

Dieter, Gail A (DEC)

From: Newman, David/NJO <David.Newman@CH2M.com>
Sent: Friday, January 12, 2018 10:16 AM
To: Dieter, Gail A (DEC)
Cc: Carling, Brian/PHL; Cibrik, Jerome (JE)
Subject: Former HCC - Summary of SWMU 1 Vapor Investigation Activities
Attachments: SWMU1_Landfill Monitoring SOP 01_11_18.pdf; Proposed Locations 01-11-18 r1.pdf

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Hi Gail:

This e-mail serves as a summary of upcoming investigation activities regarding the assessment of potential vapor migration beyond the limits of Solid Waste Management Unit 1 (SMWU 1).

The following assessment activities will take place:

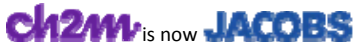
- Installation of three landfill gas monitoring probes outside the perimeter of SWMU 1. Two probes will be installed toward the south and west of SMWU 1 (direction of Village Department of Public Works) and one probe will be installed to the east (direction of Evans Wastewater Treatment Plant) A figure depicting preliminary new vapor probe locations is attached.
- An assessment of existing SWMU 1 groundwater monitoring wells will also be performed. Qualified monitoring wells will be retrofitted for use as additional gas screening and monitoring locations.
- Landfill gas monitoring will be performed monthly for a period of six months from roughly January 2018 through June 2018 (actual start of monitoring will depend on when we can install given winter weather). After the first six months, monitoring the landfill gas will be performed on a quarterly basis through the end of 2018. Monitoring will be conducted for methane, carbon dioxide, and oxygen concentrations using a Landtec Model GA-90 or an equivalent field meter. Supplemental instrumentation will be used to monitor air pressure and record 4-gas meter and PID readings. Water levels will also be collected to assess potential correlation between water level fluctuation and observed gas concentrations.
- An SOP for the vapor monitoring is attached.
- After monitoring is complete the preparation of a technical memorandum summarizing the results of the field screening program will be submitted to the NYSDEC for review and comment.

We will continue to communicate as we complete each step of the landfill gas assessment and monitoring analysis program. If you have any questions or concerns regarding the workplan please contact us.

Thank you.

Dave

David A. Newman



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Installation of Landfill Gas Monitoring Wells

I. Purpose and Scope

The purpose of this guideline is to describe methods for drilling and installation of landfill gas monitoring wells in unconsolidated or poorly consolidated materials.

II. Equipment and Materials

Drilling

- Drilling rig
- Hollow-stem augers

Well Riser/Screen

- Polyvinyl chloride (PVC), Schedule 40, minimum 1-inch ID, flush-threaded riser.
- PVC, Schedule 40, minimum 1-inch ID, flush-threaded, factory slotted screen.

Bottom Cap

- PVC, threaded to match the well screen.
- Centering Guides (if used).

Well Cap

- Above-grade well completion: PVC, threaded or push-on type, vented.

Aggregate

- Clean, durable, well-rounded, and washed VDOT Section 203, No. 8 aggregate, containing no organic material, anhydrite, gypsum, mica, or calcareous material.

Bentonite/Soil

- Pure, additive-free bentonite pellets.
- Pure, additive-free powdered bentonite.
- Coated bentonite pellets; coating must biodegrade within 7 days.
- Cement-Bentonite Grout: proportion of 6 to 8 gallons of water per 94-pound bag of Portland cement; 3 to 6 pounds of bentonite added per bag of cement to reduce shrinkage.

Protective Casing

- Above-grade well completion: 6-inch minimum ID steel pipe with locking cover, diameter at least 6 inches, painted with epoxy paint for rust protection; heavy duty lock; four protective posts, consisting of 3-inch inside diameter steel pipe, filled with concrete

III. Procedures and Guidelines

A. Drilling Method

Continuous-flight hollow-stem augers with a minimum 4 1/4-inch inside diameter (ID) will be used to drill landfill gas monitoring probe boreholes. The use of water to assist in hollow-stem auger drilling for monitoring probe installation will be avoided, unless required for such conditions as running sands.

Hollow-stem augers, rods, split-spoon samplers, and other downhole drilling tools will be properly decontaminated prior to the initiation of drilling activities and between each borehole location. Split-spoon samplers and other downhole soil sampling equipment will also be properly decontaminated before and after each use. SOP Decon details proper decontamination procedures.

Drill cuttings and decontamination fluids generated during well drilling activities will be contained according to the procedures detailed in the Field Sampling Plan.

B. Landfill Gas Monitoring Probe Installation

Shallow landfill gas monitoring probes will be constructed inside the hollow-stem augers, once the borehole has been advanced to the desired depth. If the borehole has been drilled to a depth greater than that at which the well is to be set, the borehole will be backfilled with aggregate consisting of VDOT No.8 aggregate to a depth of approximately 1 foot below the intended well depth.

The appropriate lengths of well screen, with bottom cap and casing, will be joined watertight and lowered inside the augers to the bottom of the borehole. Centering guides, if used, will be placed at the bottom of the screen and above the interval in which the bentonite seal is placed.

Aggregate consisting of VDOT No.8 aggregate will be placed around the well screen. The aggregate will be placed into the borehole at a uniform rate, in a manner that will allow even placement of the aggregate. The augers will be raised gradually during aggregate installation to avoid caving of the borehole wall; at no time will the augers be raised higher than the top of the aggregate during installation. During placement of the aggregate, the position of the top of the aggregate will be continuously sounded. The aggregate will be extended from the bottom of the borehole to a minimum height of 6 inches above the top of the well screen. Heights of the aggregate

and bentonite/soil seal may be modified in the field to account for the shallow water table and small saturated thickness of the surficial aquifer.

A bentonite/soil seal at least 1 foot thick will be placed above the aggregate. The bentonite pellets will be placed into the borehole in a manner that will prevent bridging. The position of the top of the bentonite/soil seal will be verified using a weighted tape measure. If all or a portion of the bentonite/soil seal is above the water table, clean water will be added to hydrate the bentonite. A hydration period of at least 30 minutes will be required following installation of the bentonite seal.

Above the bentonite/soil seal, an annular seal of cement-bentonite grout will be placed. The cement-bentonite grout will be installed continuously in one operation from the bottom of the space to be grouted to the ground surface through a tremie pipe. The tremie pipe must be plugged at the bottom and have small openings along the sides of the bottom 1-foot length of pipe. This will allow the grout to diffuse laterally into the borehole and not disturb the bentonite pellet seal.

Landfill gas monitoring probes will be completed above-grade. A locking steel protective casing set in a concrete pad will be installed. The steel protective casing will extend into the ground and approximately 2 feet above ground but should not penetrate the bentonite seal. The concrete pad will be square, approximately 4 feet per side. The concrete will be sloped away from the protective casing.

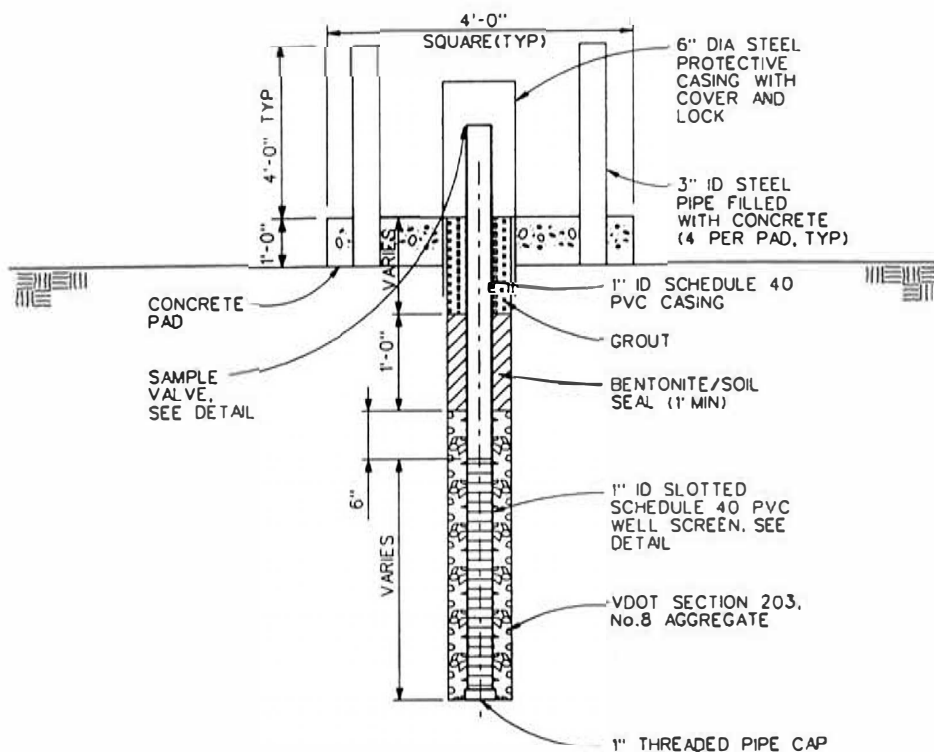
Guard posts will be installed in high-traffic areas for additional protection. Four steel guard posts will be installed around the protective casing and within the edges of the concrete pad. Guard posts will be concrete-filled, at least 3 inches in diameter, and will extend at least 2 feet into the ground and 3 feet above the ground. The protective casing and guard posts will be painted with an epoxy paint to prevent rust.

Concrete pads installed at all probes will be a minimum of 1 foot below grade. The surface of the pad should slope away from the protective casing to prevent water from pooling around the casing. Protective casing, guard posts, and flush mounts will be installed into this concrete.

Each probe will be properly labeled on the exterior of the locking cap or protective casing with a metal stamp indicating the permanent well number.

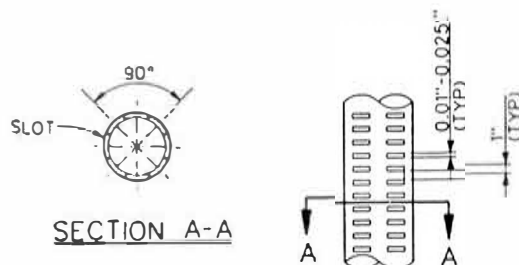
IV. Attachments

Schematic diagram of landfill gas monitoring probe construction.



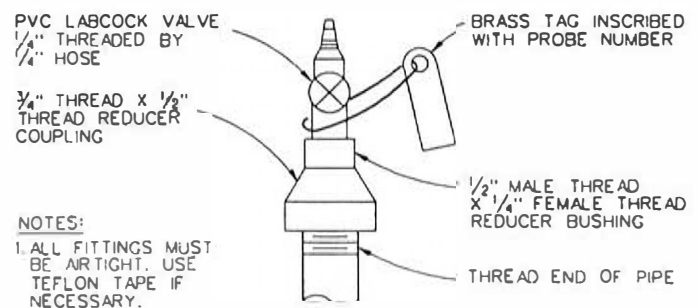
GAS MONITORING PROBE DETAIL

NTS



WELL SCREEN DETAIL

NTS



SAMPLE VALVE DETAIL

NTS

Figure 1

Landfill Gas Monitoring

I. Purpose and Scope

This procedure presents the techniques used in performing landfill gas monitoring. Materials, equipment, and procedures may vary; refer to the Field Sampling Plan and operators manuals for specific details.

II. Materials and Equipment

Materials and equipment vary depending on type of monitoring; the Field Sampling Plan should be consulted for project-specific details.

- Combustible gas indicator (e.g. Landtec Model GA90), with water trap or filter, capable of reading percent combustible gas by volume in increments of 0.1% from 0% to 100% combustible gas, equipped with a hose and a fitting allowing an airtight connection to the fitting on the gas monitoring probe.
- Pressure meter or gauge (e.g. Neotronics PDM10, or Landtec Model GA90), capable of reading pressure in increments of 0.1 inches water column (WC) from -50.1 to +50.1 inches WC, equipped with a hose and a fitting allowing an airtight connection to the fitting on the gas monitoring probe.
- Fittings, female quick-disconnect coupling, equipped with spring-operated valve that automatically opens the flow when connected and reseals when disconnected from the fitting on the gas monitoring probe.
- Calibration gas, 15% methane by volume.
- Purge pump capable of purging one probe volume of air, equipped with a drop-tube, hose and fitting, allowing an airtight connection to the fitting on the gas monitoring probe. The purge process is performed only when no measurable combustible gas is detected.
- Clean latex or surgical gloves.

III. Procedures and Guidelines

1. Meters will be calibrated daily, in accordance with the manufacturer's recommendations. The calibration gas cylinder lot number and results of the calibration check will be recorded in the field notebook.
2. Current local weather conditions will be recorded, including barometric pressure, in inches mercury (in. Hg), temperature, and precipitation conditions. These conditions will be recorded both at the beginning and end of the working day.
3. Landfill gas air monitoring will be performed according to the following procedures:

- Unlock the landfill gas monitoring probe.
- Attach the inlet hose from the pressure gauge or meter to the monitoring port.
- Record the pressure measurement, in inches WC, once the pressure measurement has stabilized, and remove the inlet hose.
- If applicable, attach the inlet hose from the purge pump to the monitoring port. Turn on the pump and purge the probe. After purging the probe, remove the inlet hose.
- Attach the inlet hose from the combustible gas indicator to the monitoring port. Turn on the instrument pump and record the methane concentration, in percent by volume (CH_4 , %), once the measurement has stabilized, and remove the inlet hose.
- Lock the landfill gas monitoring probe.

IV. Attachments

None.

V. Key Checks and Items

- Record all data, including date, name(s) of field personnel, weather conditions, model and serial number of monitoring instrument(s), and monitoring results, in the field notebook.
- Review data to determine compliance with regulatory and permit conditions, as applicable (for example, less than 5% methane by volume (100% of the lower explosive limit (LEL) in landfill gas monitoring probes at the property boundary).
- Beware of hidden hazards.

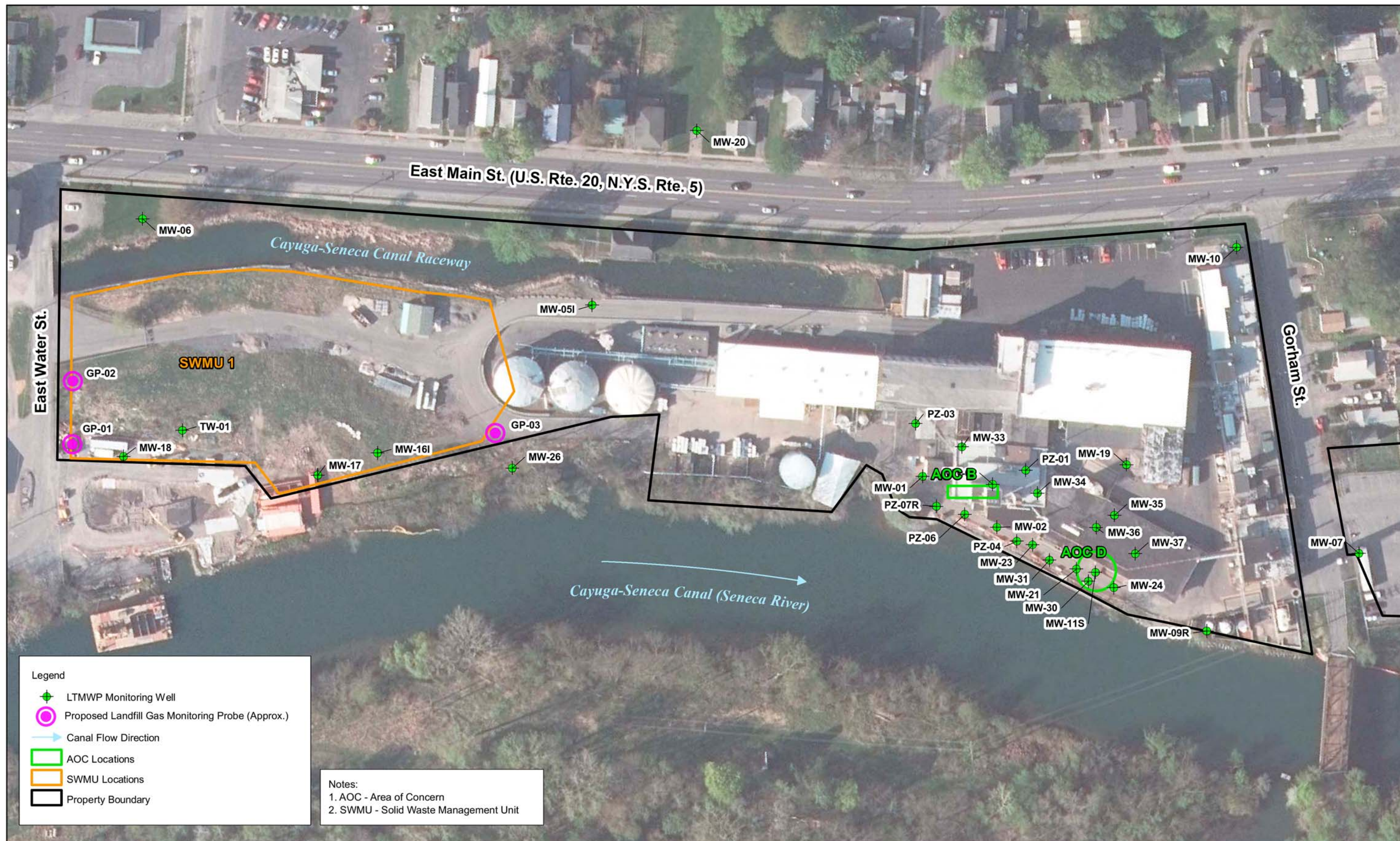


Figure 2
Proposed Landfill Gas Monitoring Probe Locations
SWMU 1 Landfill Gas Investigation and Monitoring
Former Hampshire Chemical Corp., Waterloo, NY

Dieter, Gail A (DEC)

From: Dieter, Gail A (DEC)
Sent: Tuesday, January 23, 2018 12:14 PM
To: 'Newman, David/NJO'
Cc: Carling, Brian/PHL; Cibrik, Jerome (JE); Putzig, Bart X (DEC)
Subject: RE: Former HCC - Summary of SWMU 1 Vapor Investigation Activities

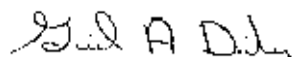
Dave,

In response to your email of 01/12/2018 regarding the summary of the proposed investigation activities for the assessment of potential vapor migration beyond the limits of the Solid Waste Management Unit 1 (SWMU 1), I have reviewed the proposed activities and find them acceptable. The NYSDEC does request that if possible, MW-18 and MW-26 be two of the groundwater monitoring wells to be retrofitted for use as additional gas screening and monitoring locations. Both of these monitoring wells were used in the SWMU 1 Methane Survey investigation which took place in October/November 2012, which means there is historical data regarding the detection of methane in SWMU 1 which can be used as a comparison.

It is understood that NYSDEC will be kept informed as each step of the landfill gas assessment and monitoring investigation is completed, and a technical memorandum summarizing the results of the field screening program will be submitted to the NYSDEC for review and comment.

Please let me know if you have any questions/concerns regarding this response.

Thank you –



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From: Newman, David/NJO [mailto:David.Newman@CH2M.com]
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