From:	Scott Tucker
To:	Hale, Kelly E (DEC)
Cc:	Taylor, Peter (DEC); McCullouch, Gary P (DEC); Drachenberg, Thomas; Minocha, Vimal (DEC)
Subject:	RE: Inactive Landfill Initiative: Region 6 - Little Falls - Site Specific Work Plan
Date:	Monday, June 03, 2019 1:15:31 PM
Attachments:	image005.png image006.png image007.png image001.png Little Falls Landfill SSWP_Submitted.pdf

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Kelly-

Attached is the revised Site Specific Work Plan incorporating your comments. As discussed, we haven't included the path of travel of the drill rig but will keep an eye out for the birds identified.

We look forward to your review and/or approval.

Thank You,

OBG
Part of Ramboll

Scott M. Tucker, PG
Project Associate
direct **315-956-6345**
c 315-391-0756 | ***f*** 315-463-7554
Scott.Tucker@obg.com   **www.obg.com**

From: Hale, Kelly E (DEC) [mailto:Kelly.Hale@dec.ny.gov]
Sent: Thursday, May 9, 2019 3:29 PM
To: Scott Tucker <Scott.Tucker@obg.com>
Cc: Taylor, Peter (DEC) <peter.taylor@dec.ny.gov>; McCullouch, Gary P (DEC)

<gary.mccullouch@dec.ny.gov>
Subject: RE: Inactive Landfill Initiative: Region 6 - Little Falls - Site Specific Work Plan

Hello Scott,

Attached is the DEC comment letter for the Site Specific Work Plan for the Little Falls Landfill (#622005). I have included the comments Vince provided in this attached letter (from the email dated May 6, 2019). A hard copy of this letter will not be mailed.

If you have any questions, please contact me.

Thanks,

Kelly

Kelly Hale
Environmental Program Specialist Trainee 1, Environmental Remediation

New York State Department of Environmental Conservation
317 Washington Street, Watertown, NY 13601
P: (315) 785-2381 | F: (315) 785-2422 | kelly.hale@dec.ny.gov
www.dec.ny.gov | |

From: Scott Tucker <Scott.Tucker@obg.com>
Sent: Friday, March 22, 2019 9:48 PM
To: Taylor, Peter (DEC) <peter.taylor@dec.ny.gov>
Cc: Fay, Vincent (DEC) <vincent.fay@dec.ny.gov>; McCullouch, Gary P (DEC) <gary.mccullouch@dec.ny.gov>; Harrison, Sarah B (DEC) <Sarah.Harrison@dec.ny.gov>; Lauzon, Jennifer (DEC) <jennifer.lauzon@dec.ny.gov>; Smith-Gagnon, Jacqueline M (DEC) <Jacqueline.Smith-Gagnon@dec.ny.gov>; Bishop, Heather L (DEC) <heather.bishop@dec.ny.gov>; Hale, Kelly E (DEC) <Kelly.Hale@dec.ny.gov>; Amin, Parag B (DEC) <parag.amin@dec.ny.gov>; Minocha, Vimal (DEC) <vimal.minocha@dec.ny.gov>; 'Drachenberg, Thomas' <Thomas.Drachenberg@parsons.com>; Ronald Chiarello <Ronald.Chiarello@obg.com>
Subject: Inactive Landfill Initiative: Region 6 - Little Falls - Site Specific Work Plan

Team-

Attached for your review is a Site Specific Work Plan for Little Falls Landfill located on Loomis Street in Little Falls, NY [Ranked 68].

Thank you,

Scott M. Tucker, PG
Project Associate
***direct* 315-956-6345**
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Site-Specific Work Plan for:

HYDROGEOLOGIC INVESTIGATION AT THE LITTLE FALLS LANDFILL NYSDEC REGION 6 – HERKIMER COUNTY CITY OF LITTLE FALLS, NEW YORK

Prepared For:

New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation
625 Broadway, 12th Floor
Albany, NY 12233-7012

Prepared By:

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June 2019

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Site Specific Work Plan For Hydrogeologic Investigation At The Little Falls Landfill Site

1.0 PROJECT BACKGROUND

This hydrogeologic investigation is part of the New York State Department of Environmental Conservation's (NYSDEC's) Inactive Landfills Initiative. The objective of the Initiative is to assess inactive landfills in New York State for potential impacts to drinking water sources and other potential receptors.

2.0 PROJECT OBJECTIVES

The objective of this hydrogeologic investigation is to provide an initial assessment of the potential for impacts to groundwater in the immediate vicinity of the Little Falls Landfill Site. This objective will be accomplished by installing five groundwater monitoring wells, sampling groundwater from the wells, sampling two seeps within the landfill boundary, sampling surface water, and analyzing the samples for a suite of target organic and inorganic contaminants. The sample data will be evaluated to assess whether groundwater quality has been impacted by the landfill operations.

3.0 SITE SETTING

The Little Falls Landfill is a Class 3 Hazardous Waste Landfill on New York State's Registry of Hazardous Waste Sites (Site Number 622005). The landfill is located on the south side of Loomis Street and north of State Route 167, approximately 0.1 miles west from the intersection of Loomis Street and State Route 167 (**Figure 1**). The landfill operated from the 1930's until operations ceased in 1982. The Little Falls Landfill has historically received various types of industrial and residential wastes from the Town of Little Falls, Town of Manheim, and the City of Little Falls. The landfill is unlined, uncapped, and does not have any leachate collection system and spans approximately 20 acres. The landfill is currently used by the City Department of Public Works (DPW) as a maintenance facility. The City Department of Public Works operations are within the footprint of the landfill; however, the landfill limits extend west, south, and east of the DPW operations. The landfill outside of the DPW operations is overgrown with trees and bound by woodland to the west and a property boundary on the east. Located on the landfill cap are a maintenance office building, multi-stall garage, a former smoke stack and incinerator, and a helicopter pad. Baseball fields and a recreational area are located to the west of the landfill in City Park (Veterans Memorial Park).

During a December 2018 landfill inspection, seeps and exposed waste were observed along the eastern and southern landfill limits. Additionally, within the eastern wooded portion of the landfill, seeps and ponded water were observed containing a strong chemical odor. Additional seeps and exposed waste were observed along a drainage ditch through the center of the landfill. A drainage ditch generally bisects the site and flows south from the onsite smoke stack and incinerator towards the southern landfill limit.

A drainage swale bounds the site to the west, east, and south that presumably ultimately discharge to the Mohawk River. Saturated soils were observed east of the Highway Department main building within the landfill limits.

According to the surficial geology map of New York State (Hudson Mohawk Sheet) the landfill is underlain by bedrock, which is corroborated by exposed bedrock at many locations along the margins of the site and a former bedrock quarry present immediately south of the landfill on the south side of NY-167. According to the bedrock geology map of New York State (Hudson Mohawk Sheet) the bedrock present beneath the landfill consist of metamorphic rock such as charnockite, mangerite or pyroxene-quartz syenite gneiss. Historic NYSDEC reports report bedrock is less than five feet below grade and what shallow soil is present is described as sandy gravelly silt loam.

Based on review of water well records and tax parcel information, the parcels from the landfill (including the landfill) west rely on public water supply while the parcels north, east and southeast of the landfill rely on private water supply. The nearest parcels with a potential potable water well are located approximately 0.3 miles north, 0.2 miles east and 0.25 miles southeast of the site.

3.1 GROUNDWATER AND SURFACE WATER OCCURRENCE AND FLOW

The landfill southern limit is located approximately 1,100 feet north of the Mohawk River and New York State Barge Canal. As mentioned above, a drainage ditch bisects the site and discharges to the southern landfill limit where a drainage swale is present draining the edges of the landfill. It is presumed that there is some groundwater present in shallow overburden due to the presence of seeps observed on the soil surface. As noted above, bedrock is within five feet of the surface and was noted in outcrops immediately adjacent to the landfill. As a result, it is assumed that overburden groundwater migrates down into bedrock and becomes part of the bedrock groundwater system.

Pooled water in an inactive bedrock mine, possibly reflective of groundwater, is noted in aerial photography immediately south of the landfill. Based on topography maps the pooled water is approximately 80 ft below grade relative to the landfill ground surface. It is presumed that bedrock groundwater will be encountered at approximately 80 ft below grade and flows south towards the Mohawk River.

4.0 HYDROGEOLOGICAL INVESTIGATION SCOPE OF WORK

Field activities will be conducted in accordance with the Quality Assurance Project Plan (QAPP), Field Activities Plan (FAP), and Health and Safety Plan (HASP), which have been prepared and approved specifically for the NYSDEC Inactive Landfill Initiative program. Site-specific elements and specific job safety analyses for soil borings, and monitoring well installations will be added to the Health and Safety Plan specifically for the Little Falls Landfill site.

A Community Air Monitoring Plan will be implemented for real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area during invasive activities on-site.

The specific field procedures to be used during this investigation are described in the FAP. That document describes the drilling methods, well installation and sampling methods, and handling of investigation-derived waste. The QAPP describes the analytical procedures to be used by the laboratory in analyzing the groundwater samples.

Five monitoring wells will be installed at the site as described below to evaluate general groundwater quality. The well locations are shown in **Figure 1**. One upgradient well will be installed along the northern landfill limit near the entrance to the City Department of Public Works. Four downgradient wells will be installed along the southern landfill limits. Review of historic aerial photographs, specifically a 1985 aerial photograph (**Attachment 1**), identifies several areas of filling or disturbances that correlate with well placement.

4.1 SUBSURFACE UTILITY CLEARING

The local DIG SAFE service will be used to mark out subsurface utility lines near the proposed monitoring well locations. Monitoring well boring locations will be adjusted in the field as necessary to avoid subsurface obstructions and utilities. Each well boring location will also be hand-dug to 5 feet to ensure the location is clear of subsurface utilities. The proposed well locations are shown on **Figure 1**.

4.2 MONITORING WELL INSTALLATIONS

Following hand-clearing, the borings for the monitoring wells will be advanced through the overburden using hollow-stem augers and a soil sampler (**Figure 1**).

Acceptable drilling techniques are described in the FAP. Soil samples will be collected continuously at each boring location. Samples will be physically described in the field using both the Burmeister and USCS soil classification systems. A photoionization detector (PID) will be used to record the headspace readings of each soil sample.

The borings will be advanced to the first water-bearing zone that is considered acceptable for placing a monitoring well that will yield a volume of representative groundwater sufficient for sampling. In the event that shallow groundwater is encountered, wells will be screened at least 5 ft below grade to minimize mixing of the surface water with the groundwater in the well.

It is possible that the first water-bearing zone will be encountered at the bedrock-overburden interface. If field observations verify this and bedrock drilling is required, shallow bedrock wells will be installed using a combination of hollow stem auguring and rotary (including air hammer) drilling methods. Initially, 6.25-inch inside diameter hollow stem augers will be advanced to the bedrock surface. During auger advancement, soil samples will be collected continuously from the ground surface to the top of bedrock. Upon reaching the top of bedrock, a nominal 6-inch diameter roller bit will be used to drill a socket approximately 6 inches into the bedrock. A 4-inch diameter temporary steel casing will be installed through the auger string as the auger string is retracted. A borehole will be advanced 5-feet into the bedrock using rotary drilling methods (including air hammer) to an estimated depth of 20-ft below grade. Rock chips will be collected to describe the bedrock and screen for evidence of staining or other chemically-related impacts. In addition, soil and rock chips will be screened with a photoionization detector (PID) to allow evaluation of the bulk volatile organic concentration.

In the event that groundwater isn't encountered in overburden, bedrock drilling will be completed as outlined above.

Monitoring wells will be constructed of 2-inch inside-diameter polyvinyl chloride (PVC) casing with a 5 to 10-foot long, #10-slot screen and compatible sand pack material. In areas where there is no evidence of standing water, the well screen will be extended above the water table interface. The top of the screen will be no less than 5 ft below grade and may be deeper to isolate the well from standing surface water as previously described. Each well will be completed with a locking protective casing with approximately 3 feet of stick-up. Should shallow groundwater or other site conditions dictate, modifications to the well design will be made in the field by the supervising geologist.

If a bedrock well is required as a result of the first water-bearing zone being observed at the bedrock-overburden interface, PVC monitoring wells will be constructed with the same general construction as outlined above, however; the well screen will straddle the bedrock overburden interface.

If a bedrock well is required as a result of no groundwater encountered in overburden, open bedrock wells will be utilized if bedrock is competent enough that the hole will stay open. If the hole will not stay open, PVC monitoring wells will be completed in the bedrock boring consistent with the FAP.

Following installation, the new monitoring wells will be developed to remove material which may have settled in and around the well screen. Development will use methods described in the FAP. Following well development, the locations and elevations of the monitoring well PVC casings will be established relative to an arbitrary onsite datum using a Total Station surveying instrument.

Drilling equipment will be decontaminated by pressure washing between borings and before entering or leaving the site.

Drill cuttings from borings will be spread along the ground adjacent to the borehole. However, soils that contain visible wastes, free product, NAPL, or otherwise are grossly contaminated will be containerized for subsequent characterization and disposal. Water generated during the investigation will be discharged to an unpaved area of the site.

4.3 GROUNDWATER, SURFACE WATER AND SEEP SAMPLING

Once well installation and development are complete, a groundwater sample will be collected from each well utilizing low flow sampling techniques and analyzed as described in the FAP. If a well yield is insufficient to support low flow sampling, the sampling will be completed using another acceptable technique as outlined in the FAP. The wells will be purged prior to sampling, and all sampling equipment will be dedicated to that sampling location, or will be decontaminated between sampling locations using the methods provided in the FAP.

Two seep samples will be collected. One seep sample will be collected from SP-03, SP-04 or SP-05. One seep sample will be collected from SP-01 or SP-02. Seeps will be evaluated in the field to verify sufficient volume of water is present for sampling. If chemical odors or chemical sheen are present, seeps with chemical odors or sheen will be sampled. If odors or sheens aren't identified, the seep with highest flow will be sampled. Seeps are identified on **Figure 1**. Samples will be collected in accordance with the FAP.

Additionally, one surface water sample will be collected from standing water in the former bedrock quarry located immediately south of the landfill and on the south side of State Route 167 (**Figure 1**). Samples will be collected in accordance with the FAP.

If well yield is insufficient to support low flow sampling, the sampling will be completed using another acceptable technique as outlined in the FAP. The wells will be purged prior to sampling, and all sampling equipment will be dedicated to that sampling location, or will be decontaminated between sampling locations using the methods provided in the FAP.

The samples will be analyzed for modified baseline VOCs, polycyclic aromatic hydrocarbons, 1,4-dioxane, perfluorinated compounds, baseline leachate indicators, and modified baseline metals. A complete list of analytical parameters is provided in **Table 1**.

5.0 INVESTIGATION REPORTING

Boring logs, sampling logs, analytical data, and a site work summary will be provided at the completion of field activities for the site.

TABLE 1 – ANALYTICAL PARAMETERS

Parameter	Method	Parameter	Method
Leachate Indicators		**Inorganics**	
Ammonia	350.1 / SM20 4500NH3 B/D	Aluminum	SW6010C
Chemical Oxygen Demand	410.4	Antimony	SW6010C
Total Organic Carbon	EPA 9060 / SM20 5310B/C	Arsenic	SW6010C
Total Dissolved Solids	SM20 2540C	Barium	SW6010C
Sulfate	300	Boron	SW6010C
Alkalinity	SM20 2320B	Beryllium	SW6010C
Chloride	300	Cadmium	SW6010C
Bromide	300	Calcium	SW6010C
Total hardness as CaCO3	SM20 2340C	Chromium	SW6010C
		Cobalt	SW6010C
PAHs + 1,4-Dioxane		Copper	SW6010C
Acenaphthene	8270D SIM	Iron	SW6010C
Acenaphthylene	8270D SIM	Lead	SW6010C
Anthracene	8270D SIM	Magnesium	SW6010C
Benzo(a)anthracene	8270D SIM	Manganese	SW6010C
Benzo(a)pyrene	8270D SIM	Nickel	SW6010C
Benzo(b)fluoranthene	8270D SIM	Potassium	SW6010C
Benzo(g,h,i)perylene	8270D SIM	Selenium	SW6010C
Benzo(k)fluoranthene	8270D SIM	Silver	SW6010C
Chrysene	8270D SIM	Sodium	SW6010C
Dibenzo(a,h)anthracene	8270D SIM	Thallium	SW6010C
Fluoranthene	8270D SIM	Vanadium	SW6010C
Fluorene	8270D SIM	Zinc	SW6010C
Indeno(1,2,3-cd)pyrene	8270D SIM	Mercury	SW7470A
Naphthalene	8270D SIM	Mercury	E1631
Phenanthrene	8270D SIM	Dissolved Mercury	E1631
Pyrene	8270D SIM		
1-4-Dioxane	8270D SIM		

TABLE 1 – ANALYTICAL PARAMETERS (Continued)

Parameter	Method	Parameter	Method
Volatiles			
Acetone	SW8260C	Ethylbenzene	SW8260C
Acrylonitrile	SW8260C	2-Hexanone	SW8260C
Benzene	SW8260C	Bromomethane	SW8260C
Bromochloromethane	SW8260C	Chloromethane (Methyl chloride)	SW8260C
Bromodichloromethane	SW8260C	Dibromomethane	SW8260C
Bromoform	SW8260C	Methylene chloride	SW8260C
Carbon disulfide	SW8260C	2-Butanone (Methyl ethyl ketone)	SW8260C
Carbon tetrachloride	SW8260C	Idomethane (Methyl iodide)	SW8260C
Chlorobenzene	SW8260C	4-Methyl-2-pentanone (Methyl isobutyl ketone)	SW8260C
Chloroethane	SW8260C	Styrene	SW8260C
Chloroform	SW8260C	1,1,1,2-Tetrachloroethane	SW8260C
Dibromochloromethane	SW8260C	1,1,2,2-Tetrachloroethane	SW8260C
1,2-Dibromo-3-chloropropane	SW8260C	Tetrachloroethene	SW8260C
1,2-Dibromoethane (Ethylene dibromide)	SW8260C	Toluene	SW8260C
1,2-Dichlorobenzene	SW8260C	1,1,1-Trichloroethane	SW8260C
1,4-Dichlorobenzene	SW8260C	1,1,2-Trichloroethane	SW8260C
trans-1,4-Dichloro-2-butene	SW8260C	Trichloroethene	SW8260C
1,1-Dichloroethane	SW8260C	Trichlorofluoromethane	SW8260C
1,2-Dichloroethane	SW8260C	1,2,3-Trichloropropane	SW8260C
1,1-Dichloroethene	SW8260C	Vinyl acetate	SW8260C
cis-1,2-Dichloroethene	SW8260C	Vinyl chloride	SW8260C
trans-1,2-Dichloroethene	SW8260C	o-Xylene	SW8260C
1,2-Dichloropropane	SW8260C	m,p-Xylene	SW8260C
cis-1,3-Dichlororpropene	SW8260C	Xylenes, Total	SW8260C
trans-1,3-Dichlororpropene	SW8260C		

TABLE 1 – ANALYTICAL PARAMETERS (Continued)

Parameter	Method
N-ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	Modified 537
N-methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	Modified 537
Perfluorobutanesulfonic acid (PFBS)	Modified 537
Perfluorodecanoic acid (PFDA)	Modified 537
Perfluorododecanoic acid (PFDoA)	Modified 537
Perfluoroheptanoic acid (PFHpA)	Modified 537
Perfluorohexanesulfonic acid (PFHxS)	Modified 537
Perfluorohexanoic acid (PFHxA)	Modified 537
Perfluorononanoic acid (PFNA)	Modified 537
Perfluorooctanesulfonic acid (PFOS)	Modified 537
Perfluorooctanoic acid (PFOA)	Modified 537
Perfluorotetradecanoic acid (PFTeA)	Modified 537
Perfluorotridecanoic Acid (PFTriA)	Modified 537
Perfluoroundecanoic acid (PFUnA)	Modified 537
Perfluorobutanoic acid (PFBA)	Modified 537
Perfluoropentanoic acid (PFPeA)	Modified 537
Perfluorohepanesulfonic acid (PFHpS)	Modified 537
Perfluoro-1-decanesulfonic acid (PFDS)	Modified 537
Perfluror-1-octanesulfonamide (FOSA)	Modified 537
6:2 Fluorotelomer sulfonate (6:2FTS)	Modified 537
8:2 Fluorotelomer sulfonate (8:2FTS)	Modified 537

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FIGURE 1

N

LEGEND

- PROPOSED MONITORING WELL
- SEEP INSPECTION
- EXPOSED WASTE
- MISCELANEOUS FEATURES
- APPROXIMATE LANDFILL EXTENT

NOTE:
PARCELS GEOREFERENCED FROM HERKIMER COUNTY GIS

NEW YORK STATE
DEPARTMENT OF CONSERVATION
LITTLE FALLS LANDFILL
CITY OF LITTLE FALLS, NEW YORK
REGION 6 HERKIMER COUNTY

SITE PLAN

0 75 150 300
Feet

8653.65982
JUNE 2019

O'BRIEN & GERE ENGINEERS, INC.

Attachment 1

Historical Aerial

Attachment 1

<u>1985 Aerial</u>