From: Edwards, James <JEdwards@geiconsultants.com>
Sent: Friday, October 13, 2017 2:03 PM
To: Spellman, John (DEC)
Cc: Perretta, Anthony C (HEALTH); Schuck, Maureen E (HEALTH); Maribeth McCormick (mccormickm@oru.com)
Subject: Suffern MGP Site - Proposed Scope of Work - 4th Quarter Post Remedial Groundwater Monitoring
Attachments: Suffern GW Post Remedial GW Monitoring WP 10.13.pdf

John,

GEI, on behalf of O&R, has prepared the attached work plan to propose a scope of work for continued quarterly monitoring following remediation at the Suffern MGP site.

Please let me know if you have any questions or comments regarding the proposed scope of work.

Please direct any official correspondence from the Department to Maribeth McCormick of O&R.

Following approval by the Department, we will schedule the field activities and provide notification to the Department.

Our current target for the sampling is November.

Thanks,

James Edwards, P.G.
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October 13, 2017

Consulting
Engineers and
Scientists

Mr. John Spellman, P.E.
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7014

Re: Proposed Scope of Work
Post-Remedial Quarterly Groundwater Monitoring
Suffern Former MGP Site
NYSDEC Site # 3-44-045

Dear Mr. Spellman:

This work plan has been prepared by GEI Consultants, Inc., P.C. (GEI) for Orange and Rockland Utilities, Inc. (O&R) to present a proposed scope of work for post-remedial quarterly groundwater monitoring at the former manufactured gas plant (MGP) site in Suffern, New York.

Background

The final tasks for the implementation of the remedy for the Suffern MGP site were completed in late July 2017. The first post-remedial quarterly groundwater monitoring event was performed in early August 2017 (3rd Quarter 2017 Event). A report for the quarterly event (dated August 25, 2017) was submitted to the New York State Department of Environmental Conservation (NYSDEC).

The NYSDEC and the New York State Department of Health (NYSDOH) have required that quarterly monitoring continue at the site following implementation of the remedy. A proposed scope for the event planned for November 2017 (4th Quarter 2017) event is described below. The scope of work described below for some site wells has been modified from the scope included in the 2016 Groundwater Monitoring Work Plan (GMWP) [NRT, 2016]. The proposed modifications are based on a review of the 2016/2017 Bi-Weekly and Quarterly groundwater results, and are anticipated to more completely evaluate groundwater quality at locations between the remedial area and the adjacent, downgradient Village of Suffern municipal water extraction wells.

The post-remedial groundwater scope of work described in this work plan may be further modified, if necessary, during preparation and NYSDEC approval of the Site Management Plan (SMP) for the Suffern MGP site.

Proposed Quarterly Field Monitoring Activities

Monitoring Well Elevation Gauging

Seventeen monitoring wells installed at the site will continue to be gauged to map the direction of groundwater flow. The direction of groundwater flow for the shallow and deeper portions of the aquifer will continue to be mapped for each event.

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NAPL Monitoring

The seventeen wells remaining at the site will continue to be gauged for the presence or absence of non-aqueous phase liquids (NAPLs). Gauging will be performed for both light non-aqueous phase liquid (LNAPL), and dense non-aqueous phase liquid (DNAPL).

Village of Suffern Well Pumping Data

The Village of Suffern Water Department will be contacted for each event. Well pumping data and extraction rates for the Village water extraction wells will continue to be provided in the quarterly reports.

Groundwater Sampling and Analyses

The monitoring wells and multi-channel well ports proposed for post-remedial monitoring are shown in Figure 1. The wells and CMT ports to be sampled are identified in Table 1. Included in the table are the well designations, the analyses to be performed (VOCs, SVOCs, and/or total cyanide). Also included in the table are the sampling rationales for each well or CMT port.

The samples will continue to be sent to a certified laboratory which will perform analyses under the NYSDOH Environmental Laboratory Approval Program (ELAP). The methods used for the analyses, and the quality control measures performed, will continue to be consistent with the specifications provided in the NYSDEC Analytical Services Protocol (ASP).

Schedule

The next sampling event planned for the site (4th Quarter event) is targeted for November 2017. The NYSDEC will be notified of the proposed dates within the notification period specified by the Department.

If the proposed scope of work described above is acceptable, please provide approval for the proposed plan. If you have any questions regarding the proposed scope of work for the sampling, please do not hesitate to contact me at (607) 216-8958. Please direct the Department's official response to Maribeth McCormick of O&R.

Sincerely,

GEI CONSULTANTS, INC., P.C.

James Edwards, P.G.
Geologist/Project Manager

JHE:amm

Attachments: Table 1 – Post-Remedial Quarterly Groundwater Sampling Plan
Figure 1 – Post-Remedial Quarterly Monitoring Plan

c: Maribeth McCormick – Orange and Rockland Utilities, Inc.
Anthony Perretta – NYSDOH
Maureen Schuck – NYSDOH

Table

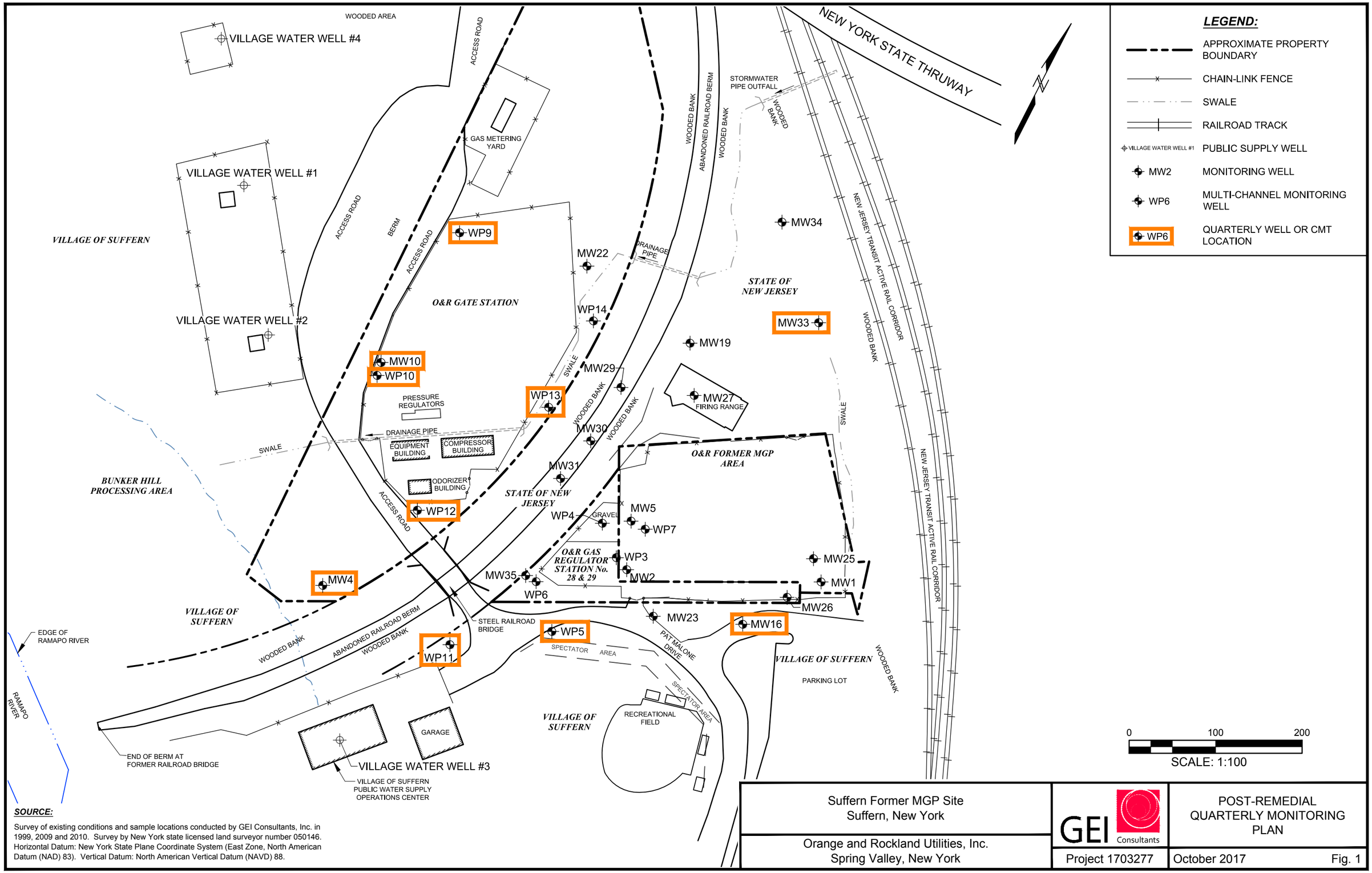
Table 1. Post-Remedial Quarterly Groundwater Sampling Plan
Suffern MGP Site

Well or CMT	VOC	SVOC	Total Cyanide	Rationale
MW4			X	Sentinel Well. Down gradient concentrations of total cyanide.
MW10	X	X	X	Sentinel Well. Down gradient concentrations of VOCs, SVOCs, and total cyanide at location between remedial area and Village Well # 2. MW10 will monitor groundwater quality at the water table, and the WP10 ports will monitor deeper groundwater quality at this location.
MW16	X	X	X	Deep Zone up gradient groundwater quality. VOCs, SVOCs, and total cyanide.
MW33	X	X	X	Shallow Zone up gradient groundwater quality. VOCs, SVOCs, and total cyanide.
WP5(19)	X	X	X	Down gradient (Shallow Zone) and cross gradient (Deep Zone) concentrations of VOCs, SVOCs, and total cyanide. Location is between remedial area and down gradient sentinel well WP11, and Village Well # 3.
WP5(32)	X	X	X	Down gradient (Shallow Zone) and cross gradient (Deep Zone) concentrations of VOCs, SVOCs, and total cyanide. Location is between remedial area and down gradient sentinel well WP11, and Village Well # 3.
WP5(45)	X	X		Down gradient (Shallow Zone) and cross gradient (Deep Zone) concentrations of VOCs, and SVOCs. Location is between remedial area and down gradient sentinel well WP11, and Village Well # 3.
WP5(58)	X	X		Down gradient (Shallow Zone) and cross gradient (Deep Zone) concentrations of VOCs, and SVOCs. Location is between remedial area and down gradient sentinel well WP11, and Village Well # 3.
WP5(71)	X	X		Down gradient (Shallow Zone) and cross gradient (Deep Zone) concentrations of VOCs, and SVOCs. Location is between remedial area and down gradient sentinel well WP11, and Village Well # 3.
WP5(84)	X	X		Down gradient (Shallow Zone) and cross gradient (Deep Zone) concentrations of VOCs, and SVOCs. Location is between remedial area and down gradient sentinel well WP11, and Village Well # 3.
WP5(97)	X	X		Down gradient (Shallow Zone) and cross gradient (Deep Zone) concentrations of VOCs, and SVOCs. Location is between remedial area and down gradient sentinel well WP11, and Village Well # 3.
WP9(12)	X	X	X	Sentinel Well. Down gradient concentrations of VOCs, SVOCs, and total cyanide at a location between remedial area and Village Well # 4.
WP9(29.5)	X	X	X	Sentinel Well. Down gradient concentrations of VOCs, SVOCs, and total cyanide at a location between remedial area and Village Well # 4.
WP9(47)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Well # 4.
WP9(64.5)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Well # 4.
WP9(82)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Well # 4.
WP9(99.5)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Well # 4.
WP9(117)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Well # 4.
WP10(32)	X	X	X	Sentinel Well. Down gradient concentrations of VOCs, SVOCs, and total cyanide at a location between remedial area and Village Well # 2. This port and MW10 will monitor the shallow groundwater zone for total cyanide.
WP10(49)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Well # 2.
WP10(66)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Well # 2.
WP10(83)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Well # 2.
WP10(100)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Well # 2.
WP10(117)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Well # 2.

Table 1. Post-Remedial Quarterly Groundwater Sampling Plan
Suffern MGP Site

Well or CMT	VOC	SVOC	Total Cyanide	Rationale
WP10(134)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Well # 2.
WP11(12)	X	X	X	Sentinel Well. Down gradient concentrations of VOCs, SVOCs, and total cyanide at location between remedial area and Village Well # 3.
WP11(27)	X	X	X	Sentinel Well. Down gradient concentrations of VOCs, SVOCs, and total cyanide at location between remedial area and Village Well # 3.
WP11(43)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at location between remedial area and Village Well # 3.
WP11(58)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at location between remedial area and Village Well # 3.
WP11(73)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at location between remedial area and Village Well # 3.
WP11(88)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at location between remedial area and Village Well # 3.
WP11(104)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at location between remedial area and Village Well # 3.
WP12(12)	X	X	X	Sentinel Well. Down gradient concentrations of VOCs, SVOCs, and total cyanide at a location between remedial area and Village Wells # 2 and # 3.
WP12(34)	X	X	X	Sentinel Well. Down gradient concentrations of VOCs, SVOCs, and total cyanide at a location between remedial area and Village Wells # 2 and # 3.
WP12(54)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Wells # 2 and # 3.
WP12(74)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Wells # 2 and # 3.
WP12(94)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Wells # 2 and # 3.
WP12(114)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Wells # 2 and # 3.
WP12(134)	X	X		Sentinel Well. Down gradient concentrations of VOCs, and SVOCs at a location between remedial area and Village Wells # 2 and # 3.
WP13(12)	X	X	X	Location down gradient of remedial area between remedial area and sentinel wells MW10 / WP10 and WP9. Down gradient concentrations of VOCs, SVOCs, and total cyanide.
WP13(29)	X	X	X	Location down gradient of remedial area between remedial area and sentinel wells MW10 / WP10 and WP9. Down gradient concentrations of VOCs, SVOCs, and total cyanide.
WP13(47)	X	X		Location down gradient of remedial area between remedial area and sentinel wells MW10 / WP10 and WP9. Down gradient concentrations of VOCs, and SVOCs.
WP13(64)	X	X		Location down gradient of remedial area between remedial area and sentinel wells MW10 / WP10 and WP9. Down gradient concentrations of VOCs, and SVOCs.
WP13(82)	X	X		Location down gradient of remedial area between remedial area and sentinel wells MW10 / WP10 and WP9. Down gradient concentrations of VOCs, and SVOCs.
WP13(99)	X	X		Location down gradient of remedial area between remedial area and sentinel wells MW10 / WP10 and WP9. Down gradient concentrations of VOCs, and SVOCs.
WP13(117)	X	X		Location down gradient of remedial area between remedial area and sentinel wells MW10 / WP10 and WP9. Down gradient concentrations of VOCs, and SVOCs.
Trip Blank (Date)	X			QA / QC
Trip Blank (Date)	X			QA / QC
Trip Blank (Date)	X			QA / QC

Figure



SOURCE:

Survey of existing conditions and sample locations conducted by GEI Consultants, Inc. in 1999, 2009 and 2010. Survey by New York state licensed land surveyor number 050146. Horizontal Datum: New York State Plane Coordinate System (East Zone, North American Datum (NAD) 83). Vertical Datum: North American Vertical Datum (NAVD) 88.

Suffern Former MGP Site
Suffern, New York

Orange and Rockland Utilities, Inc.
Spring Valley, New York

GEI Consultants

POST-REMEDIAL QUARTERLY MONITORING PLAN

Project 1703277 | October 2017 | Fig. 1

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