; last amended 7/20/2010
Bold concentrations were detected above the method detection limit
ug/L: Micrograms per Liter
mg/L: Milligrams per Liter
U: Not detected above method detection limit

Prepared By: JLD 09/25/2017
Checked By: DEN 09/25/2017

FIGURES

CONFIDENTIAL AND MAY NOT BE COPIED OR DISCLOSED; AND (ii) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED. ANY OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.



SOURCE: USGS QUADRANGLE MAP, 7.5 MIN SERIES
JERSEY CITY, NJ-NY 1967, PHOTO REVISED 1981

NORTHING: 684848.65
EASTING: 602243.11

0 1000 2000 4000
SCALE IN FEET

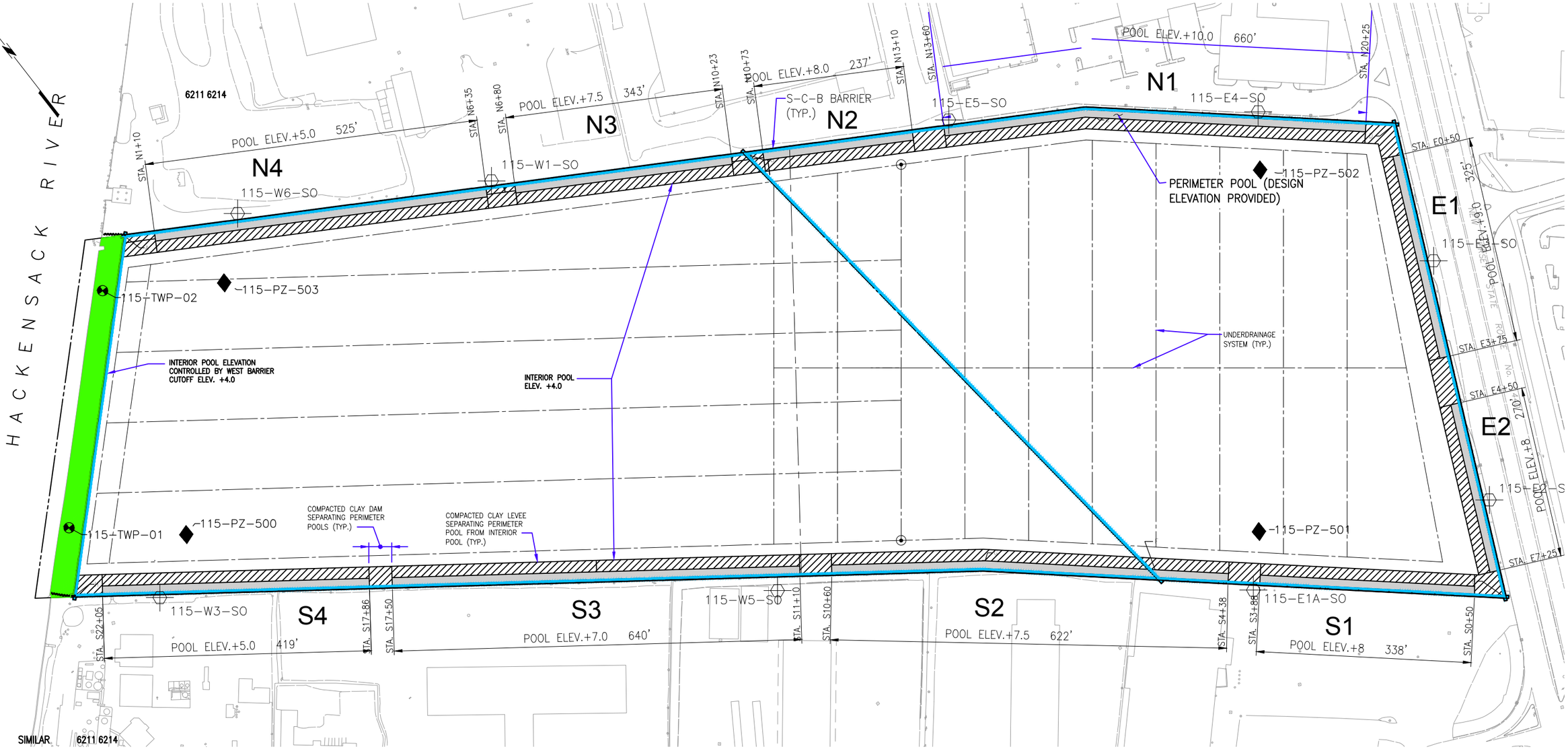
Amec Foster Wheeler PROJECT No. 3480150450 *DRAWING:* 3480150450-5100-A100-2000	
PREPARED/DATE: CW 05/10/17	*CHECKED/DATE:* DN 05/10/17

amec foster wheeler

ENVIRONMENT & INFRASTRUCTURE. Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

FIGURE 1
SITE LOCATION MAP
STUDY AREA 7
JERSEY CITY, NEW JERSEY

P:\CADD\HONEYWELL\JERSEY CITY\SA 6 SOUTH\3480150488\5710\571004\3480150450-5100-A100-2000.dwg Thu, 11 May 2017 - 1:43pm charles.winfield



Legend:

- EXISTING SHALLOW MONITORING WELL
- AS-BUILT LOCATION OF NEW SA-7 PIEZOMETER
- TEMPORARY WELL POINT LOCATION
- PERIMETER POOL
- SCB WALL
- TECHNICALLY IMPRACTIBLE AREA TO BE DEED NOTICED BY HONEYWELL

NOTES:

1. FOR LOCATIONS OF PERIMETER POOLS AND UNDER DRAINS SEE DRAWING NO. 1700-R.
2. FOR LOCATIONS OF UNDERGROUND UTILITIES SEE DRAWING NO. 1701-R.
3. AS-BUILT INFORMATION WAS TAKEN FROM FINAL GRADES DRAWING, SA7 AND SA6 NORTH/SOUTH, PREPARED BY ENTACT, DATED 04/12/2010.
4. NEW PIEZOMETER AS-BUILT LOCATIONS TAKEN FROM "NJDEP MONITORING WELL CERTIFICATION FORM B – LOCATION CERTIFICATION", PREPARED BY MASER CONSULTING, PA.

0 40 80 160
SCALE IN FEET

REV.	DATE	STATUS	PRPD BY	CHKD BY

Amec Foster Wheeler PROJECT No. 3480160527
DRAWING: 6-1800-R2

PREPARED/DATE: STR 01/24/17

CHECKED/DATE: DEN 01/25/17

amec foster wheeler
ENVIRONMENT & INFRASTRUCTURE, Inc.
200 AMERICAN METRO BLVD, SUITE 113
HAMILTON, NEW JERSEY 08619

FIGURE 2
AS-BUILT LOCATIONS OF SA-7
INTERIOR POOL PIEZOMETERS
AND TEMPORARY WELL POINT LOCATIONS
STUDY AREA 7 (SA-7)
JERSEY CITY, NEW JERSEY

THIS DRAWING HAS BEEN DELIVERED IN PDF FORMAT FOR USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.

APPENDIX A

NJDEP REGULATORY CORRESPONDENCE

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Case Management
401 East State Street
P.O. Box 028
Trenton, NJ 08625-0028

BOB MARTIN
Acting Commissioner

Honeywell Inc
Attn: Mr. John Morris, Remediation Portfolio Director
PO Box 1057
Morristown, NJ 07962-1057

December 20, 2010

Remedial Action Report Approval

Re: Honeywell Inc.
Study Area 7, Hudson County Chromate Sites: 115, 120 and 157
Block: 1290.A; Lot: 14J, 14H and 14D
Jersey City, Hudson County
SRP PI: G000008789

Dear Mr. Morris:

The New Jersey Department of Environmental Protection (Department) has completed review of the Study Area 7 Remedial Action Report for Soils dated October 12, 2010. The Department has determined that the Remedial Action Report is in compliance with the Technical Requirements for Site Remediation, N.J.A.C. 7:26E, the Department's Chromium Policy Directive dated February 8, 2007 and other applicable requirements. The Department hereby approves the Study Area 7 Remedial Action Report, effective the date of this letter.

The Department will issue under separate cover a "Soil Only Unrestricted Use No Further Action (NFA-E) determination" for the entire site.

Thank you for your cooperation in this matter. If you have any questions, please call me at (609) 984-4071.

Sincerely,

Frank Faranca

Frank Faranca, CHMM, Site Remediation Technical Specialist
Bureau of Case Management

cc: Senator Robert Torricelli, Special Master
Jerramiah T. Healy, Jersey City
William Matsikoudis, Jersey City Corporation Counsel
Harry Melendez, Director, Jersey City Division of Health
Hudson County Planning Board
Robert Ferraiuolo, Hudson Regional Health Commission
David Doyle, NJDEP, BEERA
David VanEck, NJDEP, BGWPA

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Case Management
401 East State Street
P.O. Box 420, Mail Code 401-05
Trenton, NJ 08625-0028

BOB MARTIN
Acting Commissioner

Honeywell Inc
Attn: Mr. John Morris, Remediation Portfolio Director
PO Box 1057
Morristown, NJ 07962-1057

December 23, 2010

Re: **No Further Action Letter**
Remedial Action Type: Soil Only Unrestricted Use for the Entire Site (NFA-E)
Honeywell Inc.
Study Area 7, Hudson County Chromate Sites: 115, 120 and 157
Block: 1290.A; Lot: 14J, 14H and 14D
Jersey City, Hudson County
Program Interest: G000008789

Dear Mr. Morris:

Pursuant to N.J.S.A. 58:10B-13.1 and N.J.A.C. 7:26C, the New Jersey Department of Environmental Protection (Department) issues this No Further Action Letter for the remediation of the site specifically referenced above, so long as Honeywell, Inc. did not withhold any information from the Department. This action is based upon information in the Department's case file and Honeywell, Inc.'s final certified report dated October 12, 2010. In issuing this No Further Action Letter, the Department has relied upon the certified representations and information provided to the Department. To remain in compliance with the terms of this No Further Action Letter, Honeywell, Inc. as well as each subsequent owner, lessee and operator must comply with the conditions noted below.

By issuance of this No Further Action Letter, the Department acknowledges the completion of a Remedial Action pursuant to the Technical Requirements for Site Remediation (N.J.A.C. 7:26E), the Department's Chromium Policy Directive dated February 8, 2007 and other applicable requirements for the entire site except for a strip of land adjacent to the Hackensack River due to technical impracticability (see attached Figure 1). This area is described as a limited portion of the property along the bulkhead (approximate 30 foot wide area between the bulkhead and sheet pile barrier) which meet the court-ordered level of 240 ppm but which exceed the NJDEP's most stringent soil remediation criteria of 20 ppm for hexavalent chromium.

By operation of law a Covenant Not to Sue pursuant to N.J.S.A. 58:10B-13.1 applies to this remediation. The Covenant Not to Sue is subject to any conditions and limitations contained herein. The Covenant Not to Sue remains effective only as long as the real property referenced above continues to meet the conditions of this No Further Action Letter.

NO FURTHER ACTION CONDITIONS

Pursuant to N.J.S.A. 58:10B-12o, Honeywell, Inc. and any other person who was liable for the cleanup and removal costs, and remains liable pursuant to the Spill Act, shall inform the Department in writing

within 14 calendar days whenever its name or address changes. Any notices submitted pursuant to this paragraph shall reference the above case numbers and shall be sent to: Bureau of Case Assignment and Initial Notice – Case Assignment Section, P.O. Box 434, Trenton, N.J. 08625-0434.

Honeywell, Inc. as well as each subsequent owner, lessee and operator (collectively Successors) shall comply with each of the following:

NOTICES

This No Further Action Letter is for soils only for the referenced site. The Department has relied, in part, on the reported ground water data to support that soil contamination is no longer affecting ground water. Please be advised that if changes in future ground water data no longer support this conclusion, the Department reserves it rights to require additional soil remediation and possibly excavation.

Please be advised that in accordance with the "Department Oversight of the Remediation of Contaminated Sites" (N.J.A.C. 7:26C), Honeywell, Inc. is required to reimburse the Department for oversight of the remediation. The Department will be issuing a bill within the next four months.

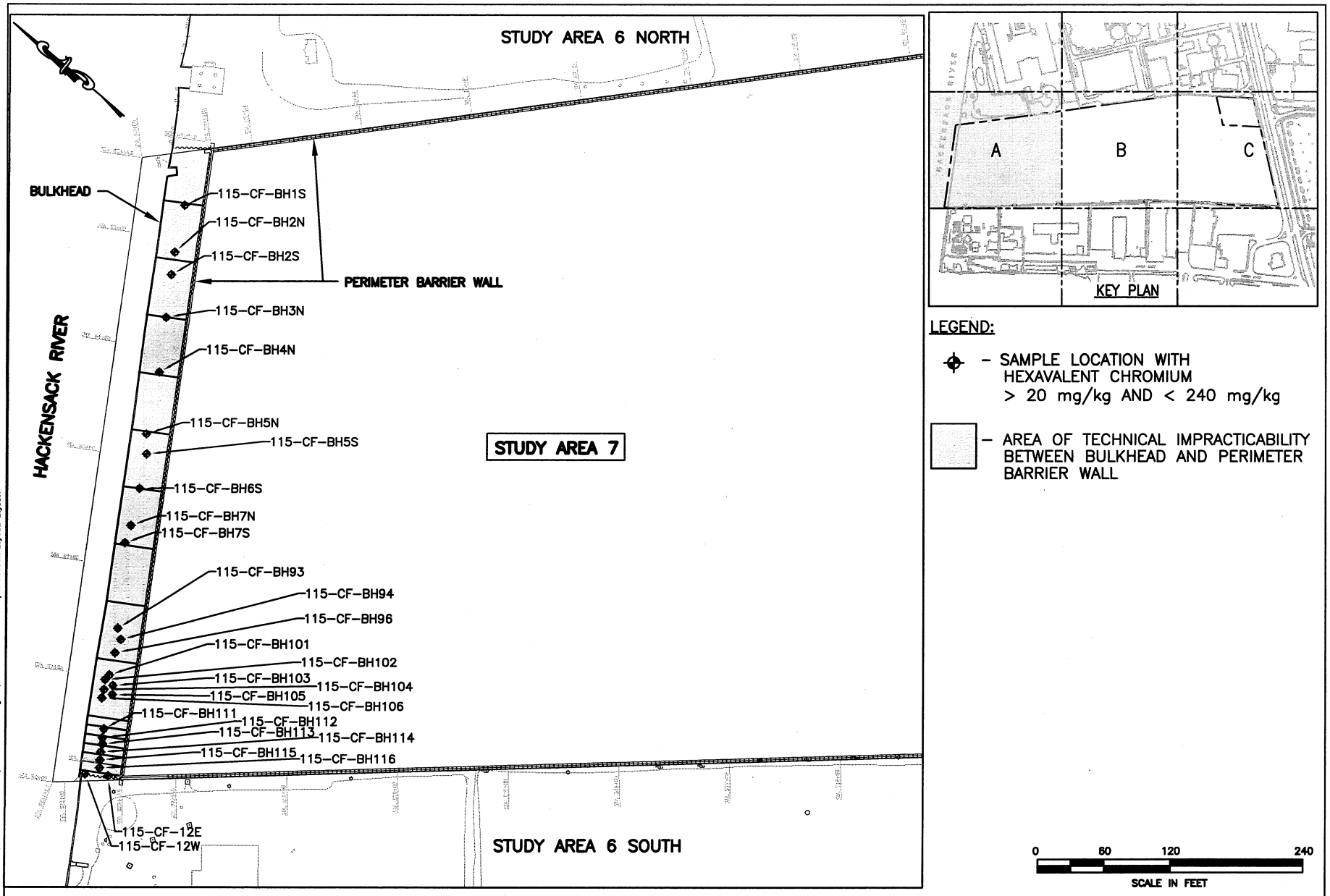
Thank you for your attention to these matters. If you have any questions, please contact Frank Faranca at (609) 984-4071.

Sincerely,

Gwen B. Zervas, P.E. Section Chief
Bureau of Case Management

Enclosure: Figure 1

cc: Senator Robert Torricelli, Special Master
Jerramiah T. Healy, Jersey City
William Matsikoudis, Jersey City Corporation Counsel
Harry Melendez, Director, Jersey City Division of Health
Hudson County Planning Board
Robert Ferraiuolo, Hudson Regional Health Commission
David Doyle, NJDEP, BEERA
David VanEck, NJDEP, BGWPA



REV.	DATE	STATUS	DRFT BY	CHKD BY

MACTEC PROJ No.: 3480090032

PREPARED/DATE: STR 12/15/10

CHECKED/DATE: JH 12/15/10

MACTEC

MACTEC Engineering and Consulting
200 American Metro Boulevard, Suite 113
Hamilton, NJ 08619

STUDY AREA 7
AREA OF TECHNICAL IMPRACTICABLITY
JERSEY CITY, NEW JERSEY

Figure 1

State of New Jersey
Department of Environmental Protection
Site Remediation Program
Mailcode 401-06
P.O. Box 420
Trenton, NJ 08625-0420

CHRIS CHRISTIE
Governor
KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

Maria Kaouris, Remediation Manager
Honeywell International, Inc.
101 Columbia Road
Morristown, New Jersey 07962

Date: February 16, 2012

Approval

Re: Classification Exception Area
Study Areas 5, 6 and 7
Hudson County Chromate Sites 73, 87, 88, 90, 115, 117, 120, 124, 125, 134, 140, 153, 157, and 184
Jersey City, Hudson County
NJDEP PI # G000008789

Dear Ms. Kaouris:

The New Jersey Department of Environmental Protection (NJDEP) has reviewed the Groundwater Classification Exception Area (CEA) application dated 8 June 2009, prepared by HydroQual, Inc. The NJDEP has determined that the referenced document is in compliance with Section 7:26E-8.3 of the New Jersey Technical Requirements for Site Remediation, and the CEA Guidance Document (revised November 1998). NJDEP hereby approves the CEA request effective the date of this letter.

Honeywell is advised that the CEA does not specify monitoring requirements since it functions as a notification mechanism, not as a "stand alone" enforcement or regulatory document. The need and the extent of ground water monitoring required during the duration of the CEA will be determined as part of the Comprehensive Ground Water Monitoring Program. As specified in NJAC 7:26E-8.3(b)5, the Department will require Honeywell to notify external agencies/affected parties of the CEA designations according to the guidelines established in the CEA Guidance Document (11/98) which can be located at: http://www.nj.gov/dep/srp/guidance/cea/ceaguid2.pdf. Note that all property owners within the plume do not need to be notified as long as they are on public water. Honeywell must also comply with the Biennial Certification requirements at NJAC 7:26E-8.6.

The CEAs are for the ground water contamination in three distinct water bearing zones (Shallow, Deep Overburden, and Bedrock). Since the aerial extent of contamination is different for each of the three zones, three separate CEAs were prepared. Note that these

CEAs are only for total and hexavalent chromium. Any other ground water contamination areas within or nearby (e.g. organic compounds in Study Area 6 – North) will require a separate CEA.

If you have any questions, please contact Thomas J. Cozzi of the Site Remediation Program at (609) 984-2905.

Sincerely,

Thomas J. Cozzi, Assistant Director
NJDEP Site Remediation

C: Barbara A. Netchert, Hudson County Clerk
Hudson County Regional Health Commission (CEHA)
Robert Byrne, RMC, Jersey City Clerk
Robert Vogt, Jersey City Division of Health
Carol Ann Wilson, Hudson County Department of Health & Human Services
Stephen D. Marks PP, AICP, Hudson County Division of Planning
Bureau Chief, NJDEP Bureau of Safe Drinking Water
Bureau Chief, NJDEP Bureau of Water Systems and Well Permitting
David Doyle, NJDEP-SRP
David Van Eck, NJDEP-BGWPA

APPENDIX B

ELECTRONIC DATA DELIVERABLE

Warner, Natalie A

From: srpedd@dep.nj.gov
Sent: Thursday, May 11, 2017 6:40 PM
To: Warner, Natalie A
Cc: hazsite@dep.nj.gov
Subject: G000002548, NJD030250484, HB208201 Passed
Attachments: erdtst-7-1-8.txt; erresult-7-1-8.txt; ersample-7-1-8.txt; rstp-7-1-8.txt; DTST.TXT; EDSA_Error_Log.html; G000002548_20170215_20170215.KML; HZRESULT.TXT; HZSAMPLE.TXT

The EDD submission shown below was processed 05/11/2017. This submission has passed and is cataloged in our system.
The email containing your EDD had the subject line of: G000002548, HCC115, RPC030001 it was sent on:

Your submission has been issued an SRP Catalog ID: HB208201 Thank You

The following identifiers were in the DTST file:
Directory: SA751017
DESC: Honeywell SA-7 GW
SRPID: G000002548
Submit Date: 5/10/2017

If you are using the email to process your EDD with your key document, include a copy of this email with your key document package.
This is an automated message.

Warner, Natalie A

From: srpedd@dep.nj.gov
Sent: Tuesday, May 16, 2017 3:06 AM
To: Warner, Natalie A
Cc: hazsite@dep.nj.gov
Subject: G000002548, NJD030250484, HB208325 Passed
Attachments: erdtst-7-1-8.txt; erresult-7-1-8.txt; ersample-7-1-8.txt; rstp-7-1-8.txt; DTST.TXT; EDSA_Error_Log.html; G000002548_20170320_20170320.KML; HZRESULT.TXT; HZSAMPLE.TXT

The EDD submission shown below was processed 05/16/2017. This submission has passed and is cataloged in our system.
The email containing your EDD had the subject line of: G000002548, HCC115, RPC030001 it was sent on:

Your submission has been issued an SRP Catalog ID: HB208325 Thank You

The following identifiers were in the DTST file:
Directory: SA751117
DESC: Honeywell SA-7 GW
SRPID: G000002548
Submit Date: 5/11/2017

If you are using the email to process your EDD with your key document, include a copy of this email with your key document package.
This is an automated message.

Warner, Natalie A

From: srpedd@dep.nj.gov
Sent: Tuesday, May 16, 2017 3:06 AM
To: Warner, Natalie A
Cc: hazsite@dep.nj.gov
Subject: G000002548, NJD030250484, HB208326 Passed
Attachments: erdtst-7-1-8.txt; erresult-7-1-8.txt; ersample-7-1-8.txt; rstp-7-1-8.txt; DTST.TXT; EDSA_Error_Log.html; G000002548_20170216_20170216.KML; HZRESULT.TXT; HZSAMPLE.TXT

The EDD submission shown below was processed 05/16/2017. This submission has passed and is cataloged in our system.
The email containing your EDD had the subject line of: G000002548, HCC115, RPC030001 it was sent on:

Your submission has been issued an SRP Catalog ID: HB208326 Thank You

The following identifiers were in the DTST file:
Directory: SA751117
DESC: Honeywell SA-7 GW
SRPID: G000002548
Submit Date: 5/11/2017

If you are using the email to process your EDD with your key document, include a copy of this email with your key document package.
This is an automated message.

Warner, Natalie A

From: srpedd@dep.nj.gov
Sent: Tuesday, May 16, 2017 3:06 AM
To: Warner, Natalie A
Cc: hazsite@dep.nj.gov
Subject: G000002548, NJD030250484, HB208324 Passed
Attachments: erdtst-7-1-8.txt; erresult-7-1-8.txt; ersample-7-1-8.txt; rstp-7-1-8.txt; DTST.TXT; EDSA_Error_Log.html; G000002548_20170321_20170321.KML; HZRESULT.TXT; HZSAMPLE.TXT

The EDD submission shown below was processed 05/16/2017. This submission has passed and is cataloged in our system.
The email containing your EDD had the subject line of: RE: G000002548, HCC115, RPC030001 it was sent on:

Your submission has been issued an SRP Catalog ID: HB208324 Thank You

The following identifiers were in the DTST file:
Directory: SA751017
DESC: Honeywell SA-7 GW
SRPID: G000002548
Submit Date: 5/10/2017

If you are using the email to process your EDD with your key document, include a copy of this email with your key document package.
This is an automated message.

APPENDIX C

WELL RECORDS, PERMITS, FORM A's & FORM B's

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201700780

MONITORING WELL RECORD

PROPERTY OWNER: 425/445 ROUTE 440 C/O THOMAS REUTERS

Company/Organization: 425/445 Route 440

Address: PO Box 4900 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell SA-7

Address: 425 Route 440

County: Hudson Municipality: Jersey City Lot: 8 Block: 21901

Easting (X): 601748 Northing (Y): 685604
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: January 31, 2017

DATE WELL COMPLETED: January 31, 2017

WELL USE: PIEZOMETER

Other Use(s):

Local ID: 115-PZ-500

WELL CONSTRUCTION

Total Depth Drilled (ft.): 11 Finished Well Depth (ft.): 11 Well Surface: Flush Mount

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	11	6		
Casing	0.5	2	2	PVC	sch 40
Screen	2	11	2	PVC	0.010 inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	1	6	2	0	94	5.25
Gravel Pack	1	11	6	2	No. 1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 4 ft. below land surface
Water Level Measure Tool: probe
Well Development Period: .5 hrs.
Method of Development: submersible pump
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Gus Pech Brat
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG

0 - 11: Gray OT - Other Quarry process backfill material

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201700783

MONITORING WELL RECORD

PROPERTY OWNER: 425/445 ROUTE 440 C/O THOMAS REUTERS

Company/Organization: 425/445 Route 440

Address: PO Box 4900 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell SA-7

Address: 445 Route 440

County: Hudson Municipality: Jersey City Lot: 7 Block: 21901

Easting (X): 603079 Northing (Y): 684573
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: January 30, 2017

DATE WELL COMPLETED: January 31, 2017

WELL USE: PIEZOMETER

Other Use(s):

Local ID: 115-PZ-501

WELL CONSTRUCTION

Total Depth Drilled (ft.): 16.5 Finished Well Depth (ft.): 16.5 Well Surface: Flush Mount

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	16.5	6		
Casing	0	8	2	PVC	sch 40
Screen	8	16.5	2	PVC	0.010 inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	6	6	2	0	141	8
Gravel Pack	6	16.5	6	2	No. 1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 10 ft. below land surface
Water Level Measure Tool: Probe
Well Development Period: .5 hrs.
Method of Development: submersible pump
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Gus Pech Brat
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG

0 - 16.5: Gray OT - Other Backfill material (m sand some silt, round gravel)

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201700784

MONITORING WELL RECORD

PROPERTY OWNER: 465 ROUTE 440 BAYFRONT REDEVELOPMENT

Company/Organization: 465 Route 440/Bayfront Redev

Address: PO Box 4900 Dept 356 Scottsdale, Arizona 85261

WELL LOCATION: 0Honeywell SA-7

Address: 465 Route 440

County: Hudson Municipality: Jersey City Lot: 6 Block: 21901

Easting (X): 603429 Northing (Y): 685019
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: January 30, 2017

DATE WELL COMPLETED: January 30, 2017

WELL USE: PIEZOMETER

Other Use(s):

Local ID: 115-PZ-502

WELL CONSTRUCTION

Total Depth Drilled (ft.): 16 Finished Well Depth (ft.): 16 Well Surface: Flush Mount

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	16	6		
Casing	0	8	2	PVC	sch 40
Screen	8	16	2	PVC	0.010 inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	6	6	2	0	141	8
Gravel Pack	6	16	6	2	No. 1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 10.5 ft. below land surface
Water Level Measure Tool: Probe
Well Development Period: .5 hrs.
Method of Development: submersible pump
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Gus Pech Brat
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG

0 - 16: gray OT - Other Backfill material (m sand some round gravel)

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201700781

MONITORING WELL RECORD

PROPERTY OWNER: 425/445 ROUTE 440 C/O THOMAS REUTERS

Company/Organization: 425/445 Route 440

Address: PO Box 4900 Scottsdale, Arizona 85261

WELL LOCATION: Honeywell SA-7

Address: 425 Route 440

County: Hudson Municipality: Jersey City Lot: 8 Block: 21901

Easting (X): 602038 Northing (Y): 685879
Coordinate System: NJ State Plane (NAD83) - USFEET

DATE WELL STARTED: January 31, 2017

DATE WELL COMPLETED: February 1, 2017

WELL USE: PIEZOMETER

Other Use(s):

Local ID: 115-PZ-503

WELL CONSTRUCTION

Total Depth Drilled (ft.): 10 Finished Well Depth (ft.): 10 Well Surface: Flush Mount

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt/Rating/Screen # Used (lbs/ch no.)
Borehole	0	10	6		
Casing	0	2	2	PVC	sch 40
Screen	2	10	2	PVC	0.010 inch

	Depth to Top (ft.)	Depth to Bottom (ft.)	Outer Diameter (in.)	Inner Diameter (in)	Material		
					Bentonite (lbs.)	Neat Cement (lbs.)	Water (gal.)
Grout	0	1	6	2	0	94	5.25
Gravel Pack	1	10	6	2	No. 1		

Grouting Method: Pressure method (Tremie Pipe) Drilling Method: Hollow Stem Augers

ADDITIONAL INFORMATION

Protective Casing: No
Static Water Level: 4.1 ft. below land surface
Water Level Measure Tool: Probe
Well Development Period: .5 hrs.
Method of Development: submersible pump
Pump Type:

Pump Capacity: _ gpm
Total Design Head: _ ft.
Drilling Fluid:
Drill Rig: Gus Pech Brat
Health and Safety Plan Submitted? Yes

ATTACHMENTS:

GEOLOGIC LOG
0 - 4: Gray OT - Other Backfill (QP)
4 - 10: Gray OT - Other Backfill (m-sand and silt, round gravel)

ADDITIONAL INFORMATION:

Driller of Record: Warren Blewett, JOURNEYMAN LICENSE # 0014578 Company: B & B DRILLING INC

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201700780

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: ANDREW WADDEN, JOURNEYMAN LICENSE # 726565

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: 425/445 ROUTE 440 C/O THOMAS REUTERS

Organization: 425/445 Route 440

Address: PO Box 4900

City: Scottsdale State: Arizona Zip Code: 85261

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-7

Address: 425 Route 440

County: Hudson Municipality: Jersey City Lot: 8 Block: 21901

Easting (X): 601688 Northing (Y): 685606
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 115-PZ-500

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 2

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 17

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approval Date: January 20, 2017
Expiration Date: January 20, 2018

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201700780

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201700783

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: ANDREW WADDEN, JOURNEYMAN LICENSE # 726565

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: 425/445 ROUTE 440 C/O THOMAS REUTERS

Organization: 425/445 Route 440

Address: PO Box 4900

City: Scottsdale State: Arizona Zip Code: 85261

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-7

Address: 445 Route 440

County: Hudson Municipality: Jersey City Lot: 7 Block: 21901

Easting (X): 603061 Northing (Y): 684553
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 115-PZ-501

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 2

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 17

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approval Date: January 20, 2017
Expiration Date: January 20, 2018

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201700783

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201700784

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: ANDREW WADDEN, JOURNEYMAN LICENSE # 726565

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: 465 ROUTE 440 BAYFRONT REDEVELOPMENT

Organization: 465 Route 440/Bayfront Redev

Address: PO Box 4900 Dept 356

City: Scottsdale State: Arizona Zip Code: 85261

PROPOSED WELL LOCATION

Facility Name: 0Honeywell SA-7

Address: 465 Route 440

County: Hudson Municipality: Jersey City Lot: 6 Block: 21901

Easting (X): 603445 Northing (Y): 685037
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 115-PZ-502

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 2

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 17

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approval Date: January 20, 2017
Expiration Date: January 20, 2018

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201700784

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
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In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201700781

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: ANDREW WADDEN, JOURNEYMAN LICENSE # 726565

Permit Issued to: B & B DRILLING INC

Company Address: BOX 8 RT 206 NETCONG, NJ 07857

PROPERTY OWNER

Name: 425/445 ROUTE 440 C/O THOMAS REUTERS

Organization: 425/445 Route 440

Address: PO Box 4900

City: Scottsdale State: Arizona Zip Code: 85261

PROPOSED WELL LOCATION

Facility Name: Honeywell SA-7

Address: 425 Route 440

County: Hudson Municipality: Jersey City Lot: 8 Block: 21901

Easting (X): 602057 Northing (Y): 685915
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: 115-PZ-503

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: PIEZOMETER

Other Use(s):

Diameter (in.): 2

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 17

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approval Date: January 20, 2017
Expiration Date: January 20, 2018

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201700781

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
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If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
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In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

New Jersey Department of Environmental Protection
Site Remediation Program

MONITORING WELL CERTIFICATION FORM A - AS-BUILT CERTIFICATION

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Honeywell SA-7

List all AKAs: Site 115-Roosevelt Drive-In, Site 120-Trader Horn, and Site 157-Clean Machine

Street Address: 445 & 465 Route 440

Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07305

Program Interest (PI) Number(s): G000008771, -2548 and -8737 Case Tracking Number(s):

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner 425/445 Route 440 c/o Thomas Reuters
2. Well Location (Street Address) 425 Route 440, Jersey City, NJ 07305
3. Well Location (Municipal Block and Lot) Block# 21901 Lot # 8

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing):..	E201700780
2. Site Well Number as shown on application or plans):	115-PZ-500
3. Well Completion Date:	01/31/2017
4. Distance from Top of Casing (cap off) to ground surface (nearest 0.01'):	0.50
5. Total Depth of Well to the nearest ½ foot:	11.0
6. Depth to Top of Screen (or top of open hole) from top of casing (nearest 0.01'):.....	2.00
7. Screen Length (or length of open hole) in feet:	9
8. Screen or Slot Size:	0.010-inch
9. Screen or Slot Material:	PVC
10. Casing Material (PVC, steel, or other – specify):	PVC
11. Casing Diameter (inches):	2
12. Static Water Level from top of casing at the time of installation (nearest 0.01'):	4.00
13. Yield (gallons per minute):	1
14. Development Techinque (specify):	Submersible pump
15. Length of Time well is developed/pumped or bailed (hours and minutes):	0:30

New Jersey Department of Environmental Protection
Site Remediation Program

MONITORING WELL CERTIFICATION FORM A - AS-BUILT CERTIFICATION

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Honeywell SA-7

List all AKAs: Site 115-Roosevelt Drive-In, Site 120-Trader Horn, and Site 157-Clean Machine

Street Address: 445 & 465 Route 440

Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07305

Program Interest (PI) Number(s): G000008771, -2548 and -8737 Case Tracking Number(s):

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner 425/445 Route 440 c/o Thomas Reuters
2. Well Location (Street Address) 445 Route 440, Jersey City, NJ 07305
3. Well Location (Municipal Block and Lot) Block# 21901 Lot # 7

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing):..	E201700783
2. Site Well Number as shown on application or plans):	115-PZ-501
3. Well Completion Date:	01/31/2017
4. Distance from Top of Casing (cap off) to ground surface (nearest 0.01'):	0.50
5. Total Depth of Well to the nearest ½ foot:	16.50
6. Depth to Top of Screen (or top of open hole) from top of casing (nearest 0.01'):.....	8.00
7. Screen Length (or length of open hole) in feet:	8.5
8. Screen or Slot Size:	0.010-inch
9. Screen or Slot Material:	PVC
10. Casing Material (PVC, steel, or other – specify):	PVC
11. Casing Diameter (inches):	2
12. Static Water Level from top of casing at the time of installation (nearest 0.01'):	10.00
13. Yield (gallons per minute):	1
14. Development Techinque (specify):	Submersible pump
15. Length of Time well is developed/pumped or bailed (hours and minutes):	0:30

New Jersey Department of Environmental Protection
Site Remediation Program

MONITORING WELL CERTIFICATION FORM A - AS-BUILT CERTIFICATION

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Honeywell SA-7

List all AKAs: Site 115-Roosevelt Drive-In, Site 120-Trader Horn, and Site 157-Clean Machine

Street Address: 445 & 465 Route 440

Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07305

Program Interest (PI) Number(s): G000008771, -2548 and -8737 Case Tracking Number(s):

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner 465 Route 440 Bayfront Redevelopment
2. Well Location (Street Address) 465 Route 440, Jersey City, NJ 07305
3. Well Location (Municipal Block and Lot) Block# 21901 Lot # 6

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing):..	E201700784
2. Site Well Number as shown on application or plans):	115-PZ-502
3. Well Completion Date:	01/31/2017
4. Distance from Top of Casing (cap off) to ground surface (nearest 0.01'):	0.50
5. Total Depth of Well to the nearest ½ foot:	16.0
6. Depth to Top of Screen (or top of open hole) from top of casing (nearest 0.01'):.....	8.00
7. Screen Length (or length of open hole) in feet:	8
8. Screen or Slot Size:	0.010-inch
9. Screen or Slot Material:	PVC
10. Casing Material (PVC, steel, or other – specify):	PVC
11. Casing Diameter (inches):	2
12. Static Water Level from top of casing at the time of installation (nearest 0.01'):	10.50
13. Yield (gallons per minute):	1
14. Development Techinque (specify):	Submersible pump
15. Length of Time well is developed/pumped or bailed (hours and minutes):	0:30

New Jersey Department of Environmental Protection
Site Remediation Program

MONITORING WELL CERTIFICATION FORM A - AS-BUILT CERTIFICATION

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Honeywell SA-7

List all AKAs: Site 115-Roosevelt Drive-In, Site 120-Trader Horn, and Site 157-Clean Machine

Street Address: 445 & 465 Route 440

Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07305

Program Interest (PI) Number(s): G000008771, -2548 and -8737 Case Tracking Number(s):

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner 425/445 Route 440 c/o Thomas Reuters
2. Well Location (Street Address) 425 Route 440, Jersey City, NJ 07305
3. Well Location (Municipal Block and Lot) Block# 21901 Lot # 8

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing):	E201700781
2. Site Well Number as shown on application or plans):	115-PZ-503
3. Well Completion Date:	02/01/2017
4. Distance from Top of Casing (cap off) to ground surface (nearest 0.01'):	0.50
5. Total Depth of Well to the nearest ½ foot:	10.0
6. Depth to Top of Screen (or top of open hole) from top of casing (nearest 0.01'):	2.00
7. Screen Length (or length of open hole) in feet:	8
8. Screen or Slot Size:	0.010-inch
9. Screen or Slot Material:	PVC
10. Casing Material (PVC, steel, or other – specify):	PVC
11. Casing Diameter (inches):	2
12. Static Water Level from top of casing at the time of installation (nearest 0.01'):	4.10
13. Yield (gallons per minute):	1
14. Development Techinque (specify):	Submersible pump
15. Length of Time well is developed/pumped or bailed (hours and minutes):	0:30

New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Honeywell SA-7

List all AKAs:

Street Address: 425 Route 440

Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07304

Program Interest (PI) Number(s): Case Tracking Number(s):

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner 425/445 Route 440 c/o Thomas Reuters
2. Well Location (Street Address) 425 Route 440
3. Well Location (Municipal Block and Lot) Block# 21901 Lot # 8

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): E201700780
2. Site Well Number (As shown on application or plans): 115-PZ-500
3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:
   Latitude: North 40-42-53.87 Longitude: West 074-06-16.28
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
   North 685604 East 601748
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 6.68'
   Elevation Top of Outer casing: 6.91' Elevation of ground: 6.92'
   Check one: ☐ NAVD 88 ☒ NGVD 29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
   NGS Bench Mark KV0272. Elevation = 36.37' (NGVD29). (Subtract 1.14' to convert elevation to NAVD88 datum)
7. Significant observations and notes:

SECTION D. LAND SURVEYOR'S CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

SEAL

Professional Land Surveyor's Signature: Date 02/24/17

Surveyor's Name: Glen J. Lloyd License Number: GS37598

Firm Name: Maser Consulting P.A. Certificate of Authorization #: 24GA27986500

Mailing Address 331 Newman Springs Road Suite 203

City/Town: Red Bank State New Jersey Zip Code: 07710

Phone Number 732-383-1950 Ext.: 3466 Fax: 732-383-1984

New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Honeywell SA-7

List all AKAs:

Street Address: 425 Route 440

Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07304

Program Interest (PI) Number(s): Case Tracking Number(s):

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner 425/445 Route 440 c/o Thomas Reuters
2. Well Location (Street Address) 425 Route 440
3. Well Location (Municipal Block and Lot) Block# 21901 Lot # 7

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): E201700783
2. Site Well Number (As shown on application or plans): 115-PZ-501
3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:
   Latitude: North 40-42-43.62 Longitude: West 074-05-59.05
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
   North 684573 East 603079
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 14.47'
   Elevation Top of Outer casing: 14.82' Elevation of ground: 14.79'
   Check one: ☐ NAVD 88 ☒ NGVD 29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
   NGS Bench Mark KV0272. Elevation = 36.37' (NGVD29). (Subtract 1.14' to convert elevation to NAVD88 datum)
7. Significant observations and notes:

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I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

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Professional Land Surveyor's Signature: Date 02/24/17

Surveyor's Name: Glen J. Lloyd License Number: GS37598

Firm Name: Maser Consulting P.A. Certificate of Authorization #: 24GA27986500

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New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
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SECTION A. SITE NAME AND LOCATION

Site Name: Honeywell SA-7

List all AKAs:

Street Address: 465 Route 440

Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07305

Program Interest (PI) Number(s): Case Tracking Number(s):

SECTION B. WELL OWNER AND LOCATION

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3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:
   Latitude: North 40-42-48.02 Longitude: West 074-05-54.48
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
   North 685019 East 603429
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 14.51'
   Elevation Top of Outer casing: 14.83' Elevation of ground: 14.83'
   Check one: ☐ NAVD 88 ☒ NGVD 29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
   NGS Bench Mark KV0272. Elevation = 36.37' (NGVD29). (Subtract 1.14' to convert elevation to NAVD88 datum)
7. Significant observations and notes:

SECTION D. LAND SURVEYOR'S CERTIFICATION

SEAL

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Professional Land Surveyor's Signature: Date 02/24/17

Surveyor's Name: Glen J. Lloyd License Number: GS37598

Firm Name: Maser Consulting P.A. Certificate of Authorization #: 24GA27986500

Mailing Address 331 Newman Springs Road Suite 203

City/Town: Red Bank State New Jersey Zip Code: 07710

Phone Number 732-383-1950 Ext.: 3466 Fax: 732-383-1984

New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Honeywell SA-7

List all AKAs: 425 Route 440

Street Address: 425 Route 440

Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07304

Program Interest (PI) Number(s): Case Tracking Number(s):

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner 425/445 Route 440 c/o Thomas Reuters
2. Well Location (Street Address) 425 Route 440
3. Well Location (Municipal Block and Lot) Block# 21901 Lot # 8

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): E201700781
2. Site Well Number (As shown on application or plans): 115-PZ-503
3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:
   Latitude: North 40-42-56.58 Longitude: West 074-06-12.50
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
   North 685879 East 602038
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 7.32'
   Elevation Top of Outer casing: 7.67' Elevation of ground: 7.69'
   Check one: ☐ NAVD 88 ☒ NGVD 29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
   NGS Bench Mark KV0272. Elevation = 36.37' (NGVD29). (Subtract 1.14' to convert elevation to NAVD88 datum)
7. Significant observations and notes:

SECTION D. LAND SURVEYOR'S CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

SEAL

Professional Land Surveyor's Signature: Date 02/24/17

Surveyor's Name: Glen J. Lloyd License Number: GS37598

Firm Name: Maser Consulting P.A. Certificate of Authorization #: 24GA27986500

Mailing Address 331 Newman Springs Road Suite 203

City/Town: Red Bank State New Jersey Zip Code: 07710

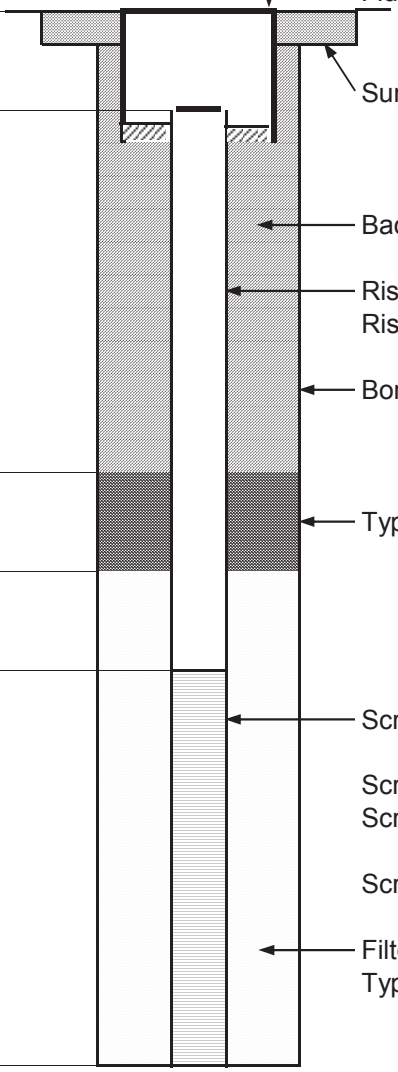
Phone Number 732-383-1950 Ext.: 3466 Fax: 732-383-1984

APPENDIX D

WELL CONSTRUCTION DIAGRAMS

Amec Foster Wheeler Environment & Infrastructure			FLUSHMOUNT OVERBURDEN WELL/PIEZOMETER 115-PZ-500
Project:	Honeywell Jersey City SA-6	**Number:** 3480160526	
Client:	Honeywell	**Date:** 1/31/2017	**Subcontractor:** B&B Drilling
Drilling Method:	HSA		**Measuring Point**
Development Method:	Submersible		**Type:** Ground Elevation
Bucking Posts:			**Elevation (ft):** 6.91

Item	Depth, below Measuring Point (ft)	Elevation (ft)
Grade	0	6.91
Riser Pipe	0.23	6.68
Top of Seal	1	5.91
Top of Filter Pack	1.5	5.41
Top of Screen	2	4.91
Base of Screen / Total Depth	11	-4.09

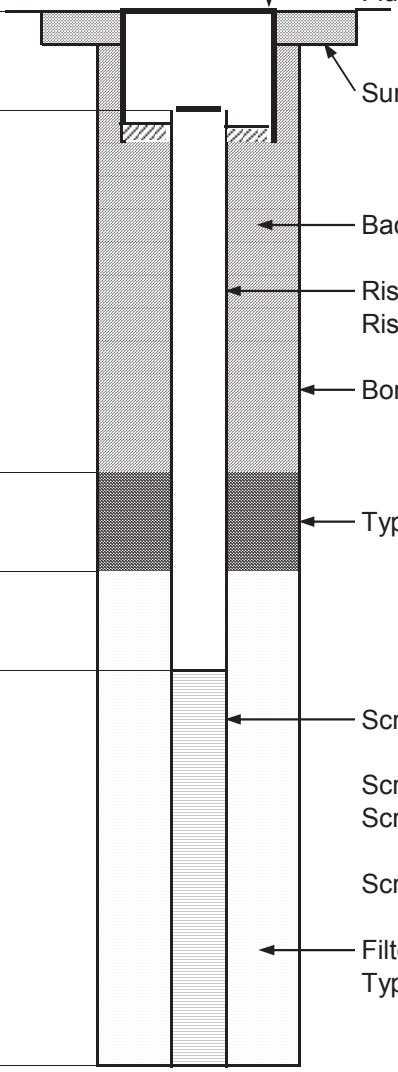


Description	
Flushmount Diameter:	8"
Surface Seal Type:	Concrete
Backfill/Grout Type:	Type 2 Portland Cement
Riser Pipe Type:	Schedule 40 PVC
Riser Pipe ID:	2"
Borehole Diameter:	6 5/8"
Type of Seal:	#00 Sand
Screen Type:	Schedule 40 PVC
Screen ID:	2"
Screen Slot Size:	.0010"
Screen Length:	9'
Filter/Sand Pack Type:	#1 Sand

Notes:

Amec Foster Wheeler Environment & Infrastructure			FLUSHMOUNT OVERBURDEN WELL/PIEZOMETER 115-PZ-501
Project:	Honeywell Jersey City SA-6	**Number:** 3480160526	
Client:	Honeywell	**Date:** 1/30/2017	**Subcontractor:** B&B Drilling
Drilling Method:	HSA		**Measuring Point**
Development Method:	Submersible		**Type:** Ground Elevation
Bucking Posts:			**Elevation (ft):** 14.82

Item	Depth, below Measuring Point (ft)	Elevation (ft)
Grade	0	14.82
Riser Pipe	0.35	14.47
Top of Seal	6	8.82
Top of Filter Pack	7	7.82
Top of Screen	8	6.82
Base of Screen / Total Depth	16.5	-1.68



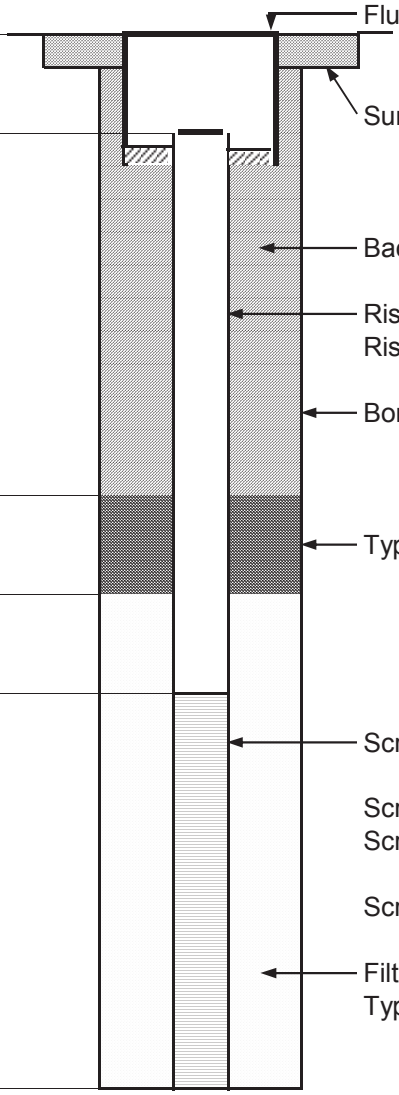
Description

Flushmount Diameter:	8"
Surface Seal Type:	Concrete
Backfill/Grout Type:	Type 2 Portland Cement
Riser Pipe Type:	Schedule 40 PVC
Riser Pipe ID:	2"
Borehole Diameter:	6 5/8"
Type of Seal:	#00 Sand
Screen Type:	Schedule 40 PVC
Screen ID:	2"
Screen Slot Size:	.0010"
Screen Length:	8.5'
Filter/Sand Pack Type:	#1 Sand

Notes:

Amec Foster Wheeler Environment & Infrastructure			FLUSHMOUNT OVERBURDEN WELL/PIEZOMETER 115-PZ-502
Project:	Honeywell Jersey City SA-6	**Number:** 3480160526	
Client:	Honeywell	**Date:** 1/30/2017	**Subcontractor:** B&B Drilling
Drilling Method:	HSA		**Measuring Point**
Development Method:	Submersible		**Type:** Ground Elevation
Bucking Posts:			**Elevation (ft):** 14.83

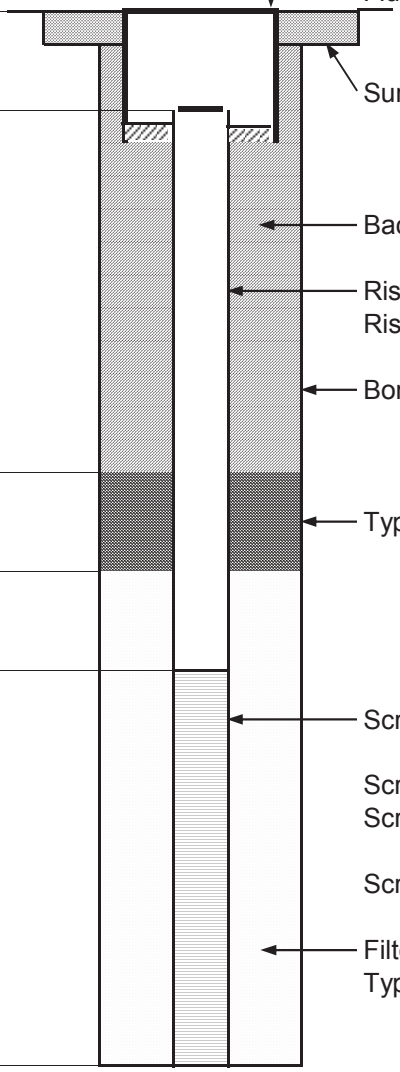
Item	Depth, below Measuring Point (ft)	Elevation (ft)	Description
Grade	0	14.83	Flushmount Diameter: 8"
Riser Pipe	0.32	14.51	Surface Seal Type: Concrete
			Backfill/Grout Type: Type 2 Portland Cement
			Riser Pipe Type: Schedule 40 PVC
			Riser Pipe ID: 2"
			Borehole Diameter: 6 5/8"
Top of Seal	5.9	8.93	
			Type of Seal: #00 Sand
Top of Filter Pack	6.9	7.93	
Top of Screen	7.9	6.93	
			Screen Type: Schedule 40 PVC
			Screen ID: 2"
			Screen Slot Size: .0010"
			Screen Length: 8'
			Filter/Sand Pack Type: #1 Sand
Base of Screen / Total Depth	15.9	-1.07	



Notes:

Amec Foster Wheeler Environment & Infrastructure			FLUSHMOUNT OVERBURDEN WELL/PIEZOMETER 115-PZ-503
Project:	Honeywell Jersey City SA-6	**Number:** 3480160526	
Client:	Honeywell	**Date:** 1/31/2017	**Subcontractor:** B&B Drilling
Drilling Method:	HSA		**Measuring Point**
Development Method:	Submersible		**Type:** Ground Elevation
Bucking Posts:			**Elevation (ft):** 7.67

Item	Depth, below Measuring Point (ft)	Elevation (ft)
Grade	0	7.67
Riser Pipe	0.35	7.32
Top of Seal	0.7	6.97
Top of Filter Pack	1.2	6.47
Top of Screen	1.7	5.97
Base of Screen / Total Depth	9.7	-2.03



Description

Flushmount Diameter:	8"
Surface Seal Type:	Concrete
Backfill/Grout Type:	Type 2 Portland Cement
Riser Pipe Type:	Schedule 40 PVC
Riser Pipe ID:	2"
Borehole Diameter:	6 5/8"
Type of Seal:	#00 Sand
Screen Type:	Schedule 40 PVC
Screen ID:	2"
Screen Slot Size:	.0010"
Screen Length:	8'
Filter/Sand Pack Type:	#1 Sand

Notes:

APPENDIX E

GROUNDWATER SAMPLING FORMS

Groundwater Sampling Form **Job Name:** HW SA-7 Page: 1 of 1

Job Number: 3480160526.6100.61001 **Well Number** 115-PZ-500

WELL PURGING INFORMATION

PURGE VOLUME

Low Flow Method:

3 to 5 Volume Purge Method:

Number of Well Volumes to be Purged:

Well Type: Monitor Other

Well Material: PVC Stainless Steel Steel

Casing Diameter (D in Inches): 2

Well Depth (ft BTOC): 11

Screen Interval in Feet (BTOC) from 2 to 11

PURGE METHOD

Bailer - Type:

Submersible Centrifugal

Bladder Peristaltic

PURGE VOLUME CALCULATIONS

(TD - WL) x D^2 x No. Volumes x 0.0408 = Calculated Purge Volume Gallons

Purge Water Disposal: Drum Type Other On site treatment system

Size

PUMP INTAKE SETTING

Pump Depth (ft BTOC): 9.5

INSTRUMENT IDENTIFICATION RECORD AND FIELD MEASUREMENTS

Instrument Type: Horiba U-52 Depth to Water: 1.91 Time: 13:37 Date: 2/15/2017

Serial Number: 15291 Depth to Bottom of Well: 11 PID Reading (inside of Casing): 1.5

For Calibration Information, See Instrument Calibration Record Sheet Dated: 2/15/2017

FIELD PARAMETER MEASURMENTS

Recorded By: (Signature) Sampled By: Sean Rittinger Purge Start Time: 13:44

Time	Rate x lpm gpm	Temp (°C)		pH (S.U.)		Redox (mV)		Cond. (ms/cm)		Turbidity (NTUs)		Diss. O_2 (mg/L)		Salinity (%)		Depth to Water (ft)		Comments
		Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	
		3%		0.1 Unit		10 mV		3%		10%		10%		NA		0.3 ft		
13:50	0.25	11.14	-	6.97	-	-37	-	1.16	-	0.00		0.00	-	0.6	-	1.99	-	
13:55	0.25	9.19	17.5	7.06	-0.09	-40	3.00	0.98	15.5	815	100.0	0.00	0.0	0.5	0.1	1.99	0.0	
14:00	0.25	9.10	0.979	7.07	-0.01	-42	2.00	0.97	1.02	378	53.62	0.00	0.0	0.5	0.0	1.99	0.0	
14:05	0.25	9.12	-0.22	7.09	-0.02	-44	2.00	0.97	0.52	224	40.74	0.00	0.0	0.5	0.0	1.99	0.0	
14:10	0.25	9.50	-4.17	7.10	-0.01	-43	-1.00	0.96	0.73	247	-10.27	0.00	0.0	0.5	0.0	1.99	0.0	
14:15	0.25	Cleaned Out Horiba																
14:20	0.25	9.93	-	7.14	-	-40	-	0.956	-	179	-	0.00	-	0.5	-	1.99	-	
14:25	0.25	9.92	0.10	7.14	0.00	-41	1.00	0.96	0.10	162	9.50	0.00	0.0	0.5	0.0	1.99	0.0	
14:30	0.25	9.89	0.30	7.15	-0.01	-43	2.00	0.96	-0.31	143	11.73	0.00	0.0	0.5	0.0	1.99	0.0	
14:35	0.25	9.79	1.01	7.15	0.00	-40	-3.00	0.96	0.10	89.6	37.34	0.00	0.0	0.5	0.0	1.99	0.0	
14:40	0.25	9.77	0.20	7.15	0.00	-45	5.00	0.95	0.63	63.3	29.35	0.00	0.0	0.5	0.0	1.99	0.0	
14:45	0.25	9.58	1.94	7.15	0.00	-44	-1.00	0.96	-0.63	58	8.37	0.00	0.0	0.5	0.0	1.99	0.0	
14:50	0.25	9.53	0.52	7.15	0.00	-46	2.00	0.95	0.84	34.6	40.34	0.00	0.0	0.5	0.0	1.99	0.0	
14:55	0.25	9.33	2.10	7.16	-0.01	-50	4.00	0.95	-0.42	31.9	7.80	0.00	0.0	0.5	0.0	1.99	0.0	
15:00	0.25	9.2	1.39	7.16	0.00	-52	2.00	0.96	-0.84	23	27.90	0.00	0.0	0.5	0.0	1.99	0.0	
15:05	0.25	9.09	1.20	7.16	0.00	-53	1.00	0.96	-0.10	14.9	35.22	0.00	0.0	0.5	0.0	1.99	0.0	
15:10	0.25	8.94	1.65	7.16	0.00	-54	1.00	0.96	0.21	6.4	57.05	0.00	0.0	0.5	0.0	1.99	0.0	
15:15	0.25	8.89	0.56	7.16	0.00	-56	2.00	0.96	0.10	8.1	-26.56	0.00	0.0	0.5	0.0	1.99	0.0	
15:20	0.25	8.86	0.34	7.17	-0.01	-59	3.00	0.96	0.10	3.2	60.49	0.00	0.0	0.5	0.0	1.99	0.0	

Note: > = Greater Than < = Less Than NM = Not Measured EF = Equipment Failure

Final Water Purged: 13 gals Final Water Level: 1.98 Final Well Depth: 11.00

OBSERVATIONS DURING WELL PURGING

Well Condition: See well inspection log

Color of GW: Clear

Sample ID: 115-PZ-500-021517 @15:20

Odor: None

Other:

Sample ID: 115-PZ-500-F-021517 @15:25

Groundwater Sampling Form **Job Name:** HW SA-7 Page: 1 of 1

Job Number: 3480160526.6100.61001 **Well Number** 115-PZ-501

WELL PURGING INFORMATION

PURGE VOLUME

Low Flow Method:

3 to 5 Volume Purge Method:

Number of Well Volumes to be Purged:

Well Type: Monitor Other

Well Material: PVC Stainless Steel Steel

Casing Diameter (D in Inches): 2

Well Depth (ft BTOC): 16.5

Screen Interval in Feet (BTOC) from 8 to 16.5

PURGE METHOD

Bailer - Type:

Submersible Centrifugal

Bladder Peristaltic

PURGE VOLUME CALCULATIONS

(TD - WL) x D^2 x No. Volumes x 0.0408 = Calculated Purge Volume Gallons

Purge Water Disposal: Drum Type Other On site treatment system

Size

PUMP INTAKE SETTING

Pump Depth (ft BTOC): 15

INSTRUMENT IDENTIFICATION RECORD AND FIELD MEASUREMENTS

Instrument Type: Horiba U-52 Depth to Water: 9.24 Time: 11:22 Date: 2/15/2017

Serial Number: 15291 Depth to Bottom of Well: 16.5 PID Reading (inside of Casing): 6.5

For Calibration Information, See Instrument Calibration Record Sheet Dated: 2/15/2017

FIELD PARAMETER MEASURMENTS

Recorded By: (Signature) Sampled By: Sean Rittinger Purge Start Time: 11:27

Time	Rate x lpm / gpm	Temp (°C)		pH (S.U.)		Redox (mV)		Cond. (ms/cm)		Turbidity (NTUs)		Diss. O_2 (mg/L)		Salinity (%)		Depth to Water (ft)		Comments
		Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	
		3%		0.1 Unit		10 mV		3%		10%		10%		NA		0.3 ft		
11:30	0.275	11.52	-	5.84	-	83	-	0.162	-	847		2.55	-	0.1	-	9.44	-	
11:35	0.275	11.75	-2	5.85	-0.01	96	-13.00	0.164	-1.2	985	100.0	2.28	10.6	0.1	0.0	9.69	-0.3	
11:40	0.275	12.10	-2.98	5.84	0.01	104	-8.00	0.160	2.44	653	33.71	3.09	-35.5	0.1	0.0	9.72	0.0	
11:45	0.275	12.18	-0.66	5.80	0.04	110	-6.00	0.158	1.25	410	37.21	3.67	-18.8	0.1	0.0	9.91	-0.2	
11:50	0.275	12.17	0.082	5.76	0.04	115	-5.00	0.156	1.27	208	49.27	3.60	1.9	0.1	0.0	9.96	-0.1	
11:55	0.275	12.15	0.164	5.75	0.01	117	-2.00	0.156	0.00	130	37.50	3.42	5.0	0.1	0.0	9.99	0.0	
12:00	0.275	12.20	-0.41	5.75	0.00	117	0.00	0.156	0.00	68.0	47.69	3.21	6.1	0.1	0.0	9.99	0.0	
12:05	0.275	12.22	-0.16	5.74	0.01	117	0.00	0.157	-0.64	42.2	37.94	3.03	5.6	0.1	0.0	9.99	0.0	
12:10	0.275	12.36	-1.15	5.74	0.00	117	0.00	0.158	-0.64	26.4	37.44	2.89	4.6	0.1	0.0	9.99	0.0	
12:15	0.275	12.08	2.27	5.74	0.00	118	-1.00	0.159	-0.63	24.4	7.58	2.57	11.1	0.1	0.0	10.02	0.0	
12:20	0.275	12.25	-1.41	5.74	0.00	188	-70.00	0.158	0.63	23.3	4.51	2.55	0.8	0.1	0.0	10.03	0.0	
12:25	0.275	12.19	0.49	5.73	0.01	117	71.00	0.160	-1.27	15.3	34.33	2.64	-3.5	0.1	0.0	10.06	0.0	
12:30	0.275	12.22	-0.25	5.73	0.00	117	0.00	0.161	-0.63	13.6	11.11	2.57	2.7	0.1	0.0	10.09	0.0	
12:35	0.275	12.23	-0.08	5.73	0.00	118	-1.00	0.161	0.00	12.1	11.03	2.58	-0.4	0.1	0.0	10.11	0.0	
12:40	0.275	12.25	-0.16	5.72	0.01	119	-1.00	0.159	1.24	10.6	12.40	2.58	0.0	0.1	0.0	10.12	0.0	
12:45	0.275	12.19	0.49	5.71	0.01	122	-3.00	0.159	0.00	10.1	4.72	2.60	-0.8	0.1	0.0	10.12	0.0	
12:50	0.275	12.15	0.33	5.71	0.00	124	-2.00	0.159	0.00	9.9	1.98	2.47	5.0	0.1	0.0	10.12	0.0	
12:55	0.275	12.23	-0.66	5.7	0.01	124	0.00	0.159	0.00	8.6	13.13	2.39	3.2	0.1	0.0	10.14	0.0	
13:00	0.275	12.23	0.00	5.7	0.00	125	-1.00	0.159	0.00	7.9	8.14	2.22	7.1	0.1	0.0	10.16	0.0	

Note: > = Greater Than < = Less Than NM = Not Measured EF = Equipment Failure

Final Water Purged: 9 gal Final Water Level: 10.05 Final Well Depth: 16.38

OBSERVATIONS DURING WELL PURGING

Well Condition: See well inspection log Odor: None

Color of GW: Clear Other:

Sample ID: 115-PZ-501-021517 @13:00 Sample ID: 115-PZ-501-F-021517 @13:05

Groundwater Sampling Form **Job Name:** HW SA-7 Page: 1 of 1

Job Number: 3480160526.6100.61001 **Well Number** 115-PZ-502

WELL PURGING INFORMATION

PURGE VOLUME

Low Flow Method:

3 to 5 Volume Purge Method:

Number of Well Volumes to be Purged:

Well Type: Monitor Other

Well Material: PVC Stainless Steel Steel

Casing Diameter (D in Inches): 2

Well Depth (ft BTOC):

Screen Interval in Feet (BTOC) from to

PURGE METHOD

Bailer - Type:

Submersible Centrifugal

Bladder Peristaltic

PURGE VOLUME CALCULATIONS

(-) x ² x x 0.0408 = Gallons

TD WL D No. Volumes Calculated Purge Volume

Purge Water Disposal: Drum Type Other On site treatment system

Size

PUMP INTAKE SETTING

Pump Depth (ft BTOC): 14.5

INSTRUMENT IDENTIFICATION RECORD AND FIELD MEASUREMENTS

Instrument Type: Horiba U-52 Depth to Water: 9.66 Time: 8:40 Date: 2/15/2017

Serial Number: 15291 Depth to Bottom of Well: 15.9 PID Reading (inside of Casing): 0.7

For Calibration Information, See Instrument Calibration Record Sheet Dated: 2/15/2017

FIELD PARAMETER MEASURMENTS

Recorded By: (Signature) Sampled By: Sean Rittinger Purge Start Time: 8:58

Time	Rate x lpm / gpm	Temp (°C)		pH (S.U.)		Redox (mV)		Cond. (ms/cm)		Turbidity (NTUs)		Diss. O_2 (mg/L)		Salinity (%)		Depth to Water (ft)		Comments
		Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	
		3%		0.1 Unit		10 mV		3%		10%		10%		NA		0.3 ft		
9:00	0.3	9.40	-	5.73	-	68	-	0.305	-	1000		0.00	-	0.1	-	9.56	-	
9:05	0.3	10.81	-15	5.34	0.39	49	19.00	0.284	6.9	0	100	0.00	0.0	0.1	0.0	9.76	-0.2	
9:10	0.3	12.73	-17.8	5.30	0.04	40	9.00	0.295	-3.87	0	0.00	0.00	0.0	0.1	0.0	9.81	-0.1	
9:15	0.3	12.99	-2.04	5.37	-0.07	47	-7.00	0.305	-3.39	638	100	0.00	0.0	0.1	0.0	9.89	-0.1	
9:20	0.3	13.31	-2.46	5.35	0.02	29	18.00	0.327	-7.21	947	-48.43	0.00	0.0	0.2	-0.1	9.94	0.0	
9:25	0.3	13.13	1.352	5.35	0	28	1.00	0.338	-3.36	513	45.83	0.00	0.0	0.2	0.0	9.96	0.0	
9:30	0.3	13.20	-0.53	5.39	-0.04	22	6.00	0.349	-3.25	211.0	58.87	0.00	0.0	0.2	0.0	9.98	0.0	
9:35	0.3	12.89	2.35	5.41	-0.02	18	4.00	0.352	-0.86	68.1	67.73	0.00	0.0	0.2	0.0	9.98	0.0	
9:40	0.3	12.62	2.09	5.44	-0.03	17	1.00	0.359	-1.99	49.1	27.90	0.00	0.0	0.2	0.0	9.98	0.0	
9:45	0.3	12.49	1.03	5.47	-0.03	17	0.00	0.364	-1.39	26.3	46.44	0.00	0.0	0.2	0.0	10.01	0.0	
9:50	0.3	12.48	0.08	5.48	-0.01	19	-2.00	0.360	1.10	15.9	39.54	0.00	0.0	0.2	0.0	10.02	0.0	
9:55	0.3	12.5	-0.16	5.49	-0.01	21	-2.00	0.360	0.00	13	18.24	0.00	0.0	0.2	0.0	10.05	0.0	
10:00	0.3	12.52	-0.16	5.51	-0.02	23	-2.00	0.361	-0.28	11	15.38	0.00	0.0	0.2	0.0	10.09	0.0	
10:05	0.3	12.52	0.00	5.52	-0.01	23	0.00	0.366	-1.39	7.9	28.18	0.00	0.0	0.2	0.0	10.13	0.0	
10:10	0.3	12.59	-0.56	5.53	-0.01	24	-1.00	0.370	-1.09	6.6	16.46	0.00	0.0	0.2	0.0	10.16	0.0	
10:15	0.3	12.58	0.08	5.53	0.00	25	-1.00	0.371	-0.27	5.3	19.70	0.00	0.0	0.2	0.0	10.19	0.0	

Note: > = Greater Than < = Less Than NM = Not Measured EF = Equipment Failure

Final Water Purged: 8 gal Final Water Level: 9.76 Final Well Depth: 15.86

OBSERVATIONS DURING WELL PURGING

Well Condition: See well inspection log

Color of GW: Clear

Sample ID: 115-PZ-502-021517 @10:20

Sample ID: 115-PZ-502-DP-021517 @10:20

Odor: None

Other:

Sample ID: 115-PZ-502-F-021517 @10:25

Sample ID: 115-PZ-502-DPF-021517 @10:25

Groundwater Sampling Form **Job Name:** HW SA-7 Page: 1 of 1

Job Number: 3480160526.6100.61001 **Well Number** 115-PZ-503

WELL PURGING INFORMATION

PURGE VOLUME

Low Flow Method:

3 to 5 Volume Purge Method:

Number of Well Volumes to be Purged:

Well Type: Monitor Other

Well Material: PVC Stainless Steel Steel

Casing Diameter (D in Inches): 2

Well Depth (ft BTOC): 9.7

Screen Interval in Feet (BTOC) from 1.7 to 9.7

PURGE METHOD

Bailer - Type:

Submersible Centrifugal

Bladder Peristaltic

PURGE VOLUME CALCULATIONS

(TD - WL) x D^2 x No. Volumes x 0.0408 = Calculated Purge Volume Gallons

Purge Water Disposal: Drum Type Other On site treatment system

Size

PUMP INTAKE SETTING

Pump Depth (ft BTOC): 6.5

INSTRUMENT IDENTIFICATION RECORD AND FIELD MEASUREMENTS

Instrument Type: Horiba U-52 Depth to Water: 2.49 Time: 7:30 Date: 2/16/2017

Serial Number: 15291 Depth to Bottom of Well: 9.7 PID Reading (inside of Casing): 2.6

For Calibration Information, See Instrument Calibration Record Sheet Dated: 2/16/2017

FIELD PARAMETER MEASURMENTS

Recorded By: (Signature) Sampled By: Sean Rittinger Purge Start Time: 7:41

Time	Rate x lpm / gpm	Temp (°C)		pH (S.U.)		Redox (mV)		Cond. (ms/cm)		Turbidity (NTUs)		Diss. O_2 (mg/L)		Salinity (%)		Depth to Water (ft)		Comments
		Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	
		3%		0.1 Unit		10 mV		3%		10%		10%		NA		0.3 ft		
7:45	0.25	5.88	-	6.89	-	-44	-	1.59	-	0		1.61	-	0.8	-	2.52	-	
7:50	0.25	5.72	2.721	6.97	-0.08	-73	29	1.84	-15.7	1000	100	2.39	-48.4	0.9	-0.1	2.53	0.0	
7:55	0.25	5.90	-3.15	7.00	-0.03	-82	9	1.94	-5.43	1000	0.00	2.22	7.1	1.0	-0.1	2.55	0.0	
8:00	0.25	8.21	-39.2	7.00	0	-85	3	1.84	5.15	0	100	0.00	100.0	0.9	0.1	2.58	0.0	
8:05	0.25	8.41	-2.44	7.01	-0.01	-90	5	2.01	-9.24	916	100	0.00	0.0	1.0	-0.1	2.62	0.0	
8:10	0.25	8.78	-4.4	7.00	0.01	-94	4	2.02	-0.50	513	44.00	0.00	0.0	1.0	0.0	2.64	0.0	
8:15	0.25	**Cleared Out Horiba**																
8:20	0.25	8.85	-	7.03	-	-88	-	2.07	-	632	-	0.00	-	1.0	-	2.65	-	
8:25	0.25	8.92	-0.79	7.01	0.02	-93	5	2.09	-0.97	493	22.0	0.00	0.0	1.1	-0.1	2.67	0.0	
8:30	0.25	9.08	-1.79	7.01	0.00	-97	4	2.08	0.48	408	17.2	0.00	0.0	1.0	0.1	2.69	0.0	
8:35	0.25	9.11	-0.33	7.01	0.00	-98	1	2.08	0.00	406	0.5	0.00	0.0	1.0	0.0	2.78	-0.1	
8:40	0.25	9.19	-0.88	7.02	-0.01	-99	1	2.08	0.00	417	-2.7	0.00	0.0	1.0	0.0	2.78	0.0	
8:45	0.25	9.24	-0.54	7.02	0.00	-101	2	2.08	0.00	403	3.4	0.00	0.0	1.0	0.0	2.79	0.0	
8:50	0.25	9.29	-0.54	7.03	-0.01	-102	1	2.08	0.00	323	19.9	0.00	0.0	1.0	0.0	2.81	0.0	
8:55	0.25	9.34	-0.54	7.03	0.00	-104	2	2.07	0.48	250	22.6	0.00	0.0	1.0	0.0	2.86	0.0	
9:00	0.25	9.45	-1.18	7.03	0.00	-105	1	2.07	0.00	211	15.6	0.00	0.0	1.0	0.0	2.89	0.0	
9:05	0.25	9.51	-0.63	7.04	-0.01	-106	1	2.06	0.48	190	10.0	0.00	0.0	1.0	0.0	2.91	0.0	
9:10	0.25	9.60	-0.95	7.04	0.00	-106	0	2.07	-0.49	199	-4.7	0.00	0.0	1.0	0.0	2.92	0.0	
9:15	0.25	9.57	0.31	7.04	0.00	-106	0	2.05	0.97	179	10.1	0.00	0.0	1.0	0.0	2.92	0.0	
9:20	0.25	9.61	-0.42	7.04	0.00	-106	0	2.09	-1.95	205	-14.5	0.00	0.00	1.0	0.0	2.92	0.0	
9:25	0.25	9.79	-1.87	7.04	0.00	-107	1	2.09	0.00	105	48.8	0.00	0.00	1.1	-0.1	2.92	0.0	
9:30	0.25	9.88	-0.92	7.04	0.00	-108	1	2.08	0.48	93.1	11.3	0.00	0.00	1.0	0.1	2.92	0.0	
9:35	0.25	9.94	-0.61	7.05	-0.01	-109	1	2.03	2.40	160	-71.9	0.00	0.00	1.0	0.0	2.92	0.0	

Note: > = Greater Than < = Less Than NM = Not Measured EF = Equipment Failure

Final Water Purged: 15 gal Final Water Level: 3.05 Final Well Depth: 8.63

OBSERVATIONS DURING WELL PURGING

Well Condition: See well inspection log

Color of GW: Clear, Brown Tint

Sample ID: 115-PZ-503-021517 @09:40

Odor: None

Other:

Sample ID: 115-PZ-503-F-021517 @09:45

Groundwater Sampling Form **Job Name:** HW SA-7 Page: 1 of 1

Job Number: 3480160526.6100.610001 **Well Number:** 115-PZ-500

WELL PURGING INFORMATION

PURGE VOLUME

Low Flow Method:

3 to 5 Volume Purge Method:

Number of Well Volumes to be Purged:

Well Type: Monitor Other

Well Material: PVC Stainless Steel Steel

Casing Diameter (D in Inches): 2

Well Depth (ft BTOC): 11.0

Screen Interval in Feet (BTOC) from 2 to 11

PURGE METHOD

Bailer - Type:

Submersible Centrifugal

Bladder Peristaltic

PURGE VOLUME CALCULATIONS

(TD - WL) x D^2 x No. Volumes x 0.0408 = Calculated Purge Volume Gallons

Purge Water Disposal: Drum Type Other On site treatment system

Size

PUMP INTAKE SETTING

Pump Depth (ft BTOC): 9.5

INSTRUMENT IDENTIFICATION RECORD AND FIELD MEASUREMENTS

Instrument Type: Horiba U-52 Depth to Water: 2.12 Time: 9:05 Date: 3/21/2017

Serial Number: 21123 Depth to Bottom of Well: 15.90 PID Reading (inside of Casing): 0.6

For Calibration Information, See Instrument Calibration Record Sheet Datec 3/21/2017

FIELD PARAMETER MEASURMENTS

Recorded By: Sean Rittinger (Signature) Sampled By: Sean Rittinger Purge Start Time: 9:35

Time	Rate x lpm / gpm	Temp (°C)		pH (S.U.)		Redox (mV)		Cond. (ms/cm)		Turbidity (NTUs)		Diss. O_2 (mg/L)		Salinity (%)		Depth to Water (ft)		Comments
		Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	
		3%		0.1 Unit		10 mV		3%		10%		10%		NA		0.3 ft		
9:40	0.2	9.44	-	6.66	-	35	-	0.734	-	0.0		1.61	-	0.4	-	2.12	-	NTU Max
9:45	0.2	9.52	-0.8	6.76	-0.10	20	15	0.743	-1.2	845.0	100.0	0.00	100.0	0.4	0.0	2.12	0.0	
9:50	0.2	9.54	-0.2	6.79	-0.03	14	6	0.747	-0.5	646.0	23.6	0.00	0.0	0.4	0.0	2.12	0.0	
9:55	0.2	9.50	0.4	6.82	-0.03	10	4	0.751	-0.5	482.0	25.4	0.00	0.0	0.4	0.0	2.12	0.0	
10:00	0.2	9.48	0.2	6.84	-0.02	5	5	0.757	-0.8	326.0	32.4	0.00	0.0	0.4	0.0	2.12	0.0	
10:05	0.2	9.47	0.1	6.86	-0.02	2	3	0.766	-1.2	226.0	30.7	0.00	0.0	0.4	0.0	2.12	0.0	
10:10	0.2	9.61	-1.5	6.88	-0.02	-1	3	0.768	-0.3	164.0	27.4	0.00	0.0	0.4	0.0	2.12	0.0	
10:15	0.2	9.58	0.3	6.90	-0.02	-5	4	0.774	-0.8	123.0	25.0	0.00	0.0	0.4	0.0	2.12	0.0	
10:20	0.2	9.65	-0.7	6.92	-0.02	-9	4	0.777	-0.4	108.0	12.2	0.00	0.0	0.4	0.0	2.12	0.0	
10:25	0.2	9.53	1.2	6.93	-0.01	-12	3	0.782	-0.6	86.4	20.0	0.00	0.0	0.4	0.0	2.12	0.0	
10:30	0.2	9.65	-1.3	6.91	0.02	-12	0	0.785	-0.4	88.1	-2.0	0.00	0.0	0.4	0.0	2.12	0.0	
10:35	0.2	9.07	6.0	6.94	-0.03	-15	3	0.798	-1.7	43.8	50.3	0.00	0.0	0.4	0.0	2.12	0.0	
10:40	0.2	8.92	1.7	6.93	0.01	-15	0	0.807	-1.1	19.8	54.8	0.00	0.0	0.4	0.0	2.12	0.0	
10:45	0.2	8.93	-0.1	6.93	0.00	-17	2	0.818	-1.4	14.5	26.8	0.00	0.0	0.4	0.0	2.12	0.0	
10:50	0.2	8.91	0.2	6.93	0.00	-17	0	0.825	-0.9	15.1	-4.1	0.00	0.0	0.4	0.0	2.12	0.0	
10:55	0.2	8.92	-0.1	6.93	0.00	-17	0	0.833	-1.0	17.1	-13.2	0.00	0.0	0.4	0.0	2.12	0.0	
11:00	0.2	8.89	0.3	6.93	0.00	-18	1	0.835	-0.2	22.8	-33.3	0.00	0.0	0.4	0.0	2.12	0.0	
11:05	0.2	8.92	-0.3	6.92	0.01	-19	1	0.838	-0.4	26.7	-17.1	0.00	0.0	0.4	0.0	2.12	0.0	
11:10	0.2	8.97	-0.6	6.92	0.00	-20	1	0.839	-0.1	22.9	14.2	0.00	0.0	0.4	0.0	2.12	0.0	
11:15	0.2	9.06	-1.0	6.93	-0.01	-22	2	0.842	-0.4	23.3	-1.7	0.00	0.0	0.4	0.0	2.12	0.0	
11:20	0.2	9.06	0.0	6.94	-0.01	-23	1	0.843	-0.1	20.3	12.9	0.00	0.0	0.4	0.0	2.12	0.0	
11:25	0.2	9.08	-0.2	6.95	-0.01	-25	2	0.844	-0.1	17.2	15.3	0.00	0.0	0.4	0.0	2.12	0.0	
11:30	0.2	9.10	-0.2	6.96	-0.01	-26	1	0.845	-0.1	21.6	-25.6	0.00	0.0	0.4	0.0	2.12	0.0	

Note: > = Greater Than < = Less Than NM = Not Measured EF = Equipment Failure

Final Water Purged: 2 gallons Final Water Level: 2.11 Final Well Depth: 15.87

OBSERVATIONS DURING WELL PURGING

Well Condition: See well inspection log

Color of GW: Clear

Sample ID: 115-PZ-500-032117 @11:35

Odor: None

Other: Sample by J.Desidero Direction

Sample ID: 115-PZ-500-F-032117 @11:40

Groundwater Sampling Form **Job Name:** HW SA-7 Page: 1 of 1

Job Number: 3480160526.6100.610001 **Well Number:** 115-PZ-501

WELL PURGING INFORMATION

PURGE VOLUME

Low Flow Method:

3 to 5 Volume Purge Method:

Number of Well Volumes to be Purged:

Well Type: Monitor Other

Well Material: PVC Stainless Steel Steel

Casing Diameter (D in Inches): 2

Well Depth (ft BTOC): 15.86

Screen Interval in Feet (BTOC) from 8.0 to 16.5

PURGE METHOD

Bailer - Type:

Submersible Centrifugal

Bladder Peristaltic

PURGE VOLUME CALCULATIONS

(___ - ___) x ___ ^{2} x ___ x 0.0408 = ___ Gallons

TD WL D No. Volumes Calculated Purge Volume

Purge Water Disposal: Drum Type Other On site treatment system

Size

PUMP INTAKE SETTING

Pump Depth (ft BTOC): 15.0

INSTRUMENT IDENTIFICATION RECORD AND FIELD MEASUREMENTS

Instrument Type: Horiba U-52 Depth to Water: 10.01 Time: 9:05 Date: 3/20/2017

Serial Number: 21123 Depth to Bottom of Well: 15.86 PID Reading (inside of Casing): 0.8

For Calibration Information, See Instrument Calibration Record Sheet Dated: 3/20/2017

FIELD PARAMETER MEASURMENTS

Recorded By: Sean Rittinger (Signature) Sampled By: Sean Rittinger Purge Start Time: 10:00

Time	Rate x lpm / gpm	Temp (°C)		pH (S.U.)		Redox (mV)		Cond. (ms/cm)		Turbidity (NTUs)		Diss. O_2 (mg/L)		Salinity (%)		Depth to Water (ft)		Comments
		Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	
		3%		0.1 Unit		10 mV		3%		10%		10%		NA		0.3 ft		
10:00	0.2	11.21	-	6.40	-	199	-	0.153	-	0.0		2.79	-	0.1	-	10.02	-	
10:05	0.2	11.10	1.0	5.36	1.04	197	2	0.135	11.8	565.0	100.0	2.47	11.5	0.1	0.0	10.02	0.00	
10:10	0.2	11.13	-0.3	5.32	0.04	200	-3	0.134	0.7	367.0	35.0	2.08	15.8	0.1	0.0	10.02	0.00	
10:15	0.2	11.15	-0.2	5.25	0.07	205	-5	0.139	-3.7	95.1	74.1	1.23	40.9	0.1	0.0	10.02	0.00	
10:20	0.2	11.09	0.5	5.21	0.04	211	-6	0.140	-0.7	99.0	-4.1	1.02	17.1	0.1	0.0	10.02	0.00	
10:25	0.2	11.10	-0.1	5.24	-0.03	213	-2	0.140	0.0	174.0	-75.8	0.82	19.6	0.1	0.0	10.02	0.00	
10:30	0.2	11.07	0.3	5.18	0.06	218	-5	0.140	0.0	166.0	4.6	0.93	-13.4	0.1	0.0	10.02	0.00	
10:35	0.2	11.05	0.2	5.19	-0.01	215	3	0.142	-1.4	157.0	5.4	1.35	-45.2	0.1	0.0	10.02	0.00	
10:40	0.2	11.09	-0.4	5.18	0.01	214	1	0.144	-1.4	590.0	-275.8	1.86	-37.8	0.1	0.0	10.02	0.00	Clean Horiba
10:45	0.2	11.99	-8.1	5.17	0.01	211	3	0.146	-1.4	0.0	100.0	1.83	1.6	0.1	0.0	10.02	0.00	Clean Horiba
10:50	0.2	11.17	6.8	5.20	-0.03	197	14	0.146	0.0	0.0	0.0	1.95	-6.6	0.1	0.0	10.02	0.00	
10:55	0.2	11.00	1.5	5.21	-0.01	181	16	0.147	-0.7	0.0	0.0	1.93	1.0	0.1	0.0	10.02	0.00	
11:00	0.2	11.12	-1.1	5.22	-0.01	174	7	0.147	0.0	930.0	100.0	2.01	-4.1	0.1	0.0	10.02	0.00	
11:05	0.2	11.14	-0.2	5.23	-0.01	174	0	0.147	0.0	819.0	11.9	1.97	2.0	0.1	0.0	10.02	0.00	
11:10	0.2	11.17	-0.3	5.23	0.00	174	0	0.147	0.0	540.0	34.1	2.33	-18.3	0.1	0.0	10.02	0.00	
11:15	0.2	11.07	0.9	5.24	-0.01	175	-1	0.147	0.0	351.0	35.0	1.94	16.7	0.1	0.0	10.02	0.00	
11:20	0.2	11.33	-2.3	5.22	0.02	177	-2	0.147	0.0	149.0	57.5	2.74	-41.2	0.1	0.0	10.02	0.00	
11:25	0.2	11.30	0.3	5.21	0.01	183	-6	0.148	-0.7	60.2	59.6	1.99	27.4	0.1	0.0	10.02	0.00	
11:30	0.2	11.36	-0.5	5.22	-0.01	183	0	0.148	0.0	29.9	50.3	2.01	-1.0	0.1	0.0	10.02	0.00	
11:35	0.2	11.38	-0.2	5.22	0.00	183	0	0.149	-0.7	26.8	10.4	2.57	-27.9	0.1	0.0	10.02	0.00	
11:40	0.2	11.46	-0.7	5.23	-0.01	183	0	0.149	0.0	15.7	41.4	2.15	16.3	0.1	0.0	10.02	0.00	
11:45	0.2	11.45	0.1	5.23	0.00	185	-2	0.149	0.0	7.6	51.6	2.19	-1.9	0.1	0.0	10.02	0.00	
11:50	0.2	11.51	-0.5	5.23	0.00	186	-1	0.150	-0.7	4.9	35.5	2.31	-5.5	0.1	0.0	10.02	0.00	
11:55	0.2	11.59	-0.7	5.24	-0.01	186	0	0.150	0.0	4.7	4.1	2.39	-3.5	0.1	0.0	10.02	0.00	
12:00	0.2	11.55	0.3	5.24	0.00	186	0	0.150	0.0	7.5	-59.6	2.42	-1.3	0.1	0.0	10.02	0.00	

Note: > = Greater Than < = Less Than NM = Not Measured EF = Equipment Failure

Final Water Purged: 17 gallons Final Water Level: 10.95 Final Well Depth: 16.38

OBSERVATIONS DURING WELL PURGING

Well Condition: See well inspection log

Color of GW: Cloudy

Sample ID: 115-PZ-501-032017 @12:05

Odor: None

Other: Sample by A.Shust Direction

Sample ID: 115-PZ-501-F-032017 @12:25

Groundwater Sampling Form **Job Name:** HW SA-7 Page: 1 of 1

Job Number: 3480160526.6100.610001 **Well Number:** 115-PZ-502

WELL PURGING INFORMATION

PURGE VOLUME

Low Flow Method:

3 to 5 Volume Purge Method:

Number of Well Volumes to be Purged:

Well Type: Monitor Other

Well Material: PVC Stainless Steel Steel

Casing Diameter (D in Inches): 2

Well Depth (ft BTOC): 16.5

Screen Interval in Feet (BTOC) from 8.0 to 16.5

PURGE METHOD

Bailer - Type:

Submersible Centrifugal

Bladder Peristaltic

PURGE VOLUME CALCULATIONS

(TD - WL) x D^2 x No. Volumes x 0.0408 = Calculated Purge Volume Gallons

Purge Water Disposal: Drum Type Other On site treatment system

Size

PUMP INTAKE SETTING

Pump Depth (ft BTOC): 15.0

INSTRUMENT IDENTIFICATION RECORD AND FIELD MEASUREMENTS

Instrument Type: Horiba U-52 Depth to Water: 9.68 Time: 9:10 Date: 3/20/2017

Serial Number: 21123 Depth to Bottom of Well: 16.50 PID Reading (inside of Casing): 1.3

For Calibration Information, See Instrument Calibration Record Sheet Datec 3/21/2017

FIELD PARAMETER MEASURMENTS

Recorded By: Sean Rittinger (Signature) Sampled By: Sean Rittinger Purge Start Time: 7:30

Time	Rate x lpm / gpm	Temp (°C)		pH (S.U.)		Redox (mV)		Cond. (ms/cm)		Turbidity (NTUs)		Diss. O_2 (mg/L)		Salinity (%)		Depth to Water (ft)		Comments
		Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	
		3%		0.1 Unit		10 mV		3%		10%		10%		NA		0.3 ft		
7:35	0.2	12.91	-	5.92	-	163	-	0.220	-	0.0		0.37	-	0.1	-	10.05	-	NTU Max
7:40	0.2	12.18	5.7	5.57	0.35	126	37.00	0.204	7.3	197.6	100.0	0.00	100.0	0.1	0.0	10.08	-0.03	
7:45	0.2	11.89	2.4	5.33	0.24	114	12.00	0.199	2.5	811.0	0.0	0.00	0.0	0.1	0.0	10.11	-0.03	
7:50	0.2	11.84	0.4	5.20	0.13	110	4.00	0.205	-3.0	505.0	100.0	0.00	0.0	0.1	0.0	10.12	-0.01	
7:55	0.2	11.79	0.4	5.15	0.05	108	2.00	0.209	-2.0	338.0	33.1	0.00	0.0	0.1	0.0	10.12	0.00	
8:00	0.2	11.97	-1.5	5.12	0.03	109	-1.00	0.216	-3.3	208.0	38.5	0.00	0.0	0.1	0.0	10.12	0.00	
8:05	0.2	11.67	2.5	5.06	0.06	109	0.00	0.227	-5.1	147.0	29.3	0.00	0.0	0.1	0.0	10.12	0.00	
8:10	0.2	11.52	1.3	5.06	0.00	108	1.00	0.226	0.4	20.3	86.2	0.00	0.0	0.1	0.0	10.12	0.00	
8:15	0.2	11.53	-0.1	5.05	0.01	106	2.00	0.232	-2.7	11.5	43.3	0.00	0.0	0.1	0.0	10.12	0.00	
8:20	0.2	11.50	0.3	5.04	0.01	106	0.00	0.235	-1.3	9.9	13.9	0.00	0.0	0.1	0.0	10.12	0.00	
8:25	0.2	11.50	0.0	5.03	0.01	106	0.00	0.240	-2.1	8.4	15.2	0.00	0.0	0.1	0.0	10.12	0.00	
8:30	0.2	11.52	-0.2	5.03	0.00	105	1.00	0.242	-0.8	8.8	-4.8	0.00	0.0	0.1	0.0	10.12	0.00	
8:35	0.2	11.49	0.3	5.04	-0.01	105	0.00	0.243	-0.4	7.0	20.5	0.00	0.0	0.1	0.0	10.12	0.00	

Note: > = Greater Than < = Less Than NM = Not Measured EF = Equipment Failure

Final Water Purged: 8 gallons Final Water Level: 9.94 Final Well Depth: 15.91

OBSERVATIONS DURING WELL PURGING

Well Condition: See well inspection log

Color of GW: Clear

Sample ID: 115-PZ-502-032117 @08:40

Sample ID: 115-PZ-502-DP-032117 @08:40

Odor: None

Other: -

Sample ID: 115-PZ-502-F-032117 @08:45

Sample ID: 115-PZ-502-DPF-032117 @08:45

Groundwater Sampling Form **Job Name:** HW SA-7 Page: 1 of 1

Job Number: 3480160526.6100.610001 **Well Number:** 115-PZ-503

WELL PURGING INFORMATION

PURGE VOLUME

Low Flow Method:

3 to 5 Volume Purge Method:

Number of Well Volumes to be Purged:

Well Type: Monitor Other

Well Material: PVC Stainless Steel Steel

Casing Diameter (D in Inches): 2

Well Depth (ft BTOC): 9.7

Screen Interval in Feet (BTOC) from 1.7 to 9.7

PURGE METHOD

Bailer - Type:

Submersible Centrifugal

Bladder Peristaltic

PURGE VOLUME CALCULATIONS

(TD - WL) x D^2 x No. Volumes x 0.0408 = Calculated Purge Volume Gallons

Purge Water Disposal: Drum Type Other On site treatment system

Size

PUMP INTAKE SETTING

Pump Depth (ft BTOC): 6.5

INSTRUMENT IDENTIFICATION RECORD AND FIELD MEASUREMENTS

Instrument Type: Horiba U-52 Depth to Water: 2.90 Time: 9:00 Date: 3/21/2017

Serial Number: 21123 Depth to Bottom of Well: 9.70 PID Reading (inside of Casing): 0

For Calibration Information, See Instrument Calibration Record Sheet Datec 3/21/2017

FIELD PARAMETER MEASURMENTS

Recorded By: Sean Rittinger (Signature) Sampled By: Sean Rittinger Purge Start Time: 12:10

Time	Rate x lpm / gpm	Temp (°C)		pH (S.U.)		Redox (mV)		Cond. (ms/cm)		Turbidity (NTUs)		Diss. O_2 (mg/L)		Salinity (%)		Depth to Water (ft)		Comments
		Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	
		3%		0.1 Unit		10 mV		3%		10%		10%		NA		0.3 ft		
12:15	0.2	10.90	-	6.96	-	-25	-	1.090	-	281.0		0.11	-	0.5	-	2.84	-	
12:20	0.2	10.93	-0.3	6.93	0.03	-24	-1	1.060	2.8	104.0	100.0	0.00	100.0	0.5	0.0	2.84	0.00	
12:25	0.2	10.92	0.1	6.93	0.00	-26	2	1.040	1.9	83.3	0.0	0.00	0.0	0.5	0.0	2.84	0.00	
12:30	0.2	11.14	-2.0	6.93	0.00	-28	2	1.020	1.9	77.2	100.0	0.00	0.0	0.5	0.0	2.84	0.00	
12:35	0.2	11.28	-1.3	6.92	0.01	-29	1	1.010	1.0	74.8	100.0	0.00	0.0	0.5	0.0	2.84	0.00	
12:40	0.2	11.67	-3.5	6.93	-0.01	-32	3	0.996	1.4	76.3	-2.0	0.00	0.0	0.5	0.0	2.84	0.00	
12:45	0.2	11.85	-1.5	6.92	0.01	-33	1	0.996	0.0	67.6	11.4	0.00	0.0	0.5	0.0	2.84	0.00	
12:50	0.2	10.84	8.5	6.93	-0.01	-36	3	1.020	-2.4	48.0	29.0	0.00	0.0	0.5	0.0	2.84	0.00	
12:55	0.2	10.96	-1.1	6.93	0.00	-36	0	1.020	0.0	38.3	20.2	0.00	0.0	0.5	0.0	2.84	0.00	
13:00	0.2	11.58	-5.7	6.92	0.01	-39	3	1.010	1.0	38.4	-0.3	0.00	0.0	0.5	0.0	2.84	0.00	
13:05	0.2	11.59	-0.1	6.92	0.00	-41	2	1.000	1.0	39.8	-3.6	0.00	0.0	0.5	0.0	2.84	0.00	
13:10	0.2	11.61	-0.2	6.93	-0.01	-41	0	1.000	0.0	39.5	0.8	0.00	0.0	0.5	0.0	2.84	0.00	
13:15	0.2	11.62	-0.1	6.93	0.00	-41	0	1.000	0.0	39.2	0.8	0.00	0.0	0.5	0.0	2.84	0.00	

Note: > = Greater Than < = Less Than NM = Not Measured EF = Equipment Failure

Final Water Purged: 6 gallons Final Water Level: 2.67 Final Well Depth: 10.07

OBSERVATIONS DURING WELL PURGING

Well Condition: See well inspection log

Color of GW: Clear

Sample ID: 115-PZ-503-032117 @13:20

Odor: None

Other: -

Sample ID: 115-PZ-503-F-032117 @13:25

amec foster wheeler

Groundwater Sampling Form

Job Name: _____

Job Number: _____

Well Number: 115TWP-01

WELL PURGING INFORMATION

PURGE VOLUME

Low Flow Method: ☑

3 to 5 Volume Purge Method: ☐

Number of Well Volumes to be Purged: _____

Well Type: Monitor ☑ Other ☐

Well Material: PVC ☒ Stainless Steel ☐ Steel ☐

Casing Diameter (D in Inches): 1

Well Depth (ft BTOC): 10

Screen Interval in Feet (BTOC) from 5 to 10

PURGE METHOD

Bailer - Type: _____

Submersible ☑ Centrifugal ☐

Bladder ☐ Peristaltic X

PUMP INTAKE SETTING

Pump Depth (ft BTOC): ~~6ft~~ 7ft

PURGE VOLUME CALCULATIONS

(___ (TD) - ___ (WL)) x ___ (D)^2 x ___ (No. Volumes) x 0.0408 = ___ Gallons (Calculated Purge Volume)

Purge Water Disposal: Drum ☐ Type _____ Size _____ Other ☒ On site GWTP

INSTRUMENT IDENTIFICATION RECORD AND FIELD MEASUREMENTS

Instrument Type: Horiba U-52 Depth to Water: 5.41 Time: 8:20 Date: 9-14-17

Serial Number: 21312 Depth to Bottom of Well: 10 PID Reading (inside of Casing): N/A

For Calibration Information, See Instrument Calibration Record Sheet Dated: 9.14.17

FIELD PARAMETER MEASURMENTS

Recorded By: Ryan O'Leary (Signature) Sampled By: Ryan OLeary Purge Start Time: 9:32

Time	Rate ☑ lpm ☐ gpm	pH (S.U.)		Cond. (ms/cm)		Turbidity (NTUs)		Diss. O_2 (mg/L)		Temp (°C)		Salinity (%)		Redox (mV)		Depth to Water (ft)		Comments
		Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	
		0.1 Unit		3%		10%		10%		3%		NA		10 mV		0.3 ft		
9:10		6.97		42.0		13.4		0.85		21.24		2.69		85		5.41		

Note: > = Greater Than < = Less Than NM = Not Measured EF = Equipment Failure

OBSERVATIONS DURING WELL PURGING

Total Volume Purged: 5 Gal

Well Condition: See well inspection log

Color of GW: Clear

Sample ID: 115-TWP-01-091417 @ 9:15

115-TWP-01-091417F @ 9:20

Odor: None

Other: N/A

Sample ID: _____

amec foster wheeler

Groundwater Sampling Form

Job Name: _____

Job Number: _____

Well Number: 115-TWP-02

WELL PURGING INFORMATION

PURGE VOLUME

Low Flow Method: ☑

3 to 5 Volume Purge Method: ☐

Number of Well Volumes to be Purged: _____

Well Type: Monitor ☑ Other ☐

Well Material: PVC X Stainless Steel ☐ Steel ☐

Casing Diameter (D in Inches): 1

Well Depth (ft BTOC): 10

Screen Interval in Feet (BTOC) from 5 to 10

PURGE METHOD

Bailer - Type: _____

Submersible ☑ Centrifugal ☐

Bladder ☐ Peristaltic ☐

PURGE VOLUME CALCULATIONS

(___ (TD) - ___ (WL)) x ___ (D)^2 x ___ (No. Volumes) x 0.0408 = ___ (Calculated Purge Volume) Gallons

Purge Water Disposal: Drum ☐ Type _____ Size _____ Other ☒ On-Site GWTP

PUMP INTAKE SETTING

Pump Depth (ft BTOC): 7

INSTRUMENT IDENTIFICATION RECORD AND FIELD MEASUREMENTS

Instrument Type: Horiba U-52 Depth to Water: 5.80 Time: 9:30 Date: 9/14/17

Serial Number: 21312 Depth to Bottom of Well: 10 PID Reading (inside of Casing): N/A

For Calibration Information, See Instrument Calibration Record Sheet Dated: 9/14/17

FIELD PARAMETER MEASURMENTS

Recorded By: _____ (Signature) Sampled By: Ryan O'Leary Purge Start Time: 935

Time	Rate ☑ lpm ☐ gpm	pH (S.U.)		Cond. (ms/cm)		Turbidity (NTUs)		Diss. O_2 (mg/L)		Temp (°C)		Salinity (%)		Redox (mV)		Depth to Water (ft)		Comments
		Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	
		0.1 Unit		3%		10%		10%		3%		NA		10 mV		0.3 ft		
10:05		7.22		41.5		10.9		2.11		21.67		2.66		97		5.80		

Note: > = Greater Than < = Less Than NM = Not Measured EF = Equipment Failure

OBSERVATIONS DURING WELL PURGING

Total Volume Purged: 5

Well Condition: See well inspection log

Color of GW: Clear

Sample ID: 115-TWP-02-091417 @ 1015

Odor: None

Other: N/A

Sample ID: FIS-TWP-02-091417F @ 1020

APPENDIX F

LABORATORY ANALYTICAL REPORTS

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY.

e-Hardcopy 2.0
Automated Report

Technical Report for

Honeywell International Inc.

HLANJPR: Study Area 6 Chrome Remedy

SGS Accutest Job Number: JC37249

Sampling Date: 02/15/17

Report to:

AMEC Environment & Infrastructure, Inc.

jenna.desiderio@amecfw.com

ATTN: Jenna Desiderio

Total number of pages in report: 33

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Marty Vitanza 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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Sample Summary

Honeywell International Inc.

HLANJPR: Study Area 6 Chrome Remedy

Job No: JC37249

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC37249-1	02/15/17	10:20	SR	02/15/17	AQ	Ground Water	115-PZ-502-021517
JC37249-1F	02/15/17	10:25	SR	02/15/17	AQ	Groundwater Filtered	115-PZ-502-F-021517
JC37249-2	02/15/17	10:20	SR	02/15/17	AQ	Ground Water	115-PZ-502-DP-021517
JC37249-2F	02/15/17	10:25	SR	02/15/17	AQ	Groundwater Filtered	115-PZ-502-DP-F-021517
JC37249-3	02/15/17	13:00	SR	02/15/17	AQ	Ground Water	115-PZ-501-021517
JC37249-3F	02/15/17	13:05	SR	02/15/17	AQ	Groundwater Filtered	115-PZ-501-F-021517
JC37249-4	02/15/17	15:20	SR	02/15/17	AQ	Ground Water	115-PZ-500-021517
JC37249-4F	02/15/17	15:25	SR	02/15/17	AQ	Groundwater Filtered	115-PZ-500-F-021517
JC37249-5	02/15/17	14:30	SR	02/15/17	AQ	Field Blank Water	FB-021517

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Honeywell International Inc. **Job No** JC37249

Site: HLANJPR: Study Area 6 Chrome Remedy **Report Date** 2/21/2017 3:17:32 PM

On 02/15/2017, 8 Sample(s), 0 Trip Blank(s) and 1 Field Blank(s) were received at SGS Accutest at a maximum corrected temperature of 2.8 C. Samples were intact and chemically preserved, unless noted below. A SGS Accutest Job Number of JC37249 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Please refer to certification exceptions summary for additional certification information.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

Metals By Method EPA 200.7

Matrix: AQ **Batch ID:** MP98731

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC37249-3MS, JC37249-3MSD, JC37249-3SDL were used as the QC samples for metals.
- RPD(s) for Serial Dilution for Chromium are outside control limits for sample MP98731-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Wet Chemistry By Method ASTM D1498-76

Matrix: AQ **Batch ID:** GN59566

- Sample(s) JC37248-1DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method SM4500H+ B-11

Matrix: AQ **Batch ID:** GN59565

- Sample(s) JC37248-1DUP were used as the QC samples for pH.
- JC37249-1 for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC37249-4F for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC37249-4 for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC37249-5 for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC37249-1F for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC37249-2 for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC37249-2F for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC37249-3 for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC37249-3F for pH: Field analysis required. Received out of hold time and analyzed by request.

Wet Chemistry By Method SW846 7199

Matrix: AQ **Batch ID:** GP3307

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC37249-1DUP, JC37249-1FDUP, JC37249-1FMS, JC37249-1MS were used as the QC samples for Chromium, Hexavalent.
- Matrix Spike Recovery(s) for Chromium, Hexavalent are outside control limits. Spike recovery indicates possible matrix interference.

SGS Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS Accutest is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS Accutest indicated via signature on the report cover

Summary of Hits

Job Number: JC37249
Account: Honeywell International Inc.
Project: HLANJPR: Study Area 6 Chrome Remedy
Collected: 02/15/17

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC37249-1	**115-PZ-502-021517**					
Redox Potential Vs H2		303			mv	ASTM D1498-76
pH [a]		5.69			su	SM4500H+ B-11
JC37249-1F	**115-PZ-502-F-021517**					
Redox Potential Vs H2		308			mv	ASTM D1498-76
pH [a]		5.58			su	SM4500H+ B-11
JC37249-2	**115-PZ-502-DP-021517**					
Redox Potential Vs H2		306			mv	ASTM D1498-76
pH [a]		5.52			su	SM4500H+ B-11
JC37249-2F	**115-PZ-502-DP-F-021517**					
Redox Potential Vs H2		308			mv	ASTM D1498-76
pH [a]		5.57			su	SM4500H+ B-11
JC37249-3	**115-PZ-501-021517**					
Redox Potential Vs H2		367			mv	ASTM D1498-76
pH [a]		5.55			su	SM4500H+ B-11
JC37249-3F	**115-PZ-501-F-021517**					
Redox Potential Vs H2		356			mv	ASTM D1498-76
pH [a]		5.60			su	SM4500H+ B-11
JC37249-4	**115-PZ-500-021517**					
Redox Potential Vs H2		318			mv	ASTM D1498-76
pH [a]		7.01			su	SM4500H+ B-11
JC37249-4F	**115-PZ-500-F-021517**					
Redox Potential Vs H2		300			mv	ASTM D1498-76
pH [a]		7.14			su	SM4500H+ B-11
JC37249-5	**FB-021517**					
Redox Potential Vs H2		365			mv	ASTM D1498-76
pH [a]		5.58			su	SM4500H+ B-11

Summary of Hits

Job Number: JC37249
Account: Honeywell International Inc.
Project: HLANJPR: Study Area 6 Chrome Remedy
Collected: 02/15/17

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method

(a) Field analysis required. Received out of hold time and analyzed by request.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	115-PZ-502-021517		
Lab Sample ID:	JC37249-1	**Date Sampled:**	02/15/17
Matrix:	AQ - Ground Water	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	02/16/17	02/16/17	KS	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41388
(2) Prep QC Batch: MP98731

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-021517		
Lab Sample ID:	JC37249-1	**Date Sampled:**	02/15/17
Matrix:	AQ - Ground Water	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	02/15/17 23:23	AT	SW846 7199
Redox Potential Vs H2	303		mv	1	02/17/17 16:46	PO	ASTM D1498-76
pH [a]	5.69		su	1	02/17/17 15:50	PO	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-F-021517		
Lab Sample ID:	JC37249-1F	**Date Sampled:**	02/15/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	02/16/17	02/16/17	KS	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41388
(2) Prep QC Batch: MP98731

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-F-021517		
Lab Sample ID:	JC37249-1F	**Date Sampled:**	02/15/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	02/16/17 01:13	AT	SW846 7199
Redox Potential Vs H2	308		mv	1	02/17/17 16:46	PO	ASTM D1498-76
pH [a]	5.58		su	1	02/17/17 15:50	PO	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-DP-021517		
Lab Sample ID:	JC37249-2	**Date Sampled:**	02/15/17
Matrix:	AQ - Ground Water	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	02/16/17	02/16/17	KS	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41388
(2) Prep QC Batch: MP98731

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-DP-021517		
Lab Sample ID:	JC37249-2	**Date Sampled:**	02/15/17
Matrix:	AQ - Ground Water	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	02/15/17 23:38	AT	SW846 7199
Redox Potential Vs H2	306		mv	1	02/17/17 16:46	PO	ASTM D1498-76
pH [a]	5.52		su	1	02/17/17 15:50	PO	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-DP-F-021517		
Lab Sample ID:	JC37249-2F	**Date Sampled:**	02/15/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	02/16/17	02/16/17	KS	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41388
(2) Prep QC Batch: MP98731

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-DP-F-021517		
Lab Sample ID:	JC37249-2F	**Date Sampled:**	02/15/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	02/16/17 01:29	AT	SW846 7199
Redox Potential Vs H2	308		mv	1	02/17/17 16:46	PO	ASTM D1498-76
pH [a]	5.57		su	1	02/17/17 15:50	PO	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-501-021517		
Lab Sample ID:	JC37249-3	**Date Sampled:**	02/15/17
Matrix:	AQ - Ground Water	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	02/16/17	02/16/17	KS	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41388
(2) Prep QC Batch: MP98731

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-501-021517		
Lab Sample ID:	JC37249-3	**Date Sampled:**	02/15/17
Matrix:	AQ - Ground Water	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	02/15/17 23:54	AT	SW846 7199
Redox Potential Vs H2	367		mv	1	02/17/17 16:46	PO	ASTM D1498-76
pH [a]	5.55		su	1	02/17/17 15:50	PO	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-501-F-021517		
Lab Sample ID:	JC37249-3F	**Date Sampled:**	02/15/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	02/16/17	02/16/17	KS	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41388
(2) Prep QC Batch: MP98731

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-501-F-021517		
Lab Sample ID:	JC37249-3F	**Date Sampled:**	02/15/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	02/16/17 01:45	AT	SW846 7199
Redox Potential Vs H2	356		mv	1	02/17/17 16:46	PO	ASTM D1498-76
pH [a]	5.60		su	1	02/17/17 15:50	PO	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-500-021517		
Lab Sample ID:	JC37249-4	**Date Sampled:**	02/15/17
Matrix:	AQ - Ground Water	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	02/16/17	02/16/17	KS	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41388
(2) Prep QC Batch: MP98731

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-500-021517		
Lab Sample ID:	JC37249-4	**Date Sampled:**	02/15/17
Matrix:	AQ - Ground Water	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	02/16/17 00:10	AT	SW846 7199
Redox Potential Vs H2	318		mv	1	02/17/17 16:46	PO	ASTM D1498-76
pH [a]	7.01		su	1	02/17/17 15:50	PO	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-500-F-021517		
Lab Sample ID:	JC37249-4F	**Date Sampled:**	02/15/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	02/16/17	02/16/17	KS	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41388
(2) Prep QC Batch: MP98731

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-500-F-021517		
Lab Sample ID:	JC37249-4F	**Date Sampled:**	02/15/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	02/16/17 02:16	AT	SW846 7199
Redox Potential Vs H2	300		mv	1	02/17/17 16:46	PO	ASTM D1498-76
pH [a]	7.14		su	1	02/17/17 15:50	PO	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FB-021517		
Lab Sample ID:	JC37249-5	**Date Sampled:**	02/15/17
Matrix:	AQ - Field Blank Water	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	02/16/17	02/16/17	KS	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41388
(2) Prep QC Batch: MP98731

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FB-021517		
Lab Sample ID:	JC37249-5	**Date Sampled:**	02/15/17
Matrix:	AQ - Field Blank Water	**Date Received:**	02/15/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	02/16/17 00:26	AT	SW846 7199
Redox Potential Vs H2	365		mv	1	02/17/17 16:46	PO	ASTM D1498-76
pH [a]	5.58		su	1	02/17/17 15:50	PO	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody
- NJDKQ Form: NJ Data of Known Quality

Parameter Certification Exceptions

Job Number: JC37249
Account: HWINJM Honeywell International Inc.
Project: HLANJPR: Study Area 6 Chrome Remedy

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
Redox Potential Vs H2		**ASTM D1498-76**	AQ	Accutest is not certified for this parameter.[a]

(a) Lab cert for analyte not supported by NJDEP, OQA. Only methods/analytes required for reporting by the State of NJ can be certified in NJ. Use of this analyte for compliance must be verified through the appropriate regulatory office.

Certification exceptions shown are based on the New Jersey DEP certifications. Applicability in other states may vary. Please contact your laboratory representative if additional information is required for a specific regulatory program.

GW, FB

E

ACCUTEST
Fresh Ponds Corporate Village, Building B
2235 Route 130,Dayton, New Jersey 08810
732-329-0200 Phone, 732-329-3499 Fax

Honeywell **Chain Of Custody / Analysis Request**

AESI Ref: 38439.43925
COC # : 37394-011917
Lab Use Only
Lab Proj #
Lab ID ACTD
PAGE 1 of 1
Job No. JC37249

Privileged & Confidential: Y
EDD To: Andrew Shust (AMEC FW)
Sampler: Sean Rittinger
P O #
Analysis Turnaround Time: 3 day TAT
Standard -
Rush Charges Authorized for -
2 weeks -
1 week -
Next Day -

Site Name: HUDSONCO
Location of Site: SA-6 Cr Remedy

Client Contact: (name, co., address)
Andrew Shust - Amec Foster Wheeler
200 American Metro Blvd., Suite 113
Hamilton, NJ 08619
andrew.shust@amecfw.com

Hardcopy Report To: See above
Invoice To: Maria Kaouris - Honeywell PM 115 Tabor Rd, Morris Plains, NJ 07950

What is in the Text File? Mouse over here.
Written and maintained by AESI (Ver 3_7) 02-01-05
renesurgi@aol.com

	Sample Identification				Sample Date	Sample Time	Sample Type	Sample Matrix	Sample Purpose	# of Cont.	Grab/Composite	Field Filtered Sample ?	Preservative: 0 / EPA 7199 Hexavalent Chromium	Preservative: 2 / EPA 200.7 Total Chromium	Preservative: 0 / Dissolved CHROMIUM VI (7199)	Preservative: 2 / Dissolved Total Chromium 200.7	Lab Sample Numbers
	Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID							Units		mg/L	mg/L	mg/L	mg/L	
1	115-PZ-502			115-PZ-502-021517	2/15/2017	10:20	GW	Water	REG	2	grab	N	X	X			1
2	115-PZ-502			115-PZ-502-F-021517	2/15/2017	10:25	GW	Water	REG	2	grab	Y			X	X	1F
3	115-PZ-502			115-PZ-502-DP-021517	2/15/2017	10:20	GW	Water	REG	2	grab	N	X	X			2
4	115-PZ-502			115-PZ-502-DP-F-021517	2/15/2017	10:25	GW	Water	REG	2	grab	Y			X	X	2F
5	115-PZ-501			115-PZ-501-021517	2/15/2017	13:00	GW	Water	REG	2	grab	N	X	X			3
6	115-PZ-501			115-PZ-501-F-021517	2/15/2017	13:05	GW	Water	REG	2	grab	Y			X	X	3F
7	115-PZ-500			115-PZ-500-021517	2/15/2017	15:20	GW	Water	REG	2	grab	N	X	X			4
8	115-PZ-500			115-PZ-500-F-021517	2/15/2017	15:25	GW	Water	REG	2	grab	Y			X	X	4F
9	115-QC			FB-021517	2/15/2017	14:30	GW	Water	REG	2	grab	N	X	X			5
10																	
11																	

A3
G51

Relinquished by	Company	Amec	Received by	Company		Condition	IR	Custody Seals Intact	
	Date/Time	2/15/17 15:30		Date/Time	2/15/17 15:30	Cooler Temp.	2.4°C		
Relinquished by	Company	SGS	Received by	Company	SGS	Condition		Custody Seals Intact	
	Date/Time	2/15/17 17:26		Date/Time	2/15/17 1726	Cooler Temp.			

Preservatives: 0 = None; [1 = HCL]; [2 = HNO3]; [3 = H2SO4]; [4 = NaOH]; [5 = Zn. Acetate]; [6 = MeOH]; [7 = NaHSO4]; 8 = Other (specify):

INITIAL ASESSMENT IAJ
LABEL VERIFICATION hy

JC37249: Chain of Custody
Page 1 of 2

5.2
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SGS Accutest Sample Receipt Summary

Job Number: JC37249 **Client:** _____ **Project:** _____

Date / Time Received: 2/15/2017 5:26:00 PM **Delivery Method:** _____ **Airbill #'s:** _____

Cooler Temps (Raw Measured) °C: Cooler 1: (2.4);

Cooler Temps (Corrected) °C: Cooler 1: (2.8);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

SM089-02
Rev. Date 12/1/16

5.2

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JC37249: Chain of Custody
Page 2 of 2

DATA OF KNOWN QUALITY CONFORMANCE/NON-CONFORMANCE SUMMARY QUESTIONNAIRE

Laboratory Name: Accutest, New Jersey **Client:** Honeywell International Inc.

Project Location: HLANJPR: Study Area 6 Chrome Remedy **Project Number:** HWINJM59525

Sampling Dates: 2/15/2017

Laboratory Sample ID(s): JC37249-1, JC37249-2, JC37249-3, JC37249-4, JC37249-5, JC37249-1F, JC37249-2F, JC37249-3F, JC37249-4F

Methods Used: SW846 7199, ASTM D1498-76, SM4500H+ B-11, EPA 200.7

1		**For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the NJDEP Data of Known Quality performance standards?**	☑ Yes ☐ No
1A		**Were the method specified handling, preservation, and holding time requirements met?**	☑ Yes ☐ No
1B		**EPH Method: Was the EPH method conducted without significant modifications (see Section 11.3 of respective DKQ methods)**	☐ Yes ☐ No ☑ N/A
2		**Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody document(s)?**	☑ Yes ☐ No
3		**Were samples received at an appropriate temperature (4+/- 2 Deg C)**	☑ Yes ☐ No ☐ N/A
4		**Were all QA/QC performance criteria specified in NJDEP DKQP standards achieved?**	☑ Yes ☐ No
5	a)	**Were Reporting limits specified or referenced on the chain-of-custody or communicated to the laboratory prior to sample receipt?**	☑ Yes ☐ No ☑ Yes ☐ No
	b)	**b) Were these limits met?**	☑ Yes ☐ No ☐ N/A
6		**For each analytical method referenced in this laboratory report package, were result reported for all constituents identified in the method-specific analyte lists presented in the DKQP documents and/or site-specific QAPP?**	☑ Yes ☐ No
7		**Are project-specific matrix spikes and/or laboratory duplicates included in this data set?**	☑ Yes ☐ No

Notes: For all questions to which the response was "No" (with the exception of question #7) see the Case Narrative in the technical report for additional information
If the answer to question #1, #1A or #1B is "No", the data package does not meet the requirements for "Data of Known Quality"

Generated by Malay.Parekh on 02/21/2017 16:25

Exceedence Table
Reporting Limit > Regulatory Limit

Field ID	Lab ID	State Reg. Used	Analyte	Sample RL	Reg. Limit	Dilution	%Solids	Units
115-PZ-500-021517	JC37249-4	See regs used below	No exceedences found for this sample					
115-PZ-500-F-021517	JC37249-4F	See regs used below	No exceedences found for this sample					
115-PZ-501-021517	JC37249-3	See regs used below	No exceedences found for this sample					
115-PZ-501-F-021517	JC37249-3F	See regs used below	No exceedences found for this sample					
115-PZ-502-021517	JC37249-1	See regs used below	No exceedences found for this sample					
115-PZ-502-DP-021517	JC37249-2	See regs used below	No exceedences found for this sample					
115-PZ-502-DP-F-021517	JC37249-2F	See regs used below	No exceedences found for this sample					
115-PZ-502-F-021517	JC37249-1F	See regs used below	No exceedences found for this sample					
FB-021517	JC37249-5	See regs used below	No exceedences found for this sample					

Exceedence Table
Reporting Limit > Regulatory Limit

The regulatory limits used for comparison are:								
	NJ Default Impact to Groundwater Soil Screening							
	NJ Groundwater Criteria							
	NJ Non-Residential Direct Contact Soil							
	NJ Residential Direct Contact Soil							
	NJ SPLP Impact to Groundwater							

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY.

e-Hardcopy 2.0
Automated Report

Technical Report for

Honeywell International Inc.

HLANJPR: Study Area 6 Chrome Remedy

SGS Accutest Job Number: JC37351

Sampling Date: 02/16/17

Report to:

AMEC Environment & Infrastructure, Inc.

jenna.desiderio@amecfw.com

ATTN: Jenna Desiderio

Total number of pages in report: **15**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Marty Vitanza 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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Sample Summary

Honeywell International Inc.

Job No: JC37351

HLANJPR: Study Area 6 Chrome Remedy

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC37351-1	02/16/17	09:40	SR	02/16/17	AQ	Ground Water	115-PZ-503-021617
JC37351-1F	02/16/17	09:45	SR	02/16/17	AQ	Groundwater Filtered	115-PZ-503-F-021617

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Honeywell International Inc.	**Job No**	JC37351
Site:	HLANJPR: Study Area 6 Chrome Remedy	**Report Date**	2/22/2017 4:05:56 PM

On 02/16/2017, 2 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS Accutest at a maximum corrected temperature of 4 C. Samples were intact and chemically preserved, unless noted below. A SGS Accutest Job Number of JC37351 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Please refer to certification exceptions summary for additional certification information.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

Metals By Method EPA 200.7

Matrix: AQ **Batch ID:** MP98754

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC37367-2MS, JC37367-2MSD, JC37367-2SDL were used as the QC samples for metals.
- RPD(s) for Serial Dilution for Chromium are outside control limits. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Wet Chemistry By Method ASTM D1498-76

Matrix: AQ **Batch ID:** GN59655

- Sample(s) JC37351-1DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method SM4500H+ B-11

Matrix: AQ **Batch ID:** GN59654

- Sample(s) JC37351-1DUP were used as the QC samples for pH.
- JC37351-1F for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC37351-1 for pH: Field analysis required. Received out of hold time and analyzed by request.

Wet Chemistry By Method SW846 7199

Matrix: AQ **Batch ID:** GP3332

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC37351-1DUP, JC37351-1FDUP, JC37351-1FMS, JC37351-1MS were used as the QC samples for Chromium, Hexavalent.
- Matrix Spike Recovery(s) for Chromium, Hexavalent are outside control limits. Spike recovery indicates possible matrix interference.

SGS Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS Accutest is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS Accutest indicated via signature on the report cover

Summary of Hits

Job Number: JC37351
Account: Honeywell International Inc.
Project: HLANJPR: Study Area 6 Chrome Remedy
Collected: 02/16/17

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC37351-1	**115-PZ-503-021617**					
Chromium		33.9	10		ug/l	EPA 200.7
Redox Potential Vs H2		334			mv	ASTM D1498-76
pH [a]		6.98			su	SM4500H+ B-11
JC37351-1F	**115-PZ-503-F-021617**					
Redox Potential Vs H2		333			mv	ASTM D1498-76
pH [a]		7.01			su	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	115-PZ-503-021617		
Lab Sample ID:	JC37351-1	**Date Sampled:**	02/16/17
Matrix:	AQ - Ground Water	**Date Received:**	02/16/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	33.9	10	ug/l	1	02/17/17	02/20/17	ND	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41406
(2) Prep QC Batch: MP98754

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-503-021617		
Lab Sample ID:	JC37351-1	**Date Sampled:**	02/16/17
Matrix:	AQ - Ground Water	**Date Received:**	02/16/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	02/16/17 21:33	AT	SW846 7199
Redox Potential Vs H2	334		mv	1	02/20/17 14:55	PO	ASTM D1498-76
pH [a]	6.98		su	1	02/20/17 14:54	PO	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-503-F-021617		
Lab Sample ID:	JC37351-1F	**Date Sampled:**	02/16/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	02/16/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	02/17/17	02/20/17	ND	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41406
(2) Prep QC Batch: MP98754

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-503-F-021617		
Lab Sample ID:	JC37351-1F	**Date Sampled:**	02/16/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	02/16/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	02/16/17 22:20	AT	SW846 7199
Redox Potential Vs H2	333		mv	1	02/20/17 14:55	PO	ASTM D1498-76
pH [a]	7.01		su	1	02/20/17 14:54	PO	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody

Parameter Certification Exceptions

Job Number: JC37351
Account: HWINJM Honeywell International Inc.
Project: HLANJPR: Study Area 6 Chrome Remedy

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
pH		SM4500H+ B-11	AQ	Accutest is not certified for this parameter.
Redox Potential Vs H2		ASTM D1498-76	AQ	Accutest is not certified for this parameter.[a]

(a) Lab cert for analyte not supported by NJDEP, OQA. Only methods/analytes required for reporting by the State of NJ can be certified in NJ. Use of this analyte for compliance must be verified through the appropriate regulatory office.

Certification exceptions shown are based on the New Jersey DEP certifications. Applicability in other states may vary. Please contact your laboratory representative if additional information is required for a specific regulatory program.

GW

E

ACCUTEST
Fresh Ponds Corporate Village, Building B
2235 Route 130,Dayton, New Jersey 08810
732-329-0200 Phone, 732-329-3499 Fax

Honeywell **Chain Of Custody / Analysis Request**

AESI Ref: 38439.43925
COC # : 37394-011917
Lab Use Only
Lab Proj #
Lab ID ACTD
PAGE 1 of 1
Job No. JC37351

Privileged & Confidential: Y
EDD To: Andrew Shust (AMEC FW)
Sampler: Sean Rittinger
P O #
Analysis Turnaround Time: 3 day TAT
Standard -
Rush Charges Authorized for -
2 weeks -
1 week -
Next Day -

Site Name: HUDSONCO
Location of Site: SA-6 Cr Remedy

Client Contact: (name, co., address)
Andrew Shust - Amec Foster Wheeler
200 American Metro Blvd., Suite 113
Hamilton, NJ 08619
andrew.shust@amecfw.com

Hardcopy Report To: See above

Invoice To: Maria Kaouris - Honeywell PM 115 Tabor Rd, Morris Plains, NJ 07950

What is in the Text File? Mouse over here.
Written and maintained by AESI (Ver 3_7) 02-01-05 renesurgi@aol.com

	Sample Identification				Sample Date	Sample Time	Sample Type	Sample Matrix	Sample Purpose	# of Cont.	Grab/Composite	Field Filtered Sample ?	Preservative: 0	2	0	2		Lab Sample Numbers
	Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID									EPA 7199 Hexavalent Chromium	EPA 200.7 Total Chromium	Dissolved CHROMIUM VI (7199)	Dissolved Total Chromium 200.7		
											Units		mg/L	mg/L	mg/L	mg/L		
1	115-PZ-503			115-PZ-503-021617	2/16/2017	9:40	GW	Water	REG	2	grab	N	X	X			1	A4
2	115-PZ-503			115-PZ-503-F-021617	2/16/2017	9:45	GW	Water	REG	2	grab	Y			X	X	1F	C5
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		

2/16/17 AM
ALL SAMPLES RECEIVED INITIAL ASESSMENT AM28
PRESERVED AS APPLICABLE LABEL VERIFICATION SP

Relinquished by	Company	Amec	Received by	Accutest	Condition		Custody Seals Intact	
	Date/Time	2/16/17 17:02		2/16/17 1200	Cooler Temp.			
Relinquished by	Company	Accutest	Received by	SGS	Condition		Custody Seals Intact	
	Date/Time	2/16/17 1745		2/16/17 1745	Cooler Temp.	3.1 °C		IP

Preservatives: 0 = None; |1 = HCL|; |2 = HNO3|; |3 = H2SO4|; |4 = NaOH|; |5 = Zn. Acetate|; |6 = MeOH|; |7 = NaHSO4|; 8 = Other (specify):

C5 499 Accutest

5.2 5

JC37351: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: JC37351 **Client:** _____ **Project:** _____

Date / Time Received: 2/16/2017 5:45:00 PM **Delivery Method:** _____ **Airbill #'s:** _____

Cooler Temps (Raw Measured) °C: Cooler 1: (3.6);

Cooler Temps (Corrected) °C: Cooler 1: (4.0);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

SM089-02
Rev. Date 12/1/16

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JC37351: Chain of Custody
Page 2 of 2

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY.

e-Hardcopy 2.0
Automated Report

Technical Report for

Honeywell International Inc.

HLANJPR: Study Area 6 Chrome Remedy

SGS Accutest Job Number: JC39227

Sampling Date: 03/20/17

Report to:

AMEC Environment & Infrastructure, Inc.

jenna.desiderio@amecfw.com

ATTN: Jenna Desiderio

Total number of pages in report: **16**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Marty Vitanza 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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Test results relate only to samples analyzed.

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Sections: 1 2 3 4 5

Table of Contents

Sample Summary

Honeywell International Inc.

Job No: JC39227

HLANJPR: Study Area 6 Chrome Remedy

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC39227-1	03/20/17	12:05	SR	03/20/17	AQ	Ground Water	115-PZ-501-032017
JC39227-1F	03/20/17	12:25	SR	03/20/17	AQ	Groundwater Filtered	115-PZ-501-F-032017

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Honeywell International Inc. **Job No** JC39227

Site: HLANJPR: Study Area 6 Chrome Remedy **Report Date** 3/24/2017 10:01:07 A

On 03/20/2017, 2 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS Accutest at a maximum corrected temperature of 5.5 C. Samples were intact and chemically preserved, unless noted below. A SGS Accutest Job Number of JC39227 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Please refer to certification exceptions summary for additional certification information.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

Metals By Method EPA 200.7

Matrix: AQ **Batch ID:** MP99366

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC39228-3MS, JC39228-3MSD, JC39228-3SDL were used as the QC samples for metals.
- RPD(s) for Serial Dilution for Chromium are outside control limits for sample MP99366-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Wet Chemistry By Method ASTM D1498-76

Matrix: AQ **Batch ID:** GN61146

- Sample(s) JC39227-1DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method SM4500H+ B-11

Matrix: AQ **Batch ID:** GN61147

- Sample(s) JC39227-1DUP were used as the QC samples for pH.
- JC39227-1F for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC39227-1 for pH: Field analysis required. Received out of hold time and analyzed by request.

Wet Chemistry By Method SW846 7199

Matrix: AQ **Batch ID:** GP4023

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC39227-1DUP, JC39227-1FDUP, JC39227-1FMS, JC39227-1MS were used as the QC samples for Chromium, Hexavalent.

SGS Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS Accutest is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS Accutest indicated via signature on the report cover

Summary of Hits

Job Number: JC39227
Account: Honeywell International Inc.
Project: HLANJPR: Study Area 6 Chrome Remedy
Collected: 03/20/17

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC39227-1	**115-PZ-501-032017**					
Redox Potential Vs H2		468			mv	ASTM D1498-76
pH [a]		4.94			su	SM4500H+ B-11
JC39227-1F	**115-PZ-501-F-032017**					
Redox Potential Vs H2		442			mv	ASTM D1498-76
pH [a]		5.26			su	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	115-PZ-501-032017		
Lab Sample ID:	JC39227-1	**Date Sampled:**	03/20/17
Matrix:	AQ - Ground Water	**Date Received:**	03/20/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	03/21/17	03/22/17	AB	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41618
(2) Prep QC Batch: MP99366

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-501-032017		
Lab Sample ID:	JC39227-1	**Date Sampled:**	03/20/17
Matrix:	AQ - Ground Water	**Date Received:**	03/20/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	03/21/17 11:21	AT	SW846 7199
Redox Potential Vs H2	468		mv	1	03/22/17 11:20	AC	ASTM D1498-76
pH [a]	4.94		su	1	03/22/17 09:35	AC	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-501-F-032017		
Lab Sample ID:	JC39227-1F	**Date Sampled:**	03/20/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	03/20/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	03/21/17	03/22/17	AB	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41618
(2) Prep QC Batch: MP99366

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-501-F-032017		
Lab Sample ID:	JC39227-1F	**Date Sampled:**	03/20/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	03/20/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	03/21/17 11:37	AT	SW846 7199
Redox Potential Vs H2	442		mv	1	03/22/17 11:20	AC	ASTM D1498-76
pH [a]	5.26		su	1	03/22/17 09:35	AC	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody

Parameter Certification Exceptions

Job Number: JC39227
Account: HWINJM Honeywell International Inc.
Project: HLANJPR: Study Area 6 Chrome Remedy

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
pH		SM4500H+ B-11	AQ	Accutest is not certified for this parameter.
Redox Potential Vs H2		ASTM D1498-76	AQ	Accutest is not certified for this parameter.[a]

(a) Lab cert for analyte not supported by NJDEP, OQA. Only methods/analytes required for reporting by the State of NJ can be certified in NJ. Use of this analyte for compliance must be verified through the appropriate regulatory office.

Certification exceptions shown are based on the New Jersey DEP certifications. Applicability in other states may vary. Please contact your laboratory representative if additional information is required for a specific regulatory program.

GW

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ACCUTEST
Fresh Ponds Corporate Village, Building B
2235 Route 130,Dayton, New Jersey 08810
732-329-0200 Phone, 732-329-3499 Fax

Honeywell — Chain Of Custody / Analysis Request

AESI Ref: 38439.43925
COC # : 37394-032017
Lab Use Only
Lab Proj #
Lab ID ACTD
PAGE 1 of 1
Job No. JC39227

Privileged & Confidential: Y
EDD To: Andrew Shust (AMEC FW)
Site Name: HUDSONCO
Location of Site: SA-6 Cr Remedy

Client Contact: (name, co., address)
Andrew Shust - Amec Foster Wheeler
200 American Metro Blvd., Suite 113
Hamilton, NJ 08619
andrew.shust@amecfw.com

Sampler: Sean Rittinger
P O #
Analysis Turnaround Time: 3 day TAT
Standard -
Rush Charges Authorized for -
2 weeks -
1 week -
Next Day -

Hardcopy Report To: See above
Invoice To: Maria Kaouris - Honeywell PM 115 Tabor Rd, Morris Plains, NJ 07950

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Written and maintained by AESI (Ver 3_7) 02-01-05 renesurgi@aol.com

	Sample Identification				Sample Date	Sample Time	Sample Type	Sample Matrix	Sample Purpose	# of Cont.	Grab/Composite	Field Filtered Sample?	Preservative																Lab Sample Numbers
	Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID									0	2	0	2													
													EPA 7199 Hexavalent Chromium	EPA 200.7 Total Chromium	Dissolved CHROMIUM VI (7199)	Dissolved Total Chromium 200.7														
											Units		mg/L	mg/L	mg/L	mg/L													
1	115-PZ-502			115-PZ-502-032017	3/20/2017	12:05	GW	Water	REG	2	grab	N	X	X			1												A35
2	115-PZ-502			115-PZ-502-F-032017	3/20/2017	12:25	GW	Water	REG	2	grab	Y			X	X	1F												C54
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													

INITIAL ASESSMENT JK
LABEL VERIFICATION JK

3 day TAT

Relinquished by	Company	Amec	Received by	Company	SGS	Condition	Custody Seals Intact
	Date/Time	3-20-17 1330		Date/Time	3/20/17	Cooler Temp.	
Relinquished by	Company	SGS	Received by	Company	SGS	Condition	Custody Seals Intact
	Date/Time	3/20/17 1815		Date/Time	3/20/17 1815	Cooler Temp.	

Preservatives: 0 = None; |1 = HCL|; |2 = HNO3|; |3 = H2SO4|; |4 = NaOH|; |5 = Zn. Acetate|; |6 = MeOH|; |7 = NaHSO4|; 8 = Other (specify):

JC39227: Chain of Custody
Page 1 of 3

SGS Accutest Sample Receipt Summary

Job Number: JC39227 **Client:** _____ **Project:** _____

Date / Time Received: 3/20/2017 6:15:00 PM **Delivery Method:** _____ **Airbill #'s:** _____

Cooler Temps (Raw Measured) °C: Cooler 1: (4.1);

Cooler Temps (Corrected) °C: Cooler 1: (5.5);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

SM089-02
Rev. Date 12/1/16

5.2

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JC39227: Chain of Custody
Page 2 of 3

Job Change Order: JC39227

Requested Date:	3/22/2017	**Received Date:**	3/20/2017
Account Name:	Honeywell International Inc.	**Due Date:**	3/23/2017
Project Description:	HLANJPR: Study Area 6 Chrome Remedy	**Deliverable:**	FULT1
CSR:	martyv	**TAT (Days):**	3

Sample #: JC39227-1 **Change:**
Dept: Change field ID to 115-PZ-501-032017
TAT: 3
115-PZ-501-032017

Sample #: JC39227-1F **Change:**
Dept: Change field ID to 115-PZ-501-F-032017
TAT: 3
115-PZ-501-F-032017

Above Changes Per: Jenna **Date/Time:** 3/22/2017 9:18:36 AM

To Client: This Change Order is confirmation of the revisions, previously discussed with the SGS Accutest Client Service Representative.

Page 1 of 1

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JC39227: Chain of Custody
Page 3 of 3

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Automated Report

Technical Report for

Honeywell International Inc.

HLANJPR: Study Area 6 Chrome Remedy

SGS Accutest Job Number: JC39283

Sampling Date: 03/21/17

Report to:

AMEC Environment & Infrastructure, Inc.

jenna.desiderio@amecfw.com

ATTN: Jenna Desiderio

Total number of pages in report: **30**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Marty Vitanza 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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Sample Summary

Honeywell International Inc.

HLANJPR: Study Area 6 Chrome Remedy

Job No: JC39283

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC39283-1	03/21/17	11:35	SR	03/21/17	AQ	Ground Water	115-PZ-500-0321147
JC39283-1F	03/21/17	11:40	SR	03/21/17	AQ	Groundwater Filtered	115-PZ-500-F-0321147
JC39283-2	03/21/17	08:40	SR	03/21/17	AQ	Ground Water	115-PZ-502-032117
JC39283-2F	03/21/17	08:45	SR	03/21/17	AQ	Groundwater Filtered	115-PZ-502-F-032117
JC39283-3	03/21/17	08:40	SR	03/21/17	AQ	Ground Water	115-PZ-502-DP-032117
JC39283-3F	03/21/17	08:45	SR	03/21/17	AQ	Groundwater Filtered	115-PZ-502-DP-F-032117
JC39283-4	03/21/17	13:20	SR	03/21/17	AQ	Ground Water	115-PZ-503-032117
JC39283-4F	03/21/17	13:25	SR	03/21/17	AQ	Groundwater Filtered	115-PZ-503-F-032117
JC39283-5	03/21/17	13:40	SR	03/21/17	AQ	Field Blank Water	FB-032117

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Honeywell International Inc.	**Job No**	JC39283
Site:	HLANJPR: Study Area 6 Chrome Remedy	**Report Date**	3/24/2017 12:12:11 P

On 03/21/2017, 8 Sample(s), 0 Trip Blank(s) and 1 Field Blank(s) were received at SGS Accutest at a maximum corrected temperature of 4.8 C. Samples were intact and chemically preserved, unless noted below. A SGS Accutest Job Number of JC39283 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Please refer to certification exceptions summary for additional certification information.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

Metals By Method EPA 200.7

Matrix: AQ **Batch ID:** MP99400

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC39283-1MS, JC39283-1MSD, JC39283-1SDL were used as the QC samples for metals.
- RPD(s) for Serial Dilution for Chromium are outside control limits for sample MP99400-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Wet Chemistry By Method ASTM D1498-76

Matrix: AQ **Batch ID:** GN61245

- Sample(s) JC39283-1DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method SM4500H+ B-11

Matrix: AQ **Batch ID:** GN61244

- Sample(s) JC39283-1DUP were used as the QC samples for pH.
- JC39283-1 for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC39283-4F for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC39283-4 for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC39283-5 for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC39283-1F for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC39283-2 for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC39283-2F for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC39283-3 for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC39283-3F for pH: Field analysis required. Received out of hold time and analyzed by request.

Wet Chemistry By Method SW846 7199

Matrix: AQ **Batch ID:** GP4050

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC39283-1DUP, JC39283-1FDUP, JC39283-1FMS, JC39283-1MS were used as the QC samples for Chromium, Hexavalent.
- Matrix Spike Recovery(s) for Chromium, Hexavalent are outside control limits. Spike recovery indicates possible matrix interference.

SGS Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS Accutest is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS Accutest indicated via signature on the report cover

Summary of Hits

Job Number: JC39283
Account: Honeywell International Inc.
Project: HLANJPR: Study Area 6 Chrome Remedy
Collected: 03/21/17

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC39283-1	**115-PZ-500-0321147**					
Redox Potential Vs H2		334			mv	ASTM D1498-76
pH [a]		6.89			su	SM4500H+ B-11
JC39283-1F	**115-PZ-500-F-0321147**					
Redox Potential Vs H2		321			mv	ASTM D1498-76
pH [a]		6.91			su	SM4500H+ B-11
JC39283-2	**115-PZ-502-032117**					
Redox Potential Vs H2		333			mv	ASTM D1498-76
pH [a]		5.44			su	SM4500H+ B-11
JC39283-2F	**115-PZ-502-F-032117**					
Redox Potential Vs H2		328			mv	ASTM D1498-76
pH [a]		5.51			su	SM4500H+ B-11
JC39283-3	**115-PZ-502-DP-032117**					
Redox Potential Vs H2		330			mv	ASTM D1498-76
pH [a]		5.57			su	SM4500H+ B-11
JC39283-3F	**115-PZ-502-DP-F-032117**					
Redox Potential Vs H2		327			mv	ASTM D1498-76
pH [a]		5.57			su	SM4500H+ B-11
JC39283-4	**115-PZ-503-032117**					
Redox Potential Vs H2		309			mv	ASTM D1498-76
pH [a]		6.90			su	SM4500H+ B-11
JC39283-4F	**115-PZ-503-F-032117**					
Redox Potential Vs H2		300			mv	ASTM D1498-76
pH [a]		6.86			su	SM4500H+ B-11
JC39283-5	**FB-032117**					
Redox Potential Vs H2		441			mv	ASTM D1498-76
pH [a]		5.37			su	SM4500H+ B-11

Summary of Hits

Job Number: JC39283
Account: Honeywell International Inc.
Project: HLANJPR: Study Area 6 Chrome Remedy
Collected: 03/21/17

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method

(a) Field analysis required. Received out of hold time and analyzed by request.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	115-PZ-500-0321147		
Lab Sample ID:	JC39283-1	**Date Sampled:**	03/21/17
Matrix:	AQ - Ground Water	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	03/22/17	03/23/17	AB	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41627
(2) Prep QC Batch: MP99400

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-500-0321147		
Lab Sample ID:	JC39283-1	**Date Sampled:**	03/21/17
Matrix:	AQ - Ground Water	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	03/21/17 23:08	AT	SW846 7199
Redox Potential Vs H2	334		mv	1	03/23/17 16:15	AC	ASTM D1498-76
pH [a]	6.89		su	1	03/23/17 15:00	AC	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-500-F-0321147		
Lab Sample ID:	JC39283-1F	**Date Sampled:**	03/21/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	03/22/17	03/23/17	AB	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41627
(2) Prep QC Batch: MP99400

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-500-F-0321147		
Lab Sample ID:	JC39283-1F	**Date Sampled:**	03/21/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	03/22/17 01:10	AT	SW846 7199
Redox Potential Vs H2	321		mv	1	03/23/17 16:15	AC	ASTM D1498-76
pH [a]	6.91		su	1	03/23/17 15:00	AC	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-032117		
Lab Sample ID:	JC39283-2	**Date Sampled:**	03/21/17
Matrix:	AQ - Ground Water	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	03/22/17	03/23/17	AB	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41627
(2) Prep QC Batch: MP99400

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-032117		
Lab Sample ID:	JC39283-2	**Date Sampled:**	03/21/17
Matrix:	AQ - Ground Water	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	03/21/17 23:35	AT	SW846 7199
Redox Potential Vs H2	333		mv	1	03/23/17 16:15	AC	ASTM D1498-76
pH [a]	5.44		su	1	03/23/17 15:00	AC	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-F-032117		
Lab Sample ID:	JC39283-2F	**Date Sampled:**	03/21/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	03/22/17	03/23/17	AB	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41627
(2) Prep QC Batch: MP99400

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-F-032117		
Lab Sample ID:	JC39283-2F	**Date Sampled:**	03/21/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	03/22/17 01:26	AT	SW846 7199
Redox Potential Vs H2	328		mv	1	03/23/17 16:15	AC	ASTM D1498-76
pH [a]	5.51		su	1	03/23/17 15:00	AC	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-DP-032117		
Lab Sample ID:	JC39283-3	**Date Sampled:**	03/21/17
Matrix:	AQ - Ground Water	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	03/22/17	03/23/17	AB	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41627
(2) Prep QC Batch: MP99400

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-DP-032117		
Lab Sample ID:	JC39283-3	**Date Sampled:**	03/21/17
Matrix:	AQ - Ground Water	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	03/21/17 23:51	AT	SW846 7199
Redox Potential Vs H2	330		mv	1	03/23/17 16:15	AC	ASTM D1498-76
pH [a]	5.57		su	1	03/23/17 15:00	AC	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-DP-F-032117		
Lab Sample ID:	JC39283-3F	**Date Sampled:**	03/21/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	03/22/17	03/23/17	AB	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41627
(2) Prep QC Batch: MP99400

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-502-DP-F-032117		
Lab Sample ID:	JC39283-3F	**Date Sampled:**	03/21/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	03/22/17 01:42	AT	SW846 7199
Redox Potential Vs H2	327		mv	1	03/23/17 16:15	AC	ASTM D1498-76
pH [a]	5.57		su	1	03/23/17 15:00	AC	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-503-032117		
Lab Sample ID:	JC39283-4	**Date Sampled:**	03/21/17
Matrix:	AQ - Ground Water	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	03/22/17	03/23/17	AB	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41627
(2) Prep QC Batch: MP99400

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-503-032117		
Lab Sample ID:	JC39283-4	**Date Sampled:**	03/21/17
Matrix:	AQ - Ground Water	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	03/22/17 00:07	AT	SW846 7199
Redox Potential Vs H2	309		mv	1	03/23/17 16:15	AC	ASTM D1498-76
pH [a]	6.90		su	1	03/23/17 15:00	AC	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-503-F-032117		
Lab Sample ID:	JC39283-4F	**Date Sampled:**	03/21/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	03/22/17	03/23/17	AB	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41627
(2) Prep QC Batch: MP99400

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-PZ-503-F-032117		
Lab Sample ID:	JC39283-4F	**Date Sampled:**	03/21/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	03/22/17 02:14	AT	SW846 7199
Redox Potential Vs H2	300		mv	1	03/23/17 16:15	AC	ASTM D1498-76
pH [a]	6.86		su	1	03/23/17 15:00	AC	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FB-032117		
Lab Sample ID:	JC39283-5	**Date Sampled:**	03/21/17
Matrix:	AQ - Field Blank Water	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	03/22/17	03/23/17	AB	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA41627
(2) Prep QC Batch: MP99400

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FB-032117		
Lab Sample ID:	JC39283-5	**Date Sampled:**	03/21/17
Matrix:	AQ - Field Blank Water	**Date Received:**	03/21/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0055	0.0055	mg/l	1	03/22/17 00:23	AT	SW846 7199
Redox Potential Vs H2	441		mv	1	03/23/17 16:15	AC	ASTM D1498-76
pH [a]	5.37		su	1	03/23/17 15:00	AC	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody

Parameter Certification Exceptions

Job Number: JC39283
Account: HWINJM Honeywell International Inc.
Project: HLANJPR: Study Area 6 Chrome Remedy

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
Redox Potential Vs H2		**ASTM D1498-76**	AQ	Accutest is not certified for this parameter.[a]

(a) Lab cert for analyte not supported by NJDEP, OQA. Only methods/analytes required for reporting by the State of NJ can be certified in NJ. Use of this analyte for compliance must be verified through the appropriate regulatory office.

Certification exceptions shown are based on the New Jersey DEP certifications. Applicability in other states may vary. Please contact your laboratory representative if additional information is required for a specific regulatory program.

GW
FB

E

ACCUTEST
Fresh Ponds Corporate Village, Building B
2235 Route 130,Dayton, New Jersey 08810
732-329-0200 Phone, 732-329-3499 Fax

Honeywell — Chain Of Custody / Analysis Request

AESI Ref: 38439.43925
COC # : 37394-032117
Lab Use Only
Lab Proj #
Lab ID ACTD
PAGE 1 of 1
Job No. JC39283

Privileged & Confidential: Y
EDD To: Andrew Shust (AMEC FW)
Site Name: HUDSONCO
Location of Site: SA-6 Cr Remedy

Client Contact: (name, co., address)
Andrew Shust - Amec Foster Wheeler
200 American Metro Blvd., Suite 113
Hamilton, NJ 08619
andrew.shust@amecfw.com

Sampler: Sean Rittinger
P O #
Analysis Turnaround Time: 3 day TAT
Standard -
Rush Charges Authorized for -
2 weeks -
1 week -
Next Day -

Hardcopy Report To: See above
Invoice To: Maria Kaouris - Honeywell PM 115 Tabor Rd, Morris Plains, NJ 07950

What is in the Text File? Mouse over here.
Written and maintained by AESI (Ver 3_7) 02-01-05 rennsurgi@aol.com

	Sample Identification				Sample Date	Sample Time	Sample Type	Sample Matrix	Sample Purpose	# of Cont.	Grab/Composite	Field Filtered Sample ?	Preservative 0 / EPA 7199 Hexavalent Chromium (ug/L)	Preservative 2 / EPA 200.7 Total Chromium (ug/L)	Preservative 0 / Dissolved CHROMIUM VI (7199) (ug/L)	Preservative 2 / Dissolved Total Chromium 200.7 (ug/L)	Lab Sample Numbers
	Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID							Units						
1	115-PZ-500			115-PZ-500-032117	3/21/2017	11:35	GW	Water	REG	2	grab	N	X	X			1
2	115-PZ-500			115-PZ-500-F-032117	3/21/2017	11:40	GW	Water	REG	2	grab	Y			X	X	1F
3	115-PZ-502			115-PZ-502-032117	3/21/2017	8:40	GW	Water	REG	2	grab	N	X	X			2
4	115-PZ-502			115-PZ-502-F-032117	3/21/2017	8:45	GW	Water	REG	2	grab	Y			X	X	2F
5	115-PZ-502			115-PZ-502-DP-032117	3/21/2017	8:40	GW	Water	REG	2	grab	N	X	X			3
6	115-PZ-502			115-PZ-502-DP-F-032117	3/21/2017	8:45	GW	Water	REG	2	grab	Y			X	X	3F
7	115-PZ-503			115-PZ-503-032117	3/21/2017	13:20	GW	Water	REG	2	grab	N	X	X			4
8	115-PZ-503			115-PZ-503-F-032117	3/21/2017	13:25	GW	Water	REG	2	grab	Y			X	X	4F
9	115-QC			FB-032117	3/21/2017	13:40	GW	Water	REG	2	grab	N	X	X			5
10																	
11																	

A21
C1

INITIAL ASESSMENT Am 28
ALL SAMPLES RECEIVED
LABEL VERIFICATION
PRESERVED AS APPLICABLE

3 day TAT

Relinquished by	Company: Amec	Received by: Robert Chambers	Company: SGS		Condition		Custody Seals Intact: 613
	Date/Time: 3.21.17 1412		Date/Time: 3/21/17		Cooler Temp.		
Relinquished by: Robert F Chambers	Company	Received by	Company: SGS		Condition		Custody Seals Intact
	Date/Time: 3.21.17 1714		Date/Time: 3/21/17 1714		Cooler Temp.		

Preservatives: 0 = None; |1 = HCL|; |2 = HNO3|; |3 = H2SO4|; |4 = NaOH|; |5 = Zn. Acetate|; |6 = MeOH|; |7 = NaHSO4|; 8 = Other (specify):

Temp. 3.4°C

5.2
5

JC39283: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: JC39283 **Client:** _____ **Project:** _____

Date / Time Received: 3/21/2017 5:14:00 PM **Delivery Method:** _____ **Airbill #'s:** _____

Cooler Temps (Raw Measured) °C: Cooler 1: (3.4);

Cooler Temps (Corrected) °C: Cooler 1: (4.8);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

SM089-02
Rev. Date 12/1/16

5.2

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JC39283: Chain of Custody
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e-Hardcopy 2.0
Automated Report

Technical Report for

Honeywell International Inc.

HLANJPR: Study Area 6 Chrome Remedy

SGS Accutest Job Number: JC50882

Sampling Date: 09/14/17

Report to:

AMEC Environment & Infrastructure, Inc.

jenna.desiderio@amecfw.com

ATTN: Jenna Desiderio

Total number of pages in report: **21**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Matt Cordova 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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Test results relate only to samples analyzed.

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Sample Summary

Honeywell International Inc.

Job No: JC50882

HLANJPR: Study Area 6 Chrome Remedy

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC50882-1	09/14/17	09:15	RO	09/14/17	AQ	Ground Water	115-TWP-01-091417
JC50882-1F	09/14/17	09:20	RO	09/14/17	AQ	Groundwater Filtered	115-TWP-01-091417F
JC50882-2	09/14/17	10:15	RO	09/14/17	AQ	Ground Water	115-TWP-02-091417
JC50882-2F	09/14/17	10:20	RO	09/14/17	AQ	Groundwater Filtered	115-TWP-02-091417F
JC50882-3	09/14/17	10:35	RO	09/14/17	AQ	Field Blank Water	115-FB-091417

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Honeywell International Inc. **Job No** JC50882

Site: HLANJPR: Study Area 6 Chrome Remedy **Report Date** 9/18/2017 5:15:33 PM

On 09/14/2017, 4 Sample(s), 0 Trip Blank(s) and 1 Field Blank(s) were received at SGS Accutest at a maximum corrected temperature of 2.9 C. Samples were intact and chemically preserved, unless noted below. A SGS Accutest Job Number of JC50882 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Please refer to certification exceptions summary for additional certification information.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

Metals Analysis By Method EPA 200.7

Matrix: AQ **Batch ID:** MP2970

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC50882-1MS, JC50882-1MSD, JC50882-1SDL were used as the QC samples for metals.
- RPD(s) for Serial Dilution for Chromium are outside control limits for sample MP2970-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

General Chemistry By Method ASTM D1498-76

Matrix: AQ **Batch ID:** GN69585

- Sample(s) JC50882-1DUP were used as the QC samples for Redox Potential Vs H2.

General Chemistry By Method SM4500H+ B-11

Matrix: AQ **Batch ID:** GN69549

- Sample(s) JC50882-1DUP were used as the QC samples for pH.
- JC50882-1 for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC50882-1F for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC50882-2 for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC50882-2F for pH: Field analysis required. Received out of hold time and analyzed by request.
- JC50882-3 for pH: Field analysis required. Received out of hold time and analyzed by request.

General Chemistry By Method SW846 7199

Matrix: AQ **Batch ID:** GP7790

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC50882-1DUP, JC50882-1FDUP, JC50882-1FMS, JC50882-1MS were used as the QC samples for Chromium, Hexavalent.

SGS Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS Accutest is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS Accutest indicated via signature on the report cover

Summary of Hits

Job Number: JC50882
Account: Honeywell International Inc.
Project: HLANJPR: Study Area 6 Chrome Remedy
Collected: 09/14/17

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC50882-1	**115-TWP-01-091417**					
Chromium		11.4	10		ug/l	EPA 200.7
Redox Potential Vs H2		337			mv	ASTM D1498-76
pH [a]		7.18			su	SM4500H+ B-11
JC50882-1F	**115-TWP-01-091417F**					
Redox Potential Vs H2		333			mv	ASTM D1498-76
pH [a]		7.16			su	SM4500H+ B-11
JC50882-2	**115-TWP-02-091417**					
Redox Potential Vs H2		337			mv	ASTM D1498-76
pH [a]		7.22			su	SM4500H+ B-11
JC50882-2F	**115-TWP-02-091417F**					
Redox Potential Vs H2		324			mv	ASTM D1498-76
pH [a]		7.26			su	SM4500H+ B-11
JC50882-3	**115-FB-091417**					
Redox Potential Vs H2		478			mv	ASTM D1498-76
pH [a]		6.14			su	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	115-TWP-01-091417		
Lab Sample ID:	JC50882-1	**Date Sampled:**	09/14/17
Matrix:	AQ - Ground Water	**Date Received:**	09/14/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	11.4	10	ug/l	1	09/15/17	09/16/17	PP	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA42808
(2) Prep QC Batch: MP2970

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-TWP-01-091417		
Lab Sample ID:	JC50882-1	**Date Sampled:**	09/14/17
Matrix:	AQ - Ground Water	**Date Received:**	09/14/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0060	0.0060	mg/l	1	09/14/17 22:23	AT	SW846 7199
Redox Potential Vs H2	337		mv	1	09/16/17 14:09	AC	ASTM D1498-76
pH [a]	7.18		su	1	09/15/17 17:45	HS	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-TWP-01-091417F		
Lab Sample ID:	JC50882-1F	**Date Sampled:**	09/14/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	09/14/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	09/15/17	09/16/17	PP	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA42808
(2) Prep QC Batch: MP2970

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-TWP-01-091417F		
Lab Sample ID:	JC50882-1F	**Date Sampled:**	09/14/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	09/14/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0060	0.0060	mg/l	1	09/14/17 23:42	AT	SW846 7199
Redox Potential Vs H2	333		mv	1	09/16/17 14:11	AC	ASTM D1498-76
pH [a]	7.16		su	1	09/15/17 17:46	HS	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-TWP-02-091417		
Lab Sample ID:	JC50882-2	**Date Sampled:**	09/14/17
Matrix:	AQ - Ground Water	**Date Received:**	09/14/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	09/15/17	09/16/17	PP	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA42808
(2) Prep QC Batch: MP2970

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-TWP-02-091417		
Lab Sample ID:	JC50882-2	**Date Sampled:**	09/14/17
Matrix:	AQ - Ground Water	**Date Received:**	09/14/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0060	0.0060	mg/l	1	09/14/17 22:39	AT	SW846 7199
Redox Potential Vs H2	337		mv	1	09/16/17 14:30	AC	ASTM D1498-76
pH [a]	7.22		su	1	09/15/17 17:47	HS	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-TWP-02-091417F		
Lab Sample ID:	JC50882-2F	**Date Sampled:**	09/14/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	09/14/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	09/15/17	09/16/17	PP	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA42808
(2) Prep QC Batch: MP2970

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-TWP-02-091417F		
Lab Sample ID:	JC50882-2F	**Date Sampled:**	09/14/17
Matrix:	AQ - Groundwater Filtered	**Date Received:**	09/14/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0060	0.0060	mg/l	1	09/15/17 00:17	AT	SW846 7199
Redox Potential Vs H2	324		mv	1	09/16/17 14:33	AC	ASTM D1498-76
pH [a]	7.26		su	1	09/15/17 17:49	HS	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-FB-091417		
Lab Sample ID:	JC50882-3	**Date Sampled:**	09/14/17
Matrix:	AQ - Field Blank Water	**Date Received:**	09/14/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Chromium	< 10	10	ug/l	1	09/15/17	09/16/17	PP	EPA 200.7 [1]	EPA 200.7 [2]

(1) Instrument QC Batch: MA42808
(2) Prep QC Batch: MP2970

RL = Reporting Limit

Report of Analysis

Client Sample ID:	115-FB-091417		
Lab Sample ID:	JC50882-3	**Date Sampled:**	09/14/17
Matrix:	AQ - Field Blank Water	**Date Received:**	09/14/17
		Percent Solids:	n/a
Project:	HLANJPR: Study Area 6 Chrome Remedy		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.0060	0.0060	mg/l	1	09/14/17 22:55	AT	SW846 7199
Redox Potential Vs H2	478		mv	1	09/16/17 14:46	AC	ASTM D1498-76
pH [a]	6.14		su	1	09/15/17 17:52	HS	SM4500H+ B-11

(a) Field analysis required. Received out of hold time and analyzed by request.

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody

Parameter Certification Exceptions

Job Number: JC50882
Account: HWINJM Honeywell International Inc.
Project: HLANJPR: Study Area 6 Chrome Remedy

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
Redox Potential Vs H2		**ASTM D1498-76**	AQ	Accutest is not certified for this parameter.[a]

(a) Lab cert for analyte not supported by NJDEP, OQA. Only methods/analytes required for reporting by the State of NJ can be certified in NJ. Use of this analyte for compliance must be verified through the appropriate regulatory office.

Certification exceptions shown are based on the New Jersey DEP certifications. Applicability in other states may vary. Please contact your laboratory representative if additional information is required for a specific regulatory program.

GW
FB

E

ACCUTEST
Fresh Ponds Corporate Village, Building B
2235 Route 130,Dayton, New Jersey 08810
732-329-0200 Phone, 732-329-3499 Fax

Honeywell — Chain Of Custody / Analysis Request

AESI Ref: 38439.43925
COC # : 37472-091417
Lab Use Only
Lab Proj #
Lab ID ACTD
PAGE 1 of 1
Job No. JC50882

Privileged & Confidential: Y
EDD To: Agshust (Amec Foster Wheeler)
Site Name: HUDSONCO
Location of Site: SA-6 Cr Remedy

Client Contact: (name, co., address)
Andrew Shust - Amec Foster Wheeler
200 American Metro Blvd., Suite 113
Hamilton, NJ 08619
andrew.shust@amecfw.com

Sampler: Ryan O'Leary
P O #
Analysis Turnaround Time: 5 day TAT
Standard -
Rush Charges Authorized for -
2 weeks -
1 week -
Next Day -

Hardcopy Report To: See above
Invoice To: Maria Kaouris - Honeywell PM 115 Tabor Rd, Morris Plains, NJ 07950

What is in the Text File? Mouse over here.
Written and maintained by AESI (Ver 3_7) 02-01-05 renesurgi@aol.com

	Sample Identification				Sample Date	Sample Time	Sample Type	Sample Matrix	Sample Purpose	# of Cont.	Grab/Composite	Field Filtered Sample ?	Preservative 0 / EPA 7199 Hexavalent Chromium mg/L	Preservative 2 / EPA 200.7 Total Chromium mg/L	Preservative 0 / Dissolved CHROMIUM VI (7199) mg/L	Preservative 2 / Dissolved Total Chromium 200.7 mg/L		Lab Sample Numbers
	Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID							Units							
1	115-TWP-01			115-TWP-01-091417	9/14/2017	9:15	GW	Water	REG	2	grab	N	X	X			1	A5
2	115-TWP-01			115-TWP-01-091417F	9/14/2017	9:20	GW	Water	REG	2	grab	Y			X	X	1F	C55
3	115-TWP-02			115-TWP-02-091417	9/14/2017	10:15	GW	Water	REG	2	grab	N	X	X			2	
4	115-TWP-02			115-TWP-02-091417F	9/14/2017	10:20	GW	Water	REG	2	grab	Y			X	X	2F	
5	115-FB			115-FB-091417	9/14/2017	10:35	BlkWater	Water	FB	2	grab	N	X	X			3	
6																		
7																		
8																		
9																		
10																		
11																		
12																		

5 day TAT

ALL SAMPLES RECEIVED
PRESERVED AS APPLICABLE

Relinquished by	Company Amec	Received by	9-14-17 Company		Condition		Custody Seals Intact	
	9-14-17 Date/Time 1500		Date/Time 1500		Cooler Temp.		
Relinquished by	Company	Received by	Company	SGS	Condition		Custody Seals Intact	
	9-14-17 Date/Time 1720		Date/Time	9/14/17 1720	Cooler Temp.		

Preservatives: 0 = None; [1 = HCL]; [2 = HNO3]; [3 = H2SO4]; [4 = NaOH]; [5 = Zn. Acetate]; [6 = MeOH]; [7 = NaHSO4]; 8 = Other (specify):

INITIAL ASESSMENT 2B DOM 037 500
LABEL VERIFICATION JP

JC50882: Chain of Custody
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SGS Accutest Sample Receipt Summary

Job Number: JC50882 **Client:** _____ **Project:** _____

Date / Time Received: 9/14/2017 5:20:00 PM **Delivery Method:** _____ **Airbill #'s:** _____

Cooler Temps (Raw Measured) °C: Cooler 1: (3.7);

Cooler Temps (Corrected) °C: Cooler 1: (2.9);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

SM089-02
Rev. Date 12/1/16

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JC50882: Chain of Custody
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APPENDIX G

DATA MANAGEMENT PLAN

APPENDIX H-2

DATA MANAGEMENT PLAN

STUDY AREA 6 NORTH
SITES 087 AND 088
JERSEY CITY, NJ

AND

STUDY AREA 6 SOUTH
SITES 073, 124, 125, 134, 140, AND 163
JERSEY CITY, NJ

Prepared for

Honeywell

101 Columbia Road
Morristown, New Jersey 07962

Prepared by

AMEC Environment & Infrastructure, Inc.
200 American Metro Boulevard, Suite 113
Hamilton, New Jersey 08619

JUNE 2012

(NOT REVISED FOR THE JUNE 2013 SUBMITTAL)

TABLE OF CONTENTS

1.0 INTRODUCTION

This Data Management Plan (DMP) (Part 2 of the Data Validation Plan) was prepared by AMEC Environment & Infrastructure, Inc. (Amec) on behalf of Honeywell International Inc. (Honeywell), who is conducting environmental investigation and remediation activities at Study Area 6 North (SA-6 North: Sites 087 and 088) and at Study Area 6 South (SA-6 South: Sites 073, 124, 125, 134, 140, and 163), located in Jersey City, Hudson County, New Jersey (Site). This DMP establishes guidelines and minimum requirements for the management of data during the performance of the Chromium Remedial Action at the Sites. This DMP was prepared as part of the Chromium Remedial Design for the implementation of remedial activities associated with chromium contamination at both SA-6 Sites. This DMP is **Appendix H-2** of the SA-6 North Chromium Remedy 100% Design Report. Additional background information pertaining to the SA-6 North and SA-6 South Sites are found in the SA-6 North and SA-6 South Chromium Remedy 100% Design Reports.

2.0 DATA MANAGEMENT STANDARD OPERATING PROCEDURES (SOPs)

2.1 STANDARD OPERATING PROCEDURES

The data management process will include Standard Operating Procedures (SOPs)necessary to ensure consistent and complete collection of field data, tracking of the laboratory analytical and validation processes, consistent and timely production of electronic data deliverables (EDDs) from participating laboratories, and accurate and timely entry of EDDs into the Locus Technologies Environmental Information Management (EIM) system. Honeywell SOPs that have been developed for data management activities are listed below.

List of Honeywell SOPs and Reference Documents (Refer to **Appendix A** of this report.)

SOPs

- SOP 1: EIM Implementation
- SOP 2: Structural Database Settings
- SOP 3: Site Settings
- SOP 4: General Procedures for Entering Sample collection, Chain of Custodies, and Related Information
- SOP 5: Managing the Sampling Program
- SOP 6: Laboratory Reporting Requirements
- SOP 7: Uploading Analytical Data (eUpload)
- SOP 8: Valid Values
- SOP 9: Reporting, Retrieval and Output Options
- SOP 9.5: Creating Cross-Tab Reports
- SOP 10: Access Rights and User Privileges
- SOP 11.5: Legacy Data Migration Guidance
- SOP 12: Creating Boring Logs in EIM

Reference Documents

- Site Database Setup Steps
- Creating Deviation Reports
- Using EIM SVG
- Using EIM GIS Query Link Tools

- Honeywell Valid Values
- Using MS Access with Locus EIM via ODBC
- Electronic Chain of Custody with Honeywell Valid Values – Standard
- Electronic Chain of Custody with Honeywell Valid Values – Air Sampling Version

2.2 RACI MATRIX

The RACI matrix attached as **Table 1** assigns Responsibility, Accountability, Consulted, and Informed (RACI) roles for tasks associated with the Honeywell data management process using Locus EIM. Each task listed below is assigned one accountable (A) individual, one or more responsible (R) individuals (those who do the work) and others who will be consulted (C) or informed (I) concerning the action.

2.3 DATA MANAGEMENT TEAM CONTACT INFORMATION

Please contact the following personnel if you have questions regarding the data management processes described in this section. Contact information is provided for all personnel listed in the attached RACI matrix.

Function	Name	Company	Phone	Email
Remediation Manager	Maria Kaouris	Honeywell	973-455-3302	Maria.Kaouris@honeywell.com
Technical Lead	Deborah Barsotti	Amec	609-631-2902	deborah.barsotti@amec.com
Program Manager	Ed Gaven	Amec	609-631-2905	ed.gaven@amec.com
Project Manager	Dennis Nagg	Amec	609-631-2928	dennis.nagg@amec.com
Engineering Manager	Joe Clifford	Amec	973-455-4163 609-631-2903	joseph.clifford@amec.com
Quality Assurance Officer	Ted Toskos	Amec	609-689-2829	theodoros.toskos@amec.com

Function	Name	Company	Phone	Email
Design Manager	Steven Mitchell	Amec	207-828-3418	steven.mitchell@amec.com
Data Management Procedures	William Colby-George	Amec	207-828-3650	william.colbygeorge@amec.com
Locust Implementation	William Colby-George	Amec	207-828-3650	william.colbygeorge@amec.com
Data Manager	Vanthuy Lieu Andrew Shust	Amec	609-631-6376 609-631-2921	vanthuy.lieu@amec.com andrew.shust@amec.com
EDD Uploader	Vanthuy Lieu Andrew Shust	Amec	609-631-6376 609-631-2921	vanthuy.lieu@amec.com andrew.shust@amec.com
Locus Contact	Marian Carr	Locus Technologies	925-906-8100	carrm@locustec.com
Laboratory Coordination	Rene Surgi	AESI	847-835-0983	renesurgi@aol.com
Laboratory Contact	Marty Vitanza	Accutest	732-329-0200	martyv@accutest.com
Validation Managers	Chris Ricardi Christina Jensen	Amec Validata	207-828-3694 206-361-8249	christian.ricardi@amec.com cjvalidata@msn.com

2.4 DATA PROCESS FLOW DIAGRAM

A data process flow diagram is attached as **Figure 1**.

2.5 FIELD DATA COLLECTION AND INPUT

Field measurement data will be collected using pre-formatted datasheets. The datasheets are meant to facilitate accurate and efficient data collection and entry. Amec personnel will provide a copy of the datasheet formats to the site data manager for review prior to conducting field work. On a daily basis, completed datasheets will be faxed to EDD Uploader for data entry into the Locus EIM system and for QC of the field data following entry to Locus EIM.

Field data will be batch imported to Locus EIM using existing electronic data deliverable (EDD) formats. The field data EDD formats currently available are listed below and can be found on Locus EIM under input/Data Upload.

When recording field measurements, at a minimum, the following information will be recorded:

- LOCATION_ID
- FIELD_SAMPLE_ID
- FIELD_MEASUREMENT_START_DEPTH
- FIELD_MEASUREMENT_END_DEPTH
- FIELD_MEASUREMENT_DEPTH_UNITS
- FIELD_MEASUREMENT_DATE
- FIELD_MEASUREMENT_TIME
- FIELD_PARAMETER
- FIELD_MEASUREMENT_VALUE
- FIELD_MEASUREMENT_UNITS
- FIELD_MEASUREMENT_INSTRUMENT
- FIELD_MEASUREMENT_COMMENTS

Field Data of a format not supported by EIM (such as site photographs) will be stored in the project files, along with supporting metadata such as author/creator of data, date, location, brief description.

Locus EIM EDD Field Data Import Formats include:

- Cone Penetrometer Test Data
- EIM Standard Field Measurements
- EIM Standard Groundwater Level Measurements
- EIM Standard Groundwater Level Measurements with NAPL Present
- EIM Standard Groundwater Level Measurements with NAPL Present: No Calculations Performed
- EIM Standard Lithology Information
- EIM Standard Location Information (includes sample/soil boring horizontal and vertical survey data)

- Solid Sample Attribute Information
- Collection Information for Solid Samples from Boreholes
- Aquifer/Well Perforation Zone Information
- EIM Standard Well Borehole Cross Reference
- EIM Standard Well Construction Details
- EIM Standard Well Information

The EIM Site IDs for Study Area 6 North are:

NJDEP Site No.	NJDEP Site Name	Block 21901 (formerly 1290.1) Lot #	Address
087	Jersey City Incinerator Authority	9 and 10 (formerly 2D, 2E)	555 and 575 Route 440
088	JCIA Well Site	5 (formerly 16A.99)	501 Route 440

Note: Block 1290.1 is also referred to as Block 1290.A in earlier deeds. Lot 16A.99 previously designated as individual lots 15B, 15D, and 16A

The EIM Site IDs for Study Area 6 South are:

NJDEP Site No.	NJDEP Site Name	Block 24601 (formerly 1290.1) Lot #	Address
073	Degen Oil	1 (formerly 11W)	288 Kellogg St.
124	Roosevelt Bowling Lanes	8 (formerly 20)	427 Route 440
125	Delphic Consolidated	7 (formerly 19)	60 Kellogg St.
134	Old Dominion	3, 4, & 5 (formerly 11H, 11Y, 17)	100 Kellogg St.
140	ABF Trucking	6 (formerly 18)	80 Kellogg St.
163	Posnak & Turkish	11 (formerly Lot 9H)	75 Kellogg St

Note: Block 1290.1 is also referred to as Block 1290.A in earlier deeds. Additionally, recent correspondence from the Jersey City Tax Assessor's Office indicates that Block 1290.1 is now 24601 and Lot Numbers have been changed as indicated in the table.

In addition to the above six (6) Sites, there are two additional properties, the Cordova Property (Block 1290.1, Lots 10E and 10H) and the Boatyard Property

(Block 1290.1, Lots 9L), which are included in SA-6 South. These properties do not have NJDEP Site numbers. Because of their proximity to adjacent sites, samples collected on the Cordova Property are identified as samples from Site 124 and samples collected on the Boatyard Property are identified as samples from Site 134 (see Section 2.7).

2.6 FIELD SAMPLES COLLECTED FOR LABORATORY ANALYSIS

Field samples will be labeled using the sample nomenclature detailed in the following section. The chain of custody for the samples will be completed as shown on the example chain of custody (**Appendix B**). The field sample identification shown on the sample labels will match the chain of custody. Each sample identification shown on the chain of custody will be unique. Analytical method and parameter requests will be explicitly identified on the chain of custody and must match the valid values in Locus EIM. If an analytical method or parameter of interest is not present in the list of valid values, the laboratory coordinator must be contacted for resolution.

2.7 CHAIN OF CUSTODY AND FIELD SAMPLE NOMENCLATURE

A systematic chain of custody and field sample identification nomenclature has been developed. Consistent nomenclature has been designed to facilitate entry, management and manipulation of field and analytical data in the Honeywell EIM system.

The chain of custody number will also be unique and will be identified as follows:

XXX – YYYYYY – ZZ

Where:

XXX	**=** Honeywell site ID#
YYYYYY	**=** Date of sample collection (051504 would designate May 15, 2004)
ZZ	= sequential sheet #

Chains of Custody will be filled out electronically and emailed to Amec (Site Data Manager) for data entry in Locus EIM on a daily basis.

Field sample identification for the Hudson County Chromium Sites will include the site number, media type, and sequential sample number as follows:

XXX – TT – ZZZ- ####

Where:

XXX	**=** Honeywell site ID **#**
TT	**=** Media Type (i.e., SB for soil boring, MW for monitoring well, WC for waste classification, WW for wastewater, TW for temporary well point, etc.)
ZZZ	**=** sequential sample number beginning with 001
####	**=** suffix with sample information such as depth (i.e., 0204) or duplicate (D).

2.8 LABORATORIES

Laboratories will provide an electronic data deliverable (EDD) to Amec (Site Data Manager) within the agreed upon turnaround time. The EDD will match the Locus EIM analytical results EDD format, and will be error free with respect to sample identification, analytical method, and parameter values. The laboratory will supply Amec (Site Data Manager) with a hard copy of the analytical report, and a validation package within 5 business days following delivery of the EDD. The laboratory will also supply a hard copy of the analytical report to a representative of Site Data Manager for QC of the analytical data uploaded to Locus EIM.

2.9 LABORATORY EDD UPLOAD

Amec EDD Uploader will upload analytical result EDDs prepared by the laboratories to the Locus EIM holding table within 3 business days of receipt of the EDD. Deficient EDDs will not be uploaded to the holding table, but rather will be returned to the laboratory for correction. Corrected EDDs will be due to Amec within 3 business days or within a timeframe agreed upon between the laboratory and the Amec EDD Uploader. Returning the EDDs to the laboratory for correction prior to upload minimizes discrepancies between hard copy analytical reports and analytical data uploaded to Locus EIM.

2.10 VALIDATION

The analytical data present in the holding table will be validated within 30 days of the EDD upload date. Following validation the analytical results will be moved from

the holding table to the Field Sample Results table in Locus EIM where they become available for user output requests. At a minimum, ten percent of the analytical results will receive a Honeywell Level IV validation and a validation report will be prepared for each sample delivery group.

2.11 QUALITY CONTROL

The project QC representative will obtain hard copy analytical reports and completed field data sheets. Ten percent of the analytical data and field data entered and uploaded to Locus EIM will be compared against hard copy.

2.12 USER OUTPUTS

Potential users of the Locus EIM system will be identified, given permissions to access the system, and be provided with training. Anticipated outputs for the project will be specified by the Remediation Manager or the Project Manager, and plans will be made to develop custom outputs internally or have Locus Technologies develop standard outputs.

TABLE

Table 1 – RACI Matrix

Each task listed below is assigned one accountable (A) individual, one or more responsible (R) individuals (those who do the work) and others who will be consulted (C) or informed (I) concerning the action.

Item #	Activities	Mafia Kaouris, Honeywell	Ed Gaven/Dennis Nagy, AMEC	Vanthuy Lieu; Andrew Shust, AMEC	Data Validator	William Colby-George, AMEC	Rene Surgi, AESI	Laboratories	Locus Focus
1	LF Implementation Proposal	I				A,R			
2	Naked EIM with Honeywell valid values			I		I			A,R
3	SVG map import			I		C,I			A,R
4	Abbreviated Data Management Plan	I	C,I	A,R		C,I	I		
5	Laboratory approval		C,I	I			A,R	I	
6	Historical soil analytical import								
7	25% QC of historical soil analytical				R				
8	Historical groundwater analytical import								
9	25% QC of historical groundwater analytical				R				
10	Historical groundwater liquid levels import								
11	Historical groundwater field parameters import								
12	Monitor well construction data import								
13	Monitor well TOC survey data import								
14	Boring log data import- NA								
15	Contact data (consultants, client, regulators, etc.)		A,R	I					
16	Site specific action limits		A.R	I					
17	Historical air discharge analytical import								
18	25% QC of air discharge analytical				R				
19	Historical air discharge monitoring data import								
20	Historical groundwater discharge analytical import								
21	25% QC of groundwater discharge analytical				R				
22	Historical groundwater discharge monitoring data import								
23	DMR module implementation (if applicable)								
24	eWell implementation								
25	Work Plan	I	A,R					I	
26	Sampling and Analysis Plan- ACC		A,R				C,I	I	
27	Quality Assurance Plan ACTD		A,R	I					
28	L-F Sample Planning w/ Electronic COC		C,I	A,R			C	I	
29	Sampling coordination & preparation		I					A,R	
30	Sample & field data collection		C,I	I				A,R	
31	Upload eWell data								
32	Submit COC for upload		I	I				A,R	
33	Review COC and field data prior to L-F input			A,R					
34	Input COC and field data to L-F			A,R					
35	Send COC text file to lab			A,R				I	
36	Archive COC			A,R					
37	Laboratory sample receipt confirmation			I			A	R	
38	Laboratory EDD preparation including EDD Checker			I			A	R	
39	Compare laboratory confirmation against COC			A,R					
40	10% QC laboratory EDD against laboratory hard copy report			A,R	R				
41	Archive hard copy lab report			A,R					
42	Upload laboratory EDD to L-F		I	A,R					
43	Resolve laboratory EDD errors	I		A,R			I	I	
44	Archive laboratory EDD (outside L-F)		I	A,R					
45	Manage unvalidated analytical data		I	A,R					
46	Validate analytical data in L-F		I	A,R					
47	Review validation flags and lab issues			R			I	I	
48	Resolve issues with laboratory contract compliance			I			A,R	I	
49	Manage data output requests	I	I	A,R					C
50	Manage requests for data changes	I	C,I	A,R					
51	Maintain L-F site setup including valid values			A,R					
52	Manage new L-F data requirements	I		A,R					C

FIGURE

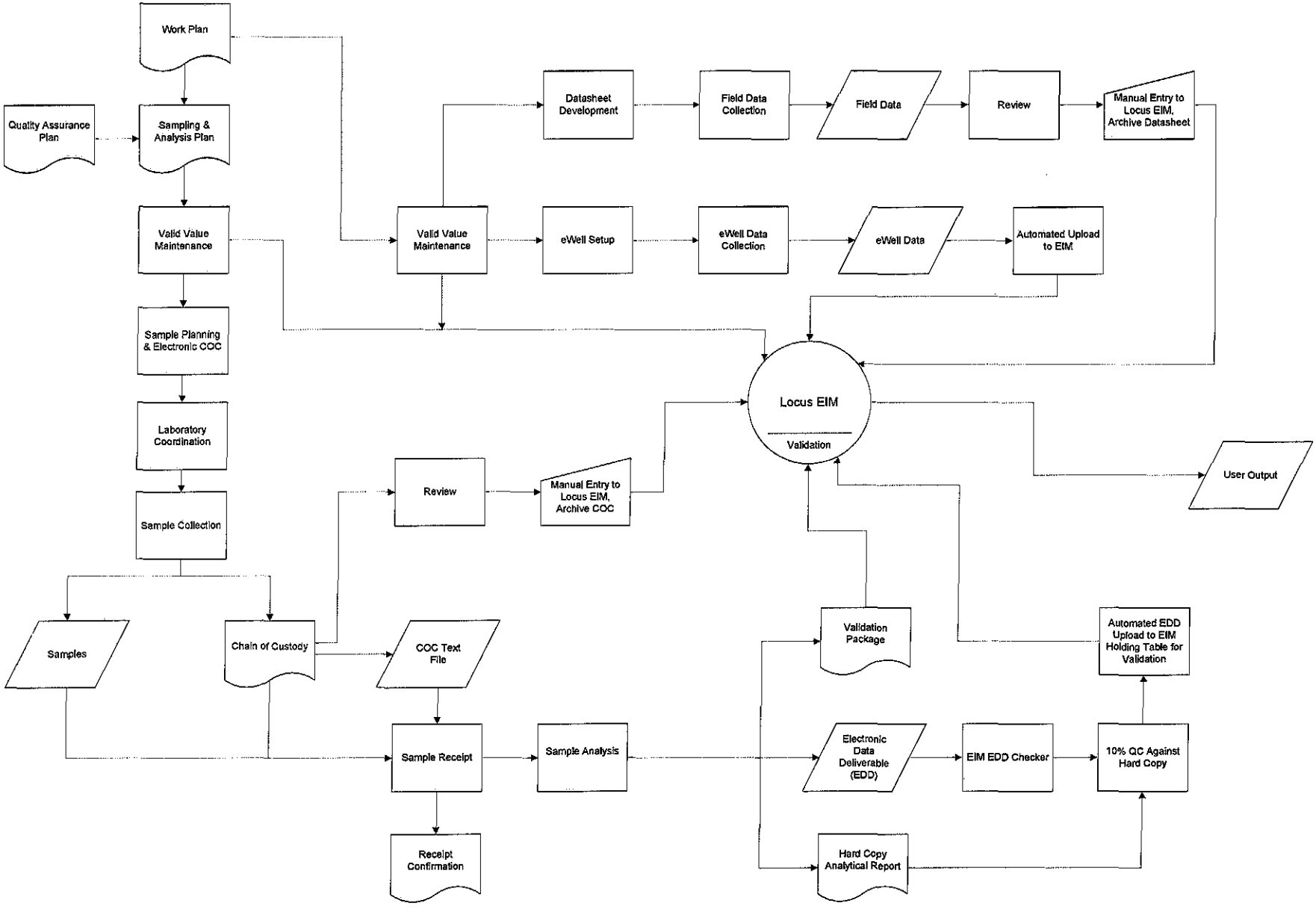

Figure 1 – Generic Data Management Process Flow Diagram

APPENDICES

APPENDIX A

LIST OF HONEYWELL SOPS AND REFERENCE DOCUMENTS

LocusFocus EIM™ Training

http://www.locustec.com/eim

Standard Operating Procedures — Highlights —

March 17, 2004

Honeywell

—HIGHLIGHTS—

SOP 1 – EIM IMPLEMENTATION

Definition:

Project activities conducted prior to migrating site to EIM, including:

- Timing data migration based on project activities and upcoming field events
- Determining what legacy data to migrate
- Defining data management approaches or creating data management plans
- Ensuring proper resources and training
- Discussing reporting or output requirements
- Assessing QA/QC and data validation requirements
- Determining management and oversight processes.

What Data Types Can Be Migrated To EIM?

EIM manages a wide range of data types and can be expanded if needed. Data guidance can be obtained from Locus and both electronic and hard copy can be migrated. Current data types include:

- Analytical data, including QC data, water levels, and soil gas
- Geologic data and lithology, well construction, cone penetrometer data
- Field parameters (such as pH and dissolved oxygen)
- Locations

What Are The EIM Implementation Steps?

EIM™ Implementation Checklist	Reference
Preliminary Step: • Honeywell Environmental Data Management Plan	Honeywell Data Management Plan
Step 1: Review: • Site Data Requirements • Reporting Requirements • Data Review/Analysis Requirements • Administrative Oversight, Management Requirements • QA/QC Requirements	SOP 1 SOP 3 SOP 9 SOP 4 SOP 5, 9 SOP 4, 7
Step 2: Identify: • Database Users & Access Privileges	SOP 10
Step 3: Determine • Database Structure and Applicable Settings • Site Settings • Valid Values	SOP 2 SOP 3 SOP 8
Step 4: Communicate: • Analytical Reporting Requirements to Laboratories and "Zero Tolerance" of EDD Errors • New Procedures to Team Members	SOP 6 SOP 6 DMP & SOPs
Step 5: Setup • Location Groups, Analytical Groups, etc.	SOP 3 -5
Step 6: Implement • Feedback Systems • Notification Procedures • Best Practices	SOP 1 & 10

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—HIGHLIGHTS—

SOP 2: STRUCTURAL SETTINGS

Definition:

Database Settings allow database administrators to custom configure EIM™ to control how information is stored in the database and how data reside in a structural setting (i.e., which database tables, how many and of what types). For most users, the importance of **Database Settings** is limited to how the configuration of the database will either limit or enable users to tailor aspects of EIM™ to accommodate differences in the data management requirements among various sites or on an individual site basis.

How Honeywell EIM is Set Up:

The Honeywell EIM is one database with multiple individual sites (such as Portland, Waste Beds, Eatontown, etc.). In EIM terms, it is a multi-site database. As such, it allows certain settings to be configured for all sites, and allows certain types of cross-site analyses.

Database Option Settings:

Because the Honeywell EIM is a multi-site database, sites can share certain setups, such as action limits, parameter displays, and QA program settings. Ask Locus about sharing these types of settings when setting up a new site.

EIM is also set up with options for sites to configure site or project specific structural database settings for the purpose of customizing how data are presented in the database.

Databases have certain innate “rules” in how data are presented. Often these “rules” can make intuitive use of the database more difficult. EIM has the ability for users to configure these types of reporting and grouping options to make output and reporting easier. EIM comes “set up” with options “flagged” to allow individual sites the ability to configure options.

Different Settings in EIM:

Honeywell’s EIM will let sites share or have site specific settings for

Custom Columns	Default Values
Reporting Units	Parameter Lists
Location and Parameter Sort Options	Lab and Lab Method Lists
Valid Value and Action Limit Lists	Validation Settings
Parameter Groups/Sequences	Project Analytical Groups
QA Program Set Up	Solid Sample Parameters and Well with Multiple Screens

How to Use Settings:

For most EIM users, database settings will be in the background and no action or changes will be necessary. “Super Users” must work with the project team to develop database settings that will provide a greater level of flexibility and customization to meet project requirements. For assistance with any structural settings, contact Locus who will both explain the options and help users create settings to meet project needs and requirements.

Questions? Call 1-925-906-8100 or e-mail EIMHELP@locustec.com

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—HIGHLIGHTS—

SOP 3- SITE SETTINGS

Definition:

Administrators use **Site Settings** to configure EIM™ to uniquely manage and process the data from each of the sites in a database. **Site Settings** tailor certain aspects of EIM™ to accommodate differences in the data management requirements among various sites or on an individual site basis. ***Only individuals with Administrator privileges will be able to view and access site settings***.

Site Settings are used to determine, for example:

- Which versions of various screens are displayed
- How dates are formatted
- Whether location aliases exist and are to be used
- How EDDs in general, and analytical data uploads in particular, are to be processed

Site Setting Options:

The following options can be set up for individual sites in the database:

- Chain of Custodies
- Date format (primarily for data entry or for reporting)
- Location aliases
- Number of locations at site
- Review EDDs before upload to destination tables
- Track changes to analytical data
- Track laboratory analyses
- Validate analytical data

Each of these options has settings that can be adjusted for site-specific reporting and data analysis needs.

Key Site Settings for Quality Assurance:

Manual Review of EDDs - The site can be set up to require that all EDDs being uploaded require a review and manual upload to the database. This will impose an extra review step before EDDs are submitted to the database but is recommended curing implementation of new projects.

Track Changes to Analytical Data - Use this option to record any changes that are made to analytical EDDs after they have been inserted into their destination tables. The information that EIM tracks when this option is activated includes the name of the individual who made the change, and the date, nature of, and reason for the change.

Track Laboratory Analyses – Allows users to track each line item on a COC.

Validate Analytical Data – Allows sites to validate analytical data using EIM with several options for the type and level of validation checks.

Default Settings:

Each Honeywell site is set up by default to create an audit trail for deletion of EDDs and requires manual EDD review. For assistance setting up validation settings, contact Locus.

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—HIGHLIGHTS—

SOP 4 – GENERAL PROCEDURES

Definition:

The key steps and information needed to enter sample collection, chain of custodies and other data and information into EIM. Most information is entered to EIM via electronic data deliverables (EDDs) or by using data entry forms in EIM. Most data entry can be printed and QC'ed.

Enter Sample Information Before Loading EDDs:

EIM requires that certain information be **set up in advance** before data can be entered. The following information must be set up in the EIM database for each sample before field or analytical results can be entered:

- Sample ID – Must be unique for regular and QC samples
- Location ID (or name) – must be unique
- Sample date and time
- Sample purpose – regular, blank, duplicate, etc.
- Sample matrix – air, water, soil, etc.
- Sample type – groundwater, soils, air, sludge, etc.

This information is entered using [**INPUT, SAMPLES, FIELD SAMPLES**]

Enter Water Levels:

Four fields are required:

- Location ID
- Measurement Date and Time
- Dry – Yes/No

Data entry forms are found at [**INPUT, SUBSURFACE, GROUNDWATER LEVELS**].

Enter Chain of Custody Information:

Entering COC information is optional beyond the information required as part of the basic sample entry (see above). However, entering more information, such as the **COC number**, **shipping date**, and **lab**, as well as the individual samples and/or requested analyses appearing on each COC will help projects use the full functions of EIM to track samples, QC partners, and other important information.

Printing COCs and Sample Labels (Optional):

Custom COCs and samples can be developed in EIM to expedite sampling activities. Evaluate if automated COCs and labels make sense for your project.

Enter Field Measurements:

EIM has several options for users to input field measurements such as pH, temperature, and conductivity. These data are entered via forms in EIM navigating to **[INPUT, SAMPLES, FIELD MEASURMENTS].** *This process can be automated with eWell.*

Enter Lithology/Geology, CPT Data:

EIM can store geology, well construction, and lithology data for boreholes and monitoring wells. Enter data at **[INPUT, SUBSURFACE, BOREHOLE INFO OR WELL INFO or CPT DATA]**.

Confidential Data:

EIM has the ability to flag sample results as confidential to limit access. Ask Locus for more information on confidential data management.

Other Data:

EIM is flexible and can be modified to manage additional data types. Check with Locus to evaluate the feasibility of adding additional data types.

Questions? Call 1-925-906-8100 or e-mail EIMHELP@locustec.com

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—HIGHLIGHTS—

SOP 5 – MANAGING THE SAMPLE PROGRAM

Definition:

The **Sample Planning Module** is option in EIM, but is strongly recommended for complex projects or recurring events. Sampling event coordinators or planners can use the Sample Planning Module to plan and schedule sampling events. These events can either be one-time events or events that occur at regular or irregular intervals, such as quarterly groundwater monitoring programs. Using the Sample Planning Module can be highly beneficial in managing your project and ensuring project objective are met.

Why Use Sample Planning?

Consider using Sample Planning for regular repeat sampling events, such as routine quarterly sampling. Advantages include:

- Fewer data entry errors
- Lower data entry costs
- Improved sample tracking for planned samples
- Better communications between field, lab, and office personnel
- Improved scheduling and work load-leveling

EIM's sample planning module is best used for large projects and routine, repeated sampling events where planning and one-time set up will provide cost-savings benefits. Scaling up for a remedial investigation phase, routine quarterly sampling, and O&M sampling are typical programs where sample planning can show real benefits.

Required Information:

Required information for setting up sample planning:

- Locations, types, matrices, sample purposes, and analyses
- Names and IDs of the laboratories scheduled to perform the analyses
- ***Project Analytical Groups*** to be able to use EIM's Sample Tracking features (see below)

Build The Sampling Program:

You build the sampling program by specifying analyses, including field QC samples that are to be performed on individual or groups of locations. For example, you might set up a sampling program for quarterly groundwater sampling for off-site wells as defined by a Location Group.

Schedule the Samples:

You can schedule the sampling events that will be displayed in EIM's calendar function to check what is planned and get information about the sampling events.

Create and Store the Records:

The final step is to use EIM's database engine to create and store individual records for each planned sample and each planned analysis. With this information, you can create **work lists**, **preprinted sample collection logs,** and **Chain Of Custody forms**.

EIM's Two Types of Sample Tracking Features:

1. **Lab Performance** - EIM can track whether a laboratory EDD reported all analyses that were requested. This is essential to ensure your project objectives are met and will help you avoid costly mistakes. This level of tracking requires that COC information on samples and analyses be recorded in EIM.

2. **Field Performance** - EIM's Sample Planning Module lets you track if you collected all the samples that were planned. This feature requires the project site database be set up properly using EIM's project analytical groups feature.

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SOP 6 – LABORATORY REPORTING REQUIREMENTS

Definition:

Honeywell has defined requirements for analytical laboratories to produce, upon demand, electronic data deliverables (EDDs) for Honeywell projects. These requirements standardize all EDDs and specify valid values for parameters of interest at Honeywell sites. Laboratories are contractually required to deliver an error-free EDD.

Why Standardize to an EIM Format EDD?

Standard EDDs help save Honeywell money by decreasing the time to input data to EIM and creating standardized reporting for parameters across sites. Time to load a standard EIM EDD is just minutes. Time to load a non-standard EDD can take up to an hour.

What Does The Standard EDD Specify?

The Honeywell EDD is a 42-character ASCII file. A complete list of required fields is in **SOP 6, Laboratory Reporting Requirements**. The EDD contains both analytical results and the necessary laboratory quality assurance information to allow data validation. EDDs are produced by laboratory information systems and require coordination with the laboratory to ensure the EDD is in the correct format.

Defined EDD Valid Values:

Honeywell defined standard valid values or codes for the following elements to ensure standardization across sites:

- QC designations
- Parameter codes and parameters with no CAS numbers (such as pH)
- Laboratory qualifiers
- Various laboratory codes, such as sample purpose and result-type codes

How To Get EIM EDDs:

All Honeywell laboratory partners were sent the EDD specification and a means for testing in 2003. Laboratories affirmed they were able to produce the EDD and were provided a "self-checker" to ensure the format was correct.

In practice, laboratories must be notified in writing when you are ready to receive EIM EDDs and those EDDs must be tested to ensure they are in the correct format. EIM provides tools for both parties to check format.

We suggest you confirm the laboratory can produce EIM EDDs early in the process well before a deliverable is due, to ensure the laboratory is complying with Honeywell requirements.

Important Note: *It is the responsibility of the project data manager to ensure that the consultant has entered required sample information in the database prior to upload of the laboratory EDD*.

Tools To Check EDDs:

The EIM EDD Checker is available to all laboratories free of charge. The EIM eUpload module that allows users check and fix EDDs prior to loading.

Important Note: *Honeywell EIM is set up so that all EDDs are uploaded to temporary tables of the database when first loaded. They are not moved into the permanent database until the project database users approve the EDD. EIM does allow EDDs to be deleted, but EIM maintains an audit trail and copies of any deleted EDDs for additional security.*

Questions? Call 1-925-906-8100 or e-mail EIMHELP@locustec.com

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—HIGHLIGHTS—

SOP 7 – UPLOADING EDDS

Definition:

The process and functions associated with importing or "uploading" electronic data deliverables (EDDs) into the EIM system. EDDs can be from analytical laboratories (the most common) or be created for any other routine data upload such as field parameter, boring logs, well construction details, or survey locations. Each Honeywell site database has been pre-configured for the EIM EDD format (See **SOP 6, Laboratory Reporting Requirements**).

Prerequisites for Uploading EDDs:

Before EDDs can be uploaded, the project team must:

- Check and configure their EIM site database for valid values, and other set ups (ask Locus for help if needed)
- Inform the analytical laboratory to begin submitting EIM format EDDs
- Enter field sample information (ID of each sample, location, date and time, and type, purpose, and matrix

Tools for Checking EDD Format – Labs:

Locus has a web-based EDD checker that was provided to all laboratories for them to check if their EDDs met Honeywell format requirements. Labs can recheck their formats at anytime.

Uploading EDDs to EIM:

Project team data managers, Locus, or other EIM-trained individuals can upload EDDs. When EDDs are uploaded EIM will do the following:

- Perform checks on file format and identify areas where there are errors
- Allow you and others to view and edit the file
- Allow you to place EDDs in temporary tables until final approval
- Allow you to perform a range of checks to review data prior to loading to EIM, including QC checks

Deleting EDDs:

EIM will allow users above certain privilege levels to delete EDDs. To prevent data loss, EIM keeps a copy of the deleted data and creates an audit trail for any deleted data.

Solving EDD Issues:

When any project team begins receiving a new EDD format for a new process, there is typically some learning curve for both the vendor and laboratory partners. For this reason, allow some time for the project to coordinate with the laboratory and ensure the formats and valid values are correct. Once the laboratory has EDD formats down, most problems, if any, are easily solved by ensuring that required field sample information is in EIM before the EDDs are loaded. Locus's ***Common Analytical EDD Errors*** along with corrective actions is posted on www.myresinfo.com.

Remember…help is available for EDD issues and most problems can be solved quickly by working with the labs and the project team.

Using EIM's EDD Formats To Standardize Any Routine Data Entry:

EIM can automate any routine data entry by using user-created EDD formats. Any data from an electronic source (typically Excel files) can be standardized and new EDD formats created. Using EDDs will reduce data entry time and reduce data entry errors.

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—HIGHLIGHTS—

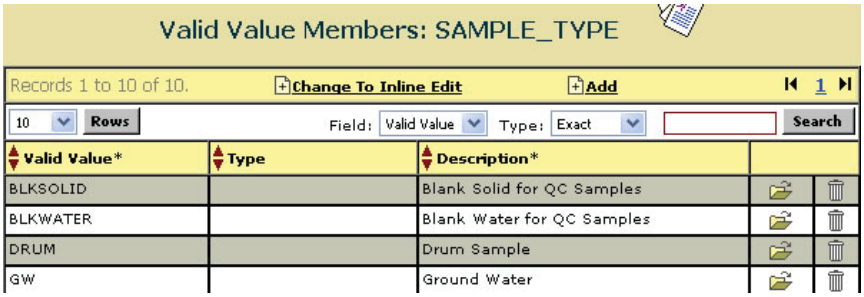
SOP 8 – VALID VALUES

Definition:

Valid values are a critical element to the EIM system. Valid values are lists of values that determine the types of data, the range of values, the data labels, and the names that are accepted into the system. Honeywell has created a standard set of valid values for EIM (see **SOP 6, Laboratory Reporting Requirements)**. Valid values allow consistency across Honeywell site databases (e.g., all groundwater samples are coded the same, and all data validation qualifiers are coded the same) and allow Honeywell to perform queries across the databases. ***Valid values are a key element in maintaining the integrity and usefulness of any relational database.***

Typical Valid Value Types:

EIM contains more than 60 different valid value categories to help manage data. Typical valid values include analytical method codes, aquifer names, sample matrix, sample type, validation qualifiers, drilling methods, etc. A list of the different valid value types are included in **SOP 8 – Valid Values**.



Example of a typical EIM "grid" to add or edit new valid values. In this example, valid values are being defined for different location types on Honeywell sites.

Unit Conversions:

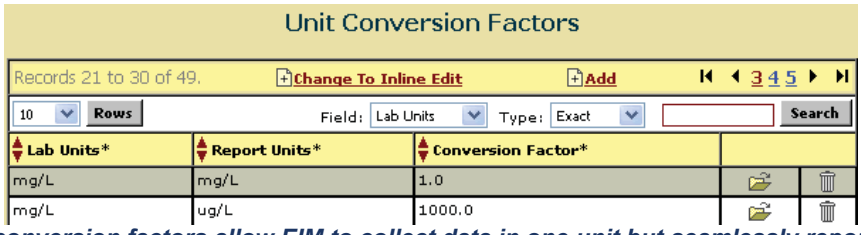
EIM has the ability to convert units received from electronic input to units that users want to see in reports. For example, the laboratories report data in µg/L, but you want to report consistently in mg/L. EIM will perform the conversions for you using ***valid value unit conversions***.

Well Measurement Cross References:

EIM has the ability track water levels, whether they are collected with a tape or a probe. Well measurement cross-references make this conversion so different measurement types will report information in reports in a uniform way for data analysis and reporting.

Project & Task Valid Values:

EIM lets users enter project and task names to help track samples and report data. These are site-specific valid values, and Honeywell can identify project codes and names to make reporting data easier.



Unit conversion factors allow EIM to collect data in one unit but seamlessly report it in another unit once the Unit Conversion Factors are defined

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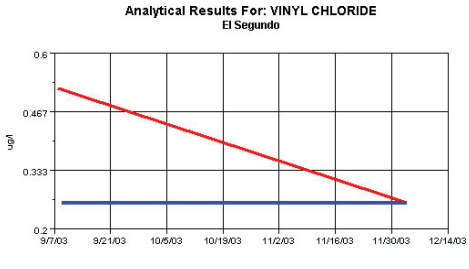
SOP 9 – OUTPUT OPTIONS IN EIM

Definition:

EIM has many ways to get data "out of EIM". Output options include pre-formatted reports, custom wizards, cross-tab reports, Scalable Vector Graphics (SVG), and various graphics options.

Output options are available in most of EIM's modules and are indicated by  a writing icon for a text file output and  icon for an output to Excel. The primary way to get data out of EIM is either with EIM's **Output Module** or SVG. Cross-tab reports are discussed separately in ***SOP 9.5 EIM Cross-Tab Outputs***.

Types of Outputs in Output Module:



Example trend analysis for single parameter at Honeywell Site

EIM™'s **Output Module** has the following output options for EIM data:

- Standard queries
- Excel/ASCII Cross-Tab reports
- Custom queries
- Regulatory deliverables (NJDEP, Region V)
- Graphics
- Data quality
- Reports
- Utilities

Types of Analyses EIM Can Easily Output:

EIM has many options to analyze data. Some options include:

- Calculate and display summary statistics
- Analyze trends
- Determine exceedances
- View subsurface data
- Create plots
- Perform advanced SQL queries
- Evaluate data quality and laboratory reports
- Create graphics including SVG and trend plots
- Holding times
- Custom reports such as DMRs or specialized exceedance reports

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SOP 9.5 - EIM CROSS-TAB OUTPUTS

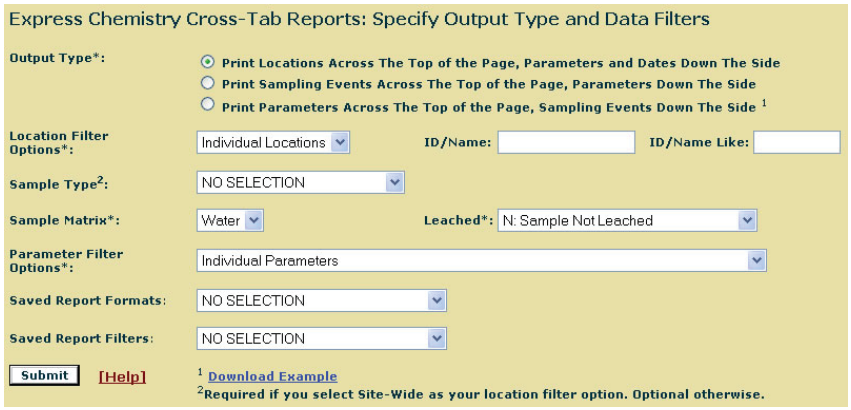
Definition:

A report in which the data are organized into columns and rows. Most Excel files are examples of Cross-Tab reports. They are the most common types of outputs people create from EIM and other programs. They give you a lot of options for outputs, data presentation, and formatting

Types of EIM Cross Tab Reports:

Express Report – Quickly generated in one action by a single query to the database, which makes it a fast report to create especially for very large databases. Outputs only to ASCII and Excel.

Standard Report - A different database query is required to populate each cell of the report, where a cell is the intersection of a column and a row. Standard reports always take more time to generate then express reports, but can be viewed on screen in EIM.



Some of the many options for creating a custom cross-tab report

Types of Options For Defining the Cross-Tab Report:

EIM provides many ways to filter the data and create very specific reports. Data filters include matrix, locations, sample types, output formats, parameters, and groups of parameters and locations. EIM also allows you to save report formats and filters to save report preparation time.

Quickly Formatting the Cross-Tab Report For Presentation:

Locus provides a free Excel add-in tool to help users quickly format cross-tab reports in Excel. This tool will take an EIM output, automatically format the spreadsheet, add logos, page breaks, etc for a quick professional report. This tool also includes an exceedance report tool to quickly generate an exceedance report compared to action limits defined in EIM. Formatting options include:

- Footers
- Logos
- Exceedances

A report suitable for a deliverable can be created quickly in a matter of minutes without any of the QC necessary when typically transcribing data from hard-copy sources.

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SOP 10 – ACCESS RIGHTS AND PRIVILEGES

Definition:

Access - EIM controls access to the database through the use of registered users and individual passwords. No one can access any part of EIM without a user name and a password supplied by Locus.

Privileges – Defined levels to which users are assigned to control their activities in EIM. Privilege levels allow or limit a users ability to perform certain functions to the data in EIM or see certain options in EIM, such as data base administration options or quality assurance options. EIM has 6 privilege levels.

EIM™ Privilege Level Descriptions:

EIM™ Privilege Level	Description
System Administrator (Locus Technologies)	The ***System Administrator*** has unlimited access to all aspects of the system. He or she can add, delete, or modify usernames and passwords; add, delete, or modify any of the information in the system tables in the database; extend copy database privileges to any database; and make changes to the on-line help system.
Administrator	***Administrators*** can add, delete, or modify usernames and passwords in their specific databases; alter settings reflecting the status of their databases; and add, delete, or make modifications to any records in their database.
Manager	***Managers*** can add, delete, or make modifications to any records in their database other than those that pertain to the status of the database itself or site-specific settings. They do not have any administrative privileges pertaining to the creation of users.
Supervisor	***Supervisors*** have access to the same options as Managers and have virtually the same privileges in the Sample Planning, Input, and Output modules. However, they cannot do much in the way of Setup nor can they alter analytical records after they have been uploaded into their permanent destination tables.
Operator	***Operators*** can enter and edit some data, but they are largely excluded from any Setup functions (other than viewing selected entries) and they cannot change analytical data once it has been entered into the system. Operators have full access to all options in the Output module
Guest	***Guests*** can only view selected data in the Setup, Input, and Output modules. They have no data entry or editing privileges.

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SOP 10 – ACCESS RIGHTS AND PRIVILEGES

Who Authorizes Access to EIM:

Honeywell Remedial Project Managers and Vendor Alliance Site Managers at Honeywell sites are the only persons who can authorize access for their site database. Permission should be requested and confirmed in writing and kept in project administrative files as a permanent record.

Who Determines Privilege Levels?

Honeywell or Vendor Alliance project managers shall inform Locus of the required privilege level based on project roles and responsibilities.

Managing Passwords:

Each user can change their password as often as they wish. Passwords shall be changed in accordance with Honeywell requirements as specified by Honeywell project managers. Projects are responsible for managing passwords and use. **DO NOT SHARE PASSWORDS. Locus can provide a list of users on a routine basis for project manager review. If you want such a list, contact eimhelp@locustec.com for assistance.**

Terminating Users:

Everyone is responsible for security in EIM. Honeywell must inform Locus to terminate EIM users, when appropriate. Typical reasons include

- Termination of employee
- Reassignment
- Resignation
- Change of assignment for guests (such as access for regulatory agency personnel)

Changing Your Password in EIM and LocusFocus Library:

- Navigate to [CHANGE, PASSWORDS]
- Select one of the available options, including changing password for LocusFocus as well
- Follow prompts to reenter password
- Click **Submit**

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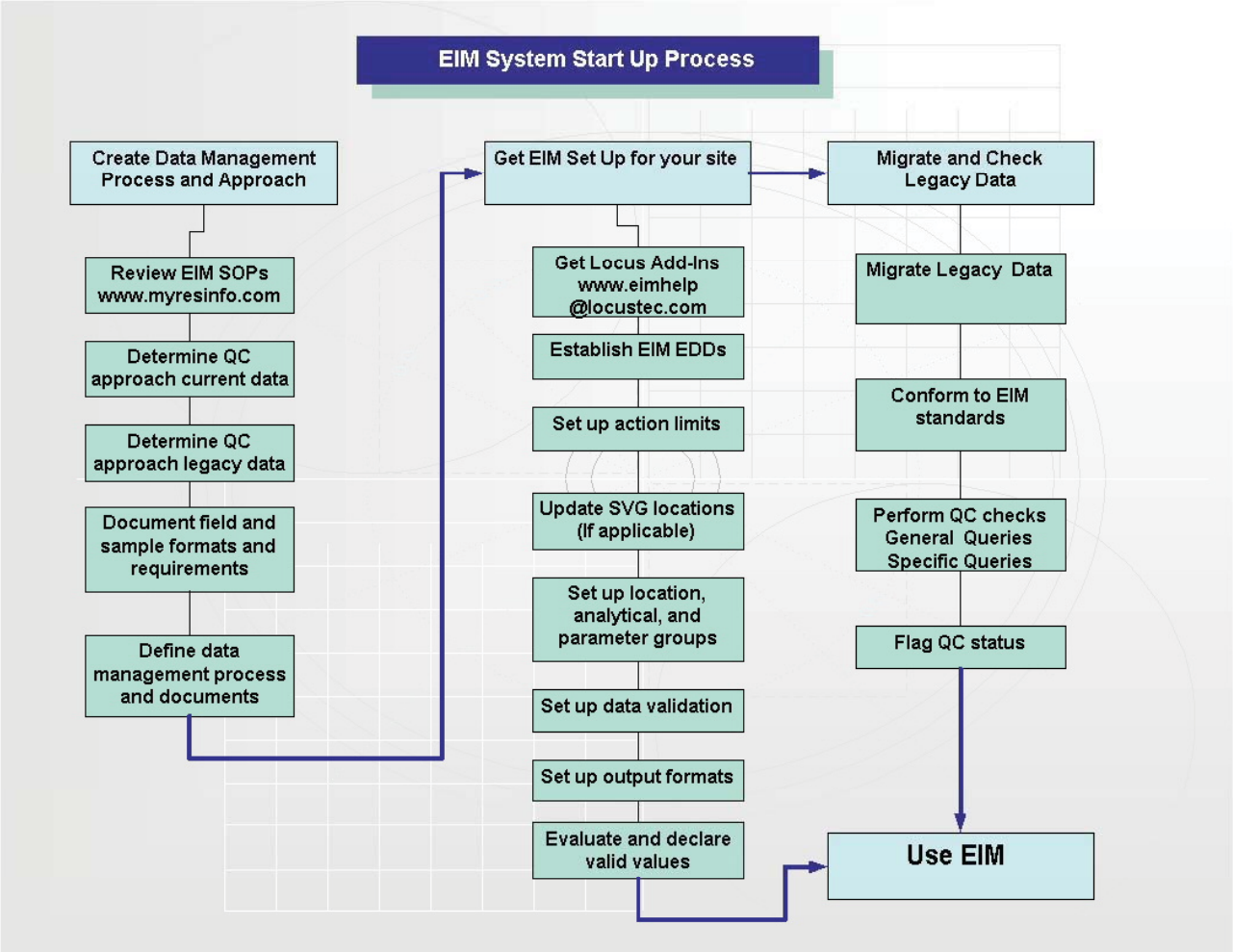
SOP 11 EIM SYSTEM STARTUP



These are the steps typically involved in creating the EIM data management process at each site. Guidance on each step of the process is outlined in **SOP 11, EIM Start Up Guidance.**

Key areas for managers include:

- Identifying a capable data manager to meet project or portfolio needs
- Ensuring proper and adequate training
- Ensuring proper EIM setup to meet project output and reporting requirements
- Ensuring laboratory performance for all requirements including EDDs
- Establishing and maintaining clear communications and coordination among project teams
- Providing feedback as requirements and data management needs evolve

Information and specific guidance on legacy data migration is presented in **SOP 11.5, Migrating Legacy Data**.

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SOP 11.5 – LEGACY DATA MIGRATION

Definition:

Legacy data are those project data collected over the course of site investigations and may include a combination of electronic data and hard copy of varying quality and usability.

Typical Legacy Data Issues:

Typical issues found in legacy data sets include the following:

- Duplicates and inconsistent valid values
- Inconsistent location coordinates and non-standard location coordinates
- Missing validation qualifiers and lab QC data
- Missing key information, such as sample location and sampling date

What Happens During Data Migration?

Locus evaluates data sets for missing key information and format. Data are reformatted for import to EIM, existing data fields are mapped to corresponding fields in EIM, and data are imported. Detailed record counts are performed. A Data Migration Report is produced that documents how the data were migrated and any issues that were identified. The project team may be contacted during the migration to address any questions that may arise.

What Should Be Done After Data Migration?

The data manager is responsible for performing a quality control check on the data migration. Review the **Data Migration Report** and make sure you understand all the data issues identified in the report.

Recommended QC Checks:

Projects may want to perform general checks on whole data sets and perform specific data quality reviews on approximately 10% of the data sets.

Suggested types of ***general checks*** include:

- Review sample type codes such as "NA"
- Review locations
- Check of missing laboratory qualifiers
- Review records for a single parameter such as the key contaminate as the site
- Check record counts

Suggested ***specific data quality reviews*** include:

- Compare 10% or less (depending on site-specific QC requirements) to original data sources OR
- Compare 10% or less to secondary data sources, which is least desirable but may be the only available option

QC Status Flag:

EIM allows data managers to "QC Flag" data sets to indicate if QC has been performed. This option allows projects to immediately use EIM for current data and QC legacy data as project needs and budgets allow.

Once data are in EIM™ and reviewed, Honeywell assumes that the data are of known quality, are correct, and can be used for applicable site purposes.

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APPENDIX B

EXAMPLE CHAIN OF CUSTODY

Honeywell Chain Of Custody / Analysis Request

AESI Ref:	39406.43797		
COC # :	99999-mddyy-1		
Lab Use Only			
Lab Proj #			
Lab ID	Accutest-NJ		
PAGE 1 of	1		
Job No.			

Privileged & Confidential

EDD To: Brent O'Dell/bcodell@mactec.com

Site Name: Honeywell Highland Park

Location of Site: Highland Park, NJ

Client Contact: (name, co., address)
MACTEC Engineering and Consulting, Inc.
14 Washington Road, Building 1 First Floor
Princeton Junction, NJ 08550

Sampler: MACTEC
P O # ?????
Analysis Turnaround Time: 14
Standard -
Rush Charges Authorized for -
2 weeks - Y
1 week -
Next Day -

Hardcopy Report To: Brent O'Dell (see above) bcodell@mactec.com

Invoice To: Brent O'Dell (see above) bcodell@mactec.com

What is in the Text File? Mouse over here.

Written and maintained by AESI (Ver 3_7) 02-01-05 renesurgi@aol.com

	Sample Identification				Sample Date	Sample Time	Sample Type	Sample Matrix	Sample Purpose	# of Cont.	Grab/Composite	Field Filtered Sample ?	Preservative: TCL VOCs	Preservative: PCB	Lab Sample Numbers
	Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID							Units				
1	AOC#-001	0	0.5	Site#-SB_001	3/9/2005	11:50	SOIL	Soil	REG	3	grab		x	x	
2	AOC#-MW#			Site#-MW#_002	3/9/2005	5:30	GW	WATER	REG	2	grab		x		
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

Relinquished by F. Rooney	Company	STL	Received by	Company		Condition	Custody Seals Intact
	Date/Time	3/9/05 16:45		Date/Time		Cooler Temp.	
Relinquished by	Company		Received by	Company		Condition	Custody Seals Intact
	Date/Time			Date/Time		Cooler Temp.	

Preservatives: 0 = None; [1 = HCL]; [2 = HNO3]; [3 = H2SO4]; [4 = NaOH]; [5 = Zn. Acetate]; [6 = MeOH]; [7 = NaHSO4]; 8 = Other (specify):

REVISED PAGES FROM AUGUST 2014 REVISED DATA MANAGEMENT PLAN

It is anticipated that the field quality control audit, if conducted, will be performed soon after field startup to identify and rectify any potential problems early in the program. If changes to the approved quality assurance program are necessary following startup of field activities and completion of the initial field quality control audit, additional field quality control audits may be conducted during subsequent sampling activities.

7.2 DATA VALIDATION

Laboratory analytical data will be subject to data validation to ensure laboratory compliance with quality assurance requirements of the selected analytical methods. Generally, there are four (4) levels (Levels I, II, III, and IV) for data validation employed on Honeywell projects. Level IV data validation will be conducted for all (100%) samples analyzed for total and hexavalent chromium using the data validation guidance documents below:

- NJDEP. 2002. Standard Operating Procedure (SOP) entitled Quality Assurance Data Validation of Analytical Deliverables for Inorganics (based on USEPA SW-846 Methods), SOP No. 5.A.16. Trenton, New Jersey;
- NJDEP. 2001. Standard Operating Procedure for the Completion of the Data Validation Report Forms and the Preparation of the Final Data Validation Report, SOP No. 5.A.15, Trenton, New Jersey;
- NJDEP. 2005. Standard Operating Procedure for Analytical Data Validation of Hexavalent Chromium, SOP No. 5.A.10, Revision 2, Trenton, New Jersey
- NJDEP. 2001. Standard Operating Procedure for the Completion of the Hexavalent Chromium Data Validation Report Forms and the Preparation of the Final Data Validation Report, SOP No. 5.A.09 Trenton, New Jersey.

Level IV data validation stipulated above will be conducted on samples analyzed for total and hexavalent chromium that are used for compliance, such as those categorized as follows (or equivalent):

- Any post-excavation soil samples collected in accordance with the criteria stipulated in the 100% Design Report; and

- Any samples from soils to confirm reuse criteria stipulated in the 100% Design Report for backfill in the Residential Area excavations (i.e. <20 mg/kg hexavalent chromium).

Level II data validation will be conducted on batches of samples (approximately equivalent to a 25% sample frequency) analyzed for total and hexavalent chromium that are used for non-compliance purposes, such as those categorized as follows (or equivalent):

- Any samples from soils that will be consolidated in the Open Space Area (i.e. >20 mg/kg hexavalent chromium); and
- Any samples collected from soils being disposed of off-site.

Level IV data validation will also be conducted for other analyses (non-chromium) at 10% using the data validation guidance documents below:

- NJDEP. 2002. Standard Operating Procedure (SOP) entitled *Quality Assurance Data Validation of Analytical Deliverables for Inorganics* (based on USEPA SW-846 Methods), SOP No. 5.A.16. Trenton, New Jersey;
- NJDEP. 2001. Standard Operating Procedure for the Completion of the Data Validation Forms and the Preparation of the Final data Validation Report, SOP No. 5.A.15. Trenton, New Jersey;
- NJDEP. 2001. Standard Operating Procedure for the Quality Assurance Data Validation of Analytical Deliverables - TCL - Organics, SOP No. BEMQA 5.A.13, Revision 3, Trenton, New Jersey;
- Inorganics - NJDEP. 2001. Standard Operating Procedure for Analytical Data Validation of Target Analyte List (TAL) - Inorganics, SOP No. 5.A.2, Revision 4, Trenton, New Jersey;
- U.S. Environmental Protection Agency (USEPA), 2006. "Validating PCB Compounds PCBs by Gas Chromatography SW-846 Method 8082A"; USEPA Region II Hazardous Waste Support Branch; HW-45; Revision 1.0; October 2006.