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July 20, 2018

Mr. Michael Belveg
New York State Department of Environmental Conservation
Region 7
615 Erie Boulevard West
Syracuse, New York 13204-2400

RE: Mathews Avenue Site – Request for Sampling of Emerging Contaminants

Dear Mr. Belveg:

The enclosed Emerging Contaminants Sampling Work Plan was prepared by OBG on behalf of Honeywell for your review. Please contact Tom Conklin of OBG (315-956-6408 and Tom.Conklin@obg.com) or me if you have any questions regarding this report.

Sincerely,

John P. McAuliffe by CCC

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

Attachment (1 copy, electronic copy [ec])

Cc: Tom Biel – NYSDEC Region 7 (ec)
Harry Warner – NYSDEC Region 7 (ec)
Dick Jones – NYSDOH (ec)
Shane Blauvelt – Honeywell (ec)
Chris Calkins – OBG (ec)
Tom Conklin – OBG (ec)

WORK PLAN

Mathews Avenue Site
Emerging Contaminants Sampling Work Plan

Honeywell

July 2018

OBG

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INTRODUCTION

The New York State Department of Environmental Conservation (NYSDEC) requested that groundwater be sampled and analyzed for per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane at the Mathews Avenue Site (Site) in a March 13, 2018 letter.

This work plan presents:

- Historic Site Operations and Groundwater Data Discussion
- Investigation Approach
- Data Evaluation and Reporting
- Schedule

HISTORIC SITE OPERATIONS AND GROUNDWATER DATA DISCUSSION

In light of this request, Honeywell has reviewed historic operations and prior sampling results at the Site to evaluate the potential of these compounds occurring. The Mathews Avenue Site consists of Parcel A (including the Mathews Avenue Landfill) and Parcel B. Between 1925 and 1988, the landfill was used to dispose of unburned sandstone and limestone rock (spalls) from the Solvay soda ash kiln operations, as well as demolition debris and other materials from the Honeywell facilities. Furthermore, we have no records, or reason to believe, that Honeywell facilities in Syracuse produced or used PFAS or 1,4-dioxane.

INVESTIGATION APPROACH

The proposed scope and methods associated with sampling the for PFAS and 1,4-dioxane are presented below. The health and safety plans associated with this work are also presented below.

GROUNDWATER SAMPLING

Objective: Groundwater sampling will be conducted at the various shallow monitoring wells to provide information on the presence of PFAS and 1,4-dioxane within this zone.

Approach: One round of samples will be collected from three shallow well locations (MA-MW-03, MA-MW-06S2, and MA-MW-08S) associated with the Site. The proposed sample locations are presented on **Figure 1**.

Prior to groundwater sampling, the proposed wells will be evaluated in the field to determine if redevelopment is required. Redevelopment may be required to remove sediment that may have settled in and around the well screen and will be completed with an inertial pump with disposable, high density polyethylene (HDPE) tubing and Delrin® foot valve. A goal of 50 Nephelometric turbidity units (Ntu) has been established. If this cannot be achieved, the contractor and Honeywell will coordinate with the NYSDEC to establish a mutually agreeable development volume. Development water will be contained on-site for subsequent disposal. The method of disposal will be selected based on groundwater analytical results. Groundwater sampling will be conducted a minimum of seven days after development.

The monitoring wells will be purged and sampled using an inertial pump with disposable, HDPE tubing and well-dedicated Delrin® foot valve or a peristaltic pump with HDPE and silicone tubing. At least three well volumes of groundwater will be purged from each monitoring well prior to sample collection. Groundwater quality parameters including pH, conductivity, temperature, oxidation-reduction potential (ORP), turbidity, and dissolved oxygen (DO) will be collected during the purging using a water quality meter. Specific gravity measurements will also be collected prior to collection of the analytical samples.

Once three well volumes have been purged from the well, the groundwater samples will be collected in accordance with sampling methodology provided in *Collection of Groundwater Samples for Perfluorooctanoic*

Acid (PFOA) and Perfluorinated Compounds (PFCs) from Monitoring Wells Sample Protocol (NYSDEC, 2016) and included as **Attachment A**. In addition, a list of prohibited and acceptable items for PFAS sampling is included in **Attachment B**. Samples will be collected by filling the appropriate laboratory containers with water from the dedicated tubing. The sampling equipment (*i.e.*, water level probe) will be decontaminated between locations by washing with detergent (Alconox®) and PFAS-free distilled water and rinsing it twice with PFAS-free distilled water to remove detergent residue. If a separate phase/sheen is noted during sampling activities, the decontamination process will be repeated, as needed, to ensure that the decontamination is effective.

Field reagent blanks will also be collected each day. This will be done to evaluate whether cross-contamination was introduced during sample collection and handling. The field reagent blank water will be obtained from the laboratory and be certified PFAS-free. Field notes will be used to record potential cross-contamination sources (*i.e.*, Tyvek® coveralls required by safety plans due to site conditions). Additionally, an equipment blank will be collected each day during the sampling effort.

The water samples from each location will be submitted to a New York State-certified laboratory for analysis. The groundwater samples will be analyzed for the parameters listed in the sample summary matrix provided below as **Table 1-1**.

Table 1-1 Sample Summary Matrix

Analysis	Method	Number Sample of Locations[2]
1,4-Dioxane	SW8270 SIM	3
PFCs[1]	Modified USEPA Method 537	3

Notes:
1 – The 21 PFAS listed in *Groundwater Sampling for Emerging Contaminants* (NYSDEC, 2018) will be analyzed for as part of this investigation.
2 – Number of sample locations do not include quality control (QC) samples. It is anticipated that a minimum of one field duplicate and one MS/MSD will be collected during the sampling effort. A minimum of one equipment blank will be collected daily during the sampling.

Quality assurance and quality control samples (QA/QC) will be collected at a minimum frequency of one per 20 samples. The QA/QC protocols for this program are discussed in *Honeywell Syracuse Portfolio Site Investigations Quality Assurance Project Plan* (OBG, 2011). In addition, a QAPP addendum will be developed specifically for this sampling and provided to the laboratory prior to sampling. Analytical data from the laboratory will be received in hardcopy and electronic format. The electronic data will be entered into a project database for use in preparation of summary tables.

HEALTH AND SAFETY

Health and safety procedures will be in accordance with the Honeywell Syracuse Portfolio Health and Safety Program (HSP2). Additionally, elements of the *Wastebeds 1-8 Site Health and Safety Plan* (OBG, 2003) will be used during execution of this work along with specific Job Safety Analysis (JSA) requirements. The JSA to be implemented for the investigation will be similar to those implemented for other groundwater collection system sampling activities within the Syracuse Portfolio.

All workers will be required to don a minimum of Level D personal protective equipment (PPE), including: hard hat, safety glasses, safety shoes, high visibility vest, and coveralls (where appropriate). The level of PPE required will be evaluated based on potential contact with Site materials and air monitoring in the breathing zone, as outlined in the site-specific JSA.

DATA EVALUATION AND REPORTING

Subsequent to completion of the investigation described above, a letter report will be submitted to NYSDEC for review. The letter report will summarize the field activities performed and analytical results and will include a

figure presenting sampling locations, tabulated analytic results, and recommendations for further action, if warranted.

SCHEDULE

It is anticipated that the well evaluation, redevelopment, and sampling will take 1 to 2 days to complete. A schedule for the work will be developed with the NYSDEC upon approval of this work plan.

REFERENCES

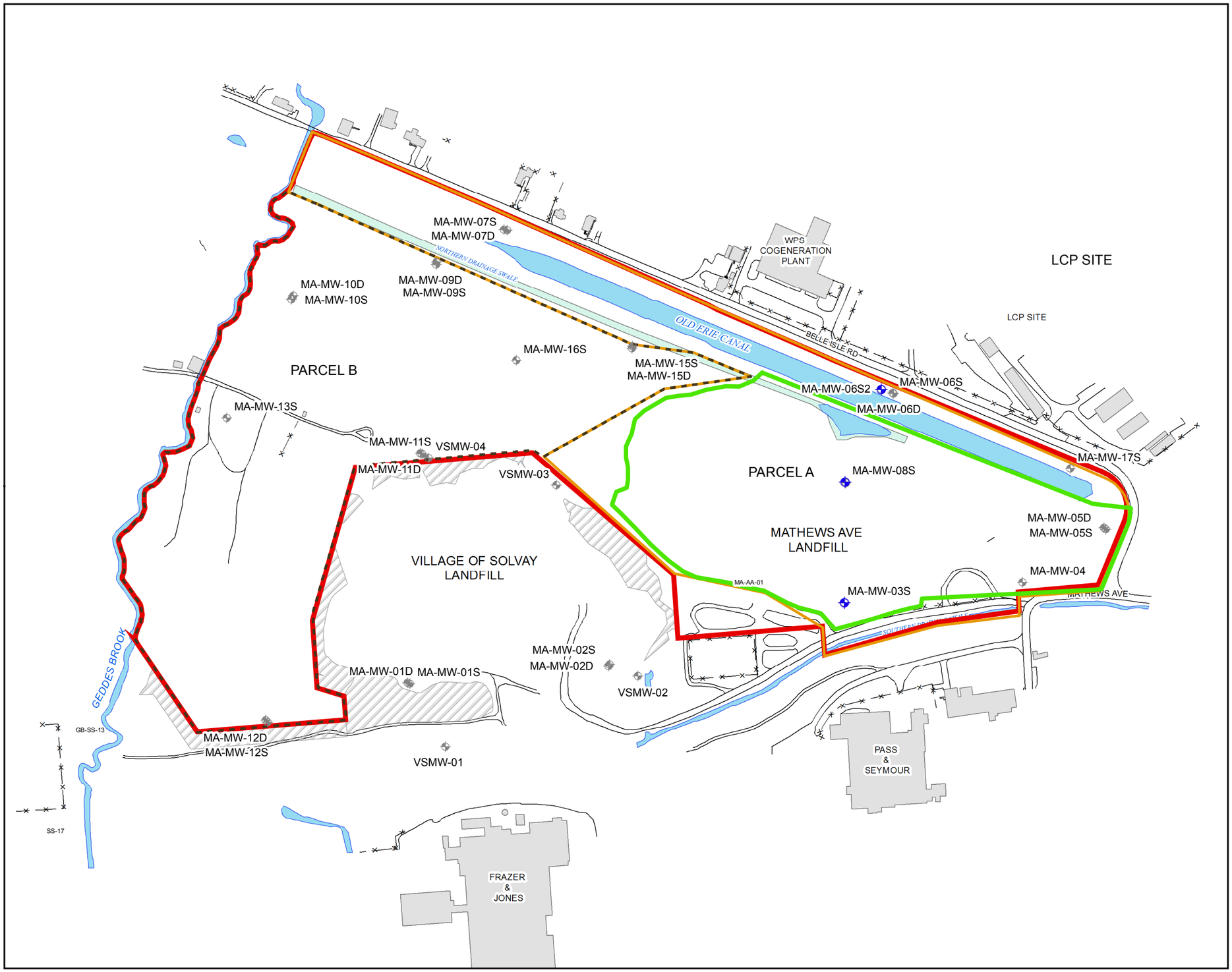
NYSDEC. 2016. *Collection of Groundwater Samples for Perfluorooctanoic Acid (PFOA) and Perfluorinated Compounds (PFCs) from Monitoring Wells Sample Protocol, Revision 1.2.* June 29, 2016.

NYSDEC. 2018. *Groundwater Sampling for Emerging Contaminants.* February 2018.

OBG. 2017. *Honeywell Syracuse Portfolio Site Investigations Quality Assurance Project Plan Addendum*. O'Brien & Gere Engineers, Inc., Syracuse, New York. January 2017.

OBG. 2011. *Honeywell Syracuse Portfolio Site Investigations. Quality Assurance Project Plan*. *Camillus, Geddes, and Syracuse, New York.* O'Brien & Gere Engineers, Inc. Syracuse, New York. February 2011.

Figure



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LEGEND

- PROPOSED MONITORING WELL TO BE SAMPLED
- MONITORING WELL
- MATHEWS AVENUE PARCEL B BOUNDARY
- MATHEWS AVENUE PARCEL A BOUNDARY
- MATHEWS AVENUE LANDFILL
- MATHEWS AVENUE SITE BOUNDARY
- DRAINAGE SWALE

HONEYWELL INTERNATIONAL INC.
MATHEWS AVENUE SITE
GEDDES AND CAMILLUS, NY

PROPOSED MATHEWS AVENUE SITE SAMPLE LOCATIONS

0 162.5 325 650
Feet

1163.67139
JUNE 2018

O'BRIEN & GERE ENGINEERS, INC.

Attachments

Attachment A – *Collection of Groundwater Samples for Perfluorooctanoic Acid (PFOA) and Perfluorinated Compounds (PFCs) from Monitoring Wells Sample Protocol* (NYSDEC, 2016)

Collection of Groundwater Samples for Perfluorooctanoic Acid (PFOA) and Perfluorinated Compounds (PFCs) from Monitoring Wells Sample Protocol

Samples collected using this protocol are intended to be analyzed for perfluorooctanoic acid (PFOA) and other perfluorinated compounds by Modified (Low Level) Test Method 537.

The procedure used must be consistent with the NYSDEC March 1991 Sampling Guidelines and Protocols http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf with the following materials limitations.

At this time acceptable materials for sampling include: stainless steel, high density polyethylene (HDPE), PVC, silicone, acetate and polypropylene. Equipment blanks should be generated at least daily. Additional materials may be acceptable if pre-approved by NYSDEC. Requests to use alternate equipment should include clean equipment blanks. **NOTE: Grunfos pumps and bladder pumps are known to contain PFC materials (e.g. Teflon™ washers for Grunfos pumps and LDPE bladders for bladder pumps).** All sampling equipment components and sample containers should not come in contact with aluminum foil, low density polyethylene (LDPE), glass or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer. Standard two step decontamination using detergent and clean water rinse will be performed for equipment that does come in contact with PFC materials. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFC materials must be avoided. Many food and drink packaging materials and “plumbers thread seal tape” contain PFCs.

All clothing worn by sampling personnel must have been laundered multiple times. The sampler must wear nitrile gloves while filling and sealing the sample bottles.

Pre-cleaned sample bottles with closures, coolers, ice, sample labels and a chain of custody form will be provided by the laboratory.

1. Fill two pre-cleaned 500 mL HDPE or polypropylene bottle with the sample.
2. Cap the bottles with an acceptable cap and liner closure system.
3. Label the sample bottles.
4. Fill out the chain of custody.
5. Place in a cooler maintained at 4 ± 2º Celsius.

Collect one equipment blank for every sample batch, not to exceed 20 samples.

Collect one field duplicate for every sample batch, not to exceed 20 samples.

Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, not to exceed 20 samples.

Request appropriate data deliverable (Category A or B) and an electronic data deliverable.

Attachment B – Prohibited and Acceptable Items for PFAS Sampling

Table 1. Summary of Prohibited and Acceptable Items for PFAA Sampling

Prohibited	Acceptable
Field Equipment	
Teflon® containing materials	High density polyethylene (HDPE), stainless steel or polypropylene materials
Low density polyethylene (LDPE) materials	Acetate liners
	Silicon tubing
Waterproof field books, waterproof paper and waterproof sample bottle labels	Loose non-waterproof paper and non-waterproof sample labels
Plastic clipboards, binders, or spiral hard cover notebooks	Aluminum field clipboards or with Masonite
Waterproof markers / Sharpies®	Pens
Post-It Notes®	
Chemical (blue) ice packs	Wet ice
Field Clothing and PPE	
New cotton clothing or synthetic water resistant, waterproof, or stain-treated clothing, clothing containing Gore-Tex™	Well-laundered clothing made of natural fibers (preferable cotton)
Clothing laundered using fabric softener	No fabric softener
Boots containing Gore-Tex™ or treated with water-resistant spray	Boots made with polyurethane and PVC
Tyvek®	Laundered cotton clothing
No cosmetics, moisturizers, hand cream, or other related products as part of personal leaning/showering routine on the morning of sampling Sunscreens or insecticides except as noted on right	**Sunscreens** - Alba Organics Natural Sunscreen, Yes To Cucumbers, Aubrey Organics, Jason Natural Sun Block, Kiss My Face, and baby sunscreens that are "chemical free", “toxin free” or "natural" **Insect Repellents** - Jason Natural Quit Bugging Me, Repel Lemon Eucalyptus Insect repellant, Herbal Armor, California Baby Natural Bug Spray, Baby Ganics **Sunscreen and insect repellant** - Avon Skin So Soft Bug Guard Plus - SPF 30 Lotion
Sample Containers	
LDPE or glass containers	HDPE or polypropylene
Teflon®-lined caps	Unlined polypropylene caps
Rain Events	
Waterproof or resistant rain gear	Wet weather gear made of polyurethane and PVC only; field tents that are only touched or moved prior to and following sampling activities
Equipment Decontamination	
Decon 90®	Alconox® and/or Liquinox®
Water from an on-site well Potable water from untested public water supply	Potable water from tested (and PFAA free) public drinking water supply
Food Considerations	
All food and drink, with exceptions noted on right	Bottled water and hydration fluids (i.e., Gatorade® and Powerade®) to be brought and consumed only in the staging areas
Vehicle Considerations	
Vehicle fabrics, carpets and mats may contain PFAAs	Avoid utilizing areas inside vehicle as sample staging areas.