

R. Scott Deyette, Project Manager
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Subject:
Former Newburgh MGP Site
Newburgh, New York
NYSDEC Site # 3-36-042
Final Engineering Report Summary Letter

Dear Mr. Deyette:

This letter report has been prepared by Arcadis of New York, Inc. (Arcadis) on behalf of Central Hudson Gas & Electric Corporation (CHGE) to support issuance of a Certificate of Completion for the former Newburgh manufactured gas plant (MGP) project site (which includes adjacent off-site properties and the Hudson River east of the former MGP; hereinafter collectively referred to as “the site”). A Site Location Map is provided on Figure 1.

Purpose

The purpose of this letter report is to fulfill the requirements of a Final Engineering Report (FER) as identified in Section 5.8 of New York State Department of Environment Conservation’s (NYSDEC’s) “Technical Guidance for Site Investigation and Remediation” (DER-10). Specifically, this letter report summarizes information required by DER-10 Section 5.8(a) 2.iv and addresses the additional FER requirements identified in DER-10 Section 5.8(d) to supplement the construction completion reports previously submitted for the site (discussed further in “As presented in the 2005 Record of Decision (ROD; including the September 26, 2017 minor ROD modification) issued by NYSDEC for the site, the remediation goals for the site were to eliminate or reduce to the extent practicable:

- Exposures of persons at or around the site to MGP tar (referred to herein as non-aqueous phase liquid [NAPL]) in Hudson River sediments.
- Exposures of persons at or around the site to sheens and floating slicks of MGP tar on the surface of the Hudson River.
- Exposures of persons engaged in subsurface utility work or other excavation work to MGP tar and tar-impacted soils.

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B0020531

- Environmental exposures of fish and wildlife to MGP tar and polycyclic aromatic hydrocarbon (PAH) compounds derived from the tar in the Hudson River sediment.

Further, the remediation goals for the site include attaining to the extent practicable:

- Ambient groundwater quality standards.
- Narrative surface water quality standards for sheens.

Summary of Remedial Actions”).

Background

The site is currently in the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program (Site No. 3-36-042) administered by NYSDEC. CHGE entered into an Order on Consent (Index No. D3-001-95-06) with NYSDEC on October 20, 1995 to remediate the site. For remediation purposes, the site was divided into three areas as shown on Figure 2 and described below:

- Area A consists of the former MGP and is owned by CHGE.
- Area B is defined as the area between South Water Street and the Hudson River, and is occupied by a transportation corridor (South Water Street, River Street, and a CSX railroad right-of-way) and the City of Newburgh sewage treatment plant (STP).
- Area C is defined as the portion of the Hudson River located off shore from the City of Newburgh STP.

As presented in the 2005 Record of Decision (ROD; including the September 26, 2017 minor ROD modification) issued by NYSDEC for the site, the remediation goals for the site were to eliminate or reduce to the extent practicable:

- Exposures of persons at or around the site to MGP tar (referred to herein as non-aqueous phase liquid [NAPL]) in Hudson River sediments.
- Exposures of persons at or around the site to sheens and floating slicks of MGP tar on the surface of the Hudson River.
- Exposures of persons engaged in subsurface utility work or other excavation work to MGP tar and tar-impacted soils.
- Environmental exposures of fish and wildlife to MGP tar and polycyclic aromatic hydrocarbon (PAH) compounds derived from the tar in the Hudson River sediment.

Further, the remediation goals for the site include attaining to the extent practicable:

- Ambient groundwater quality standards.
- Narrative surface water quality standards for sheens.

Summary of Remedial Actions

The selected remedies to achieve the remediation goals for the three areas of the site were detailed in the 2005 ROD for the site, multiple work plans and remedial designs, and multiple construction completion reports. Implementation of the remedial construction at the site was performed in phases as summarized in Table 1. Construction details describing the construction implemented (including waste disposal information [e.g., facility locations, manifests] pre- and post-remedial data, and record drawings)

and certification of the construction performed are provided in the construction completion reports for each phase of work as referenced in Table 1.

Table 1. Summary of Remedial Actions Performed

Phase	Year(s)	Engineer-of-Record	Remedial Activities Completed	Documentation/Certification Report
Area A				
NAPL Recovery Wells	2005 to 2007	Arcadis	<ul style="list-style-type: none"> Installation of 37 NAPL recovery wells Initiation of NAPL recovery program, including routine monitoring and recovery of NAPL. Recovery program ongoing. 	<p>NAPL Collection Well Summary Report (Arcadis 2008)</p> <p>Site Management Plan (Arcadis 2017)</p>
Former Tar Tank Area (FTTA) and Former Relief Holder Area (FRHA) Excavation	2007	Earth Tech	<ul style="list-style-type: none"> Excavation and off-site disposal of 12,272 tons soil to remove NAPL-impacts Removal of portions of Brook Sewer and plugging the western exposed end of Brook Sewer in the FTFA Asbestos abatement for sections of pipe removed from the FRHA Excavation dewatering and water treatment/management Site restoration, including backfilling excavations to pre-construction grade Installation of drainage swale along FRHA 	Area A Construction Completion Report (Earth Tech 2008)
NAPL Recovery Wells	2013	Arcadis	<ul style="list-style-type: none"> Installation of two additional NAPL collection wells as set forth in the NAPL Collection Well Summary Report 	<p>Former Propane Tank Area Investigation (Area A) and NAPL Collection Well Installation (Areas A and B) Letter Report (Arcadis 2014)</p> <p>Site Management Plan (Arcadis 2017)</p>
Former Propane Tank Area Excavation	2015 to 2016	Arcadis	<ul style="list-style-type: none"> Abandonment of two wells within the excavation footprint Excavation and off-site disposal of 12,566 tons of soil to remove NAPL-impacts Excavation dewatering and water treatment Site restoration including backfilling excavations to pre-construction grades or as need to promote positive drainage Installation of two replacement NAPL collection wells 	<p>Construction Completion Report, Area A Former Propane Tank Area (Arcadis 2016a)</p>
Area B ^{Note 1}				
STP Clarifier Excavation	1998 to 1999	Langan Engineering and Environmental Services, P.C. (Langan)	<ul style="list-style-type: none"> Excavation and off-site disposal of approximately 2,420 tons of NAPL-impacted material to facilitate construction of the third clarifier at the STP Excavation dewatering and water treatment Excavation backfill and restoration 	Remedial Action Report for the Interim Remedial Measure (Langan 1999)

Note 1 *The in-situ chemical oxidation component of the Area B remedy identified in the ROD was removed as part of the remedial activities as agreed to by NYSDEC during an annual site review meeting in October 2012.*

Phase	Year(s)	Engineer-of-Record	Remedial Activities Completed	Documentation/ Certification Report
NAPL Recovery Wells	2005 to 2008	Arcadis	<ul style="list-style-type: none"> Installation of 19 overburden collection wells Initiation of NAPL recovery program, including routine monitoring and recovery of NAPL. Recovery program ongoing. 	<p>NAPL Collection Well Summary Report (Arcadis 2008)</p> <p>Site Management Plan (Arcadis 2017)</p>
NAPL Barrier Wall and Collection Trench Installation	2010	Arcadis	<ul style="list-style-type: none"> Relocation of the STP chlorine contact tank outfall and Renwick Street combined sewer overflow. Installation of a NAPL barrier wall and collection trench along the bank of the Hudson River Excavation and off-site disposal of approximately 2,800 tons of material during construction of the collection trench. Installation of one NAPL collection well to the west of the barrier wall near Renwick Street at the request of NYSDEC. Upland restoration, including backfilling areas to pre-construction grade and seeding and planting as appropriate. Shoreline restoration, including backfill with riprap, and seeding and planting, as appropriate. 	<p>Construction Completion Report, Former Manufactured Gas Plant Site - Areas B and C (Arcadis 2016b)</p>
NAPL Recovery Wells	2013	Arcadis	<ul style="list-style-type: none"> Installation of five additional NAPL collection wells were installed, including the two NAPL collection wells identified for installation in the NAPL Collection Well Summary Report. 	<p>Former Propane Tank Area Investigation (Area A) and NAPL Collection Well Installation (Areas A and B) Letter Report (Arcadis 2014)</p> <p>Construction Completion Report, Former Manufactured Gas Plant Site - Areas B and C (Arcadis 2016b)</p> <p>Site Management Plan (Arcadis 2017)</p>
Area C				
Sediment Dredging	2011	Arcadis	<ul style="list-style-type: none"> Dredging, solidification, and off-site disposal of approximately 19,860 cubic yards of material to remove NAPL-impacted sediment from the Hudson River <ul style="list-style-type: none"> A sunken vessel identified in the NAPL-dredge area was preserved in place beneath a layer of clean fill following removal of NAPL-impacted sediments from within and around the vessel. Based on the location of the vessel in relation to the NAPL-impacted sediments, NAPL is not expected to exist beneath the vessel. 	<p>Construction Completion Report, Former Manufactured Gas Plant Site - Areas B and C (Arcadis 2016b)</p>

Phase	Year(s)	Engineer-of-Record	Remedial Activities Completed	Documentation/Certification Report
			<ul style="list-style-type: none"> Dredging, solidification, and off-site disposal of approximately 3,800 cubic yards of material to remove PAH-impacted/potentially toxic sediment in the Hudson River Backfilling of NAPL dredge areas with approximately 19,250 cubic yards of clean fill to restore the sediment surface; PAH dredge areas were allowed to naturally infill as approved by the NYSDEC 	

Remaining Impacts and Control Measures

After completion of the remedial work, impacts remain in Areas A and B of the site. Locations of the remaining impacts are summarized in the Site Management Plan (SMP; Arcadis 2017), which was prepared in accordance with the requirements in NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation") dated May 2010 and guidelines provided by NYSDEC to address the means for implementing and maintaining the engineering controls (ECs) and institutional controls (ICs) required by the site remedy. Based on the work completed, no sediment impacts are expected to remain in Area C; therefore, no ECs or ICs are required for Area C.

An Environmental Easement for Area A was granted to the NYSDEC, and recorded with the Orange County Clerk, that requires compliance with the SMP and all ECs and ICs placed on Area A of the site. For the Area B properties, CHGE has obtained an Environmental Indemnity Agreement with CSX (dated May 11, 2009) and an Access Agreement with the City of Newburgh (dated April 19, 2012) to implement the SMP; these agreements are collectively referred to as "Agreements". These Agreements require compliance with the SMP and all ECs placed on Area B of the site; per the September 26, 2017 minor ROD modification issued by NYSDEC, these Agreements are an acceptable alternative instrument for the required institutional controls.

ECs installed as part of the remedy for the site are the NAPL collection wells (Areas A and B) and the NAPL collection trench and barrier wall (Area B) described above. A summary of the NAPL collection system details are provide in the SMP. The ICs required by the Environmental Easement (Area A) and the SMP (Areas A and B), include:

- Prohibiting use of the groundwater underlying Areas A and B without necessary water quality treatment as determined by the New York State Department of Health or the Orange County Department of Health.
- Performing future activities that will disturb remaining contaminated material in accordance with the SMP and the Excavation Work Plan.
- Operating, maintaining, monitoring, inspection, and reporting of remedy performance (including physical component of the remedy) as defined in the SMP.
- Providing access to the Areas A and B to agents, employees or other representatives of the State of New York to assure compliance with the restrictions identified by the Environmental Easement (Area A).
- Evaluating the potential for vapor intrusion for any buildings or expansions constructed in Areas A and B, and any potential impacts that are identified must be monitored or mitigated.

Certification Language

The 2007 Area A former tar tank area (FTTA) and former relief holder area (FRHA) remediation was certified by Carsten Floess, P.E. of Earth Tech, Inc.(Earth Tech), the Engineer of Record who had primary direct responsibility for implementation of the remedial program activities for the FTTA and FRHA in Area A. Earth Tech's certification for the FTTA and FRHA remediation is provided in the Construction Completion Report, Former Manufactured Gas Plant Site (Area A) (Earth Tech 2008) and is incorporated herein by reference.

The 2015 Area A former propane tank area remediation was certified by Mark O. Graveling, P.E. of Arcadis of New York, Inc. (Arcadis), the Engineer of Record who had primary direct responsibility for implementation of the remedial program activities for the former propane tank area in Area A. Certification of this work is provided in the Construction Completion Report, Area A Former Propane Tank Area Newburgh Former MGP Site (Arcadis 2016a) and is incorporated herein by reference.

The 2009-2014 Areas B and C remediation was certified by Mark O. Graveling, P.E. of Arcadis of New York, Inc. (Arcadis), the Engineer of Record who had primary direct responsibility for implementation of the remedial program activities for Areas B and C. Certification of this work is provided in the Construction Completion Report, Former Manufactured Gas Plant Site - Areas B and C (Arcadis 2016b) and is incorporated herein by reference.

Attachment 1 includes the additional final engineering report certification language required in DER-10 Section 1.5(b)4 that is not included in the CCR certification language required in DER-10 Section 1.5(b)3. Certification of the CCRs were provided in each of the CCRs completed for each phase of work as described previously.

Please contact me at (315) 671-9333 if you have any questions about the information presented herein.

Sincerely,

Arcadis of New York, Inc.



Amanda Kohler
Project Environmental Engineer

Copies:

Kristin Kulow, NYSDOH
Maureen Schuck, NYSDOH
Jesse Gallo, CHGE
Wayne Mancroni, CHGE
Mark McLean, CHGE
Mark Graveling, P.E., Arcadis
Nancy Gensky, Arcadis

Documents Incorporated by Reference:

- Arcadis. 2008. NAPL Collection Well Summary Report, Former Manufactured Gas Plant Site, Newburgh, NY. February.
- Arcadis. 2014. Former Propane Tank Area Investigation (Area A) and NAPL Collection Well Installation (Areas A and B) Letter Report, Newburgh MGP Site, Newburgh, NY. March.
- Arcadis. 2016a. Construction Completion Report, Area A Former Propane Tank Area, Newburgh Former MGP Site, Newburgh, NY. May.
- Arcadis. 2016b. Construction Completion Report, Former Manufactured Gas Plant Site - Areas B and C, Newburgh, NY. August.
- Arcadis. 2017. Site Management Plan, Former Manufactured Gas Plant Site, Newburgh, NY. September.
- Earth Tech. 2008. Construction Completion Report – Former Manufactured Gas Plant Site (Area A), Newburgh, NY. October.
- Langan Engineering and Environmental Services, P.C. 1999. Remedial Action Report for the Interim Remedial Measure.

Enclosures:

Figures

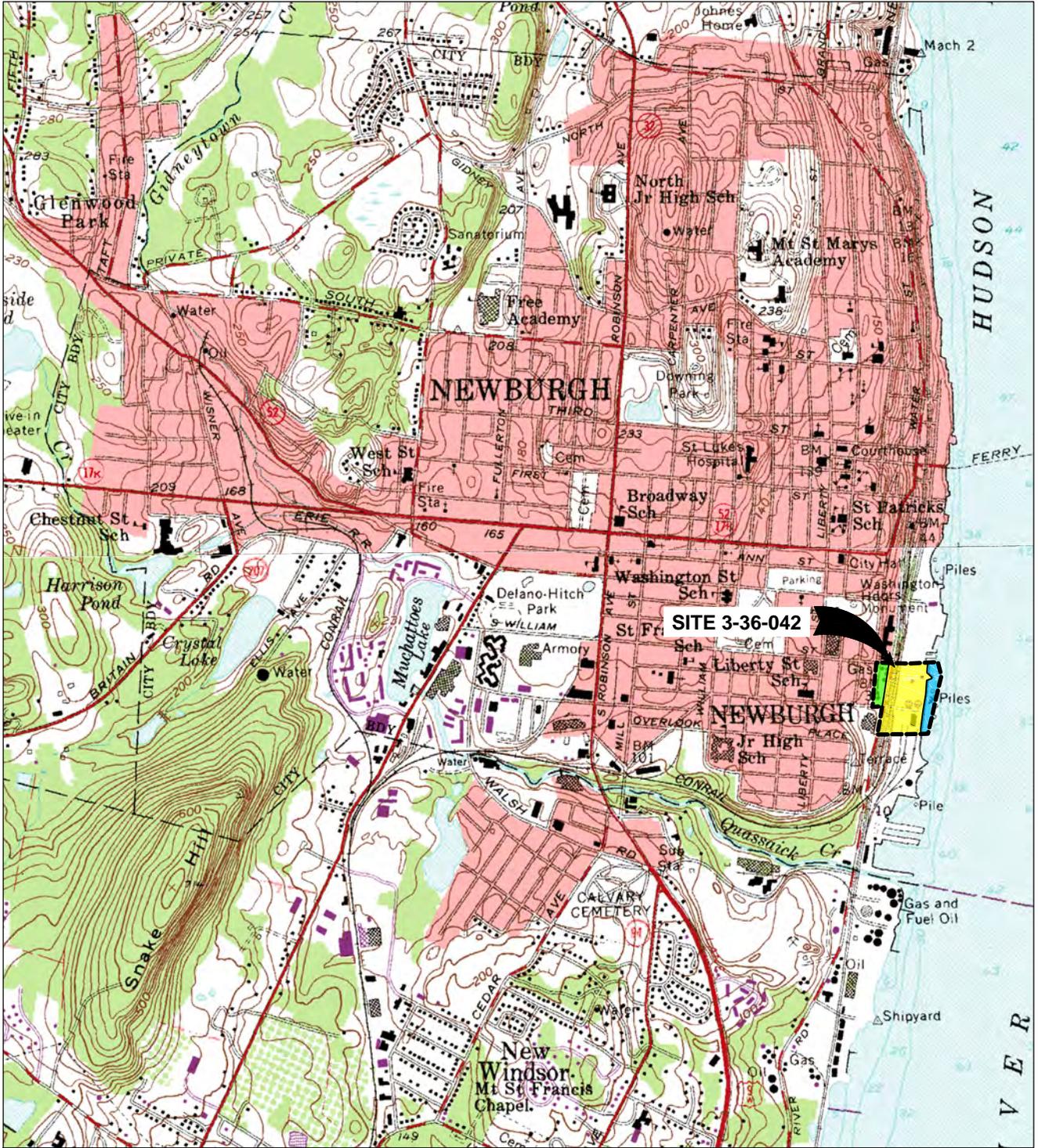
- 1 Site 3-36-042 Location Map
- 2 Site Plan

Attachment

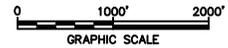
- 1 Engineering Certification

FIGURES





REFERENCE: BASE MAP USGS 7.5 MINUTE QUADRANGLES., CORNWALL, NY, 1957 (PHOTOREVISED 1981) AND NEWBURGH, NY, 1957.



LEGEND:

-  APPROXIMATE AREA A LOCATION
-  APPROXIMATE AREA B LOCATION
-  APPROXIMATE AREA C LOCATION



CENTRAL HUDSON GAS & ELECTRIC CORPORATION NEWBURGH, NEW YORK	
SITE 3-36-042 LOCATION MAP	
 ARCADIS	Design & Consultancy for natural and built assets
FIGURE 1	

ATTACHMENT 1

Engineering Certification



ENGINEERING CERTIFICATION

I, Mark Graveling, certify that I am a registered professional engineer licensed by the State of New York. A Site Management Plan (SMP) has been submitted for the continual and proper operation, maintenance, and monitoring of any engineering controls employed at Areas A and B of the site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by DER.

All use restrictions, institutional controls, engineering controls, and/or any operation and maintenance requirements applicable to Area A are contained in an environmental easement created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded. All engineering controls, and/or operation and maintenance requirements applicable to Area B are contained in access agreements between Central Hudson Gas & Electric Corporation and the Area B property owners to implement the SMP and such access agreements are an acceptable alternative instrument for the required institutional controls as documented in the "Minor Record of Decision (ROD) Modification, Area B" issued by NYSDEC on September 26, 2017 for the Central Hudson Newburgh MGP Site (Site No 336042).



Mark O. Graveling

Mark O. Graveling, P.E.
NYS P E. 069985

2/15/18

Date