SAMPLING AND ANALYSIS PLAN

NEW SALTWATER PUMP HOUSE
GREENPOINT ENERGY CENTER
287 MASPETH AVENUE
BROOKLYN, NEW YORK

Prepared for:

National Grid NY
2 Hanson Place
Brooklyn, NY 11243

Prepared by:

TRC Engineers, Inc.
21 Griffin Road North
Windsor, CT 06095

On Behalf of:

Bond Civil & Utility Construction, Inc
10 Cabot Road, Suite 300
Medford, MA 02155

October 18, 2024

TABLE OF CONTENTS

1.0 INTRODUCTION

TRC Engineers, Inc. (TRC), under contract to Bond Civil & Utility Construction, Inc (BCU), has prepared this Sampling and Analysis Plan (SAP) for the National Grid (NGRID) Greenpoint Energy Center Saltwater Pump House (SWPH) project. This plan was prepared to comply with requirements specified in NYSDEC Permit No. 2-6101-00071/00025 issued for the SWPH project. Specifically, the permit requires the preparation of a sampling protocol that is consistent with the permit document titled "Newtown Creek Permit Applicants: Sediment Sampling, Materials Management & Disposal, and BMP Requirements for Construction Projects in Newtown Creek, New York City," (hereafter referred to as the "Newtown Creek Guide to Permit Applicants") dated June 13, 2024. The project site conditions do not contain an intertidal zone, so the sediment sampling protocol is consistent with the requirements for core sampling for a site without an intertidal zone. Sediment samples will be collected from shoreline locations within the footprint of the planned new intake scour pad that will be constructed in Newtown Creek adjacent to the water pump intake structure where sediment dredging is planned as part of the new SWPH construction. If sheens associated with suspected groundwater seeps are observed at the timber cutoff wall prior to sediment disturbance activities, opportunistic sampling of the sheen will be attempted from the shoreline.

The sediment and sheen sampling and analyses described herein is being performed for the purpose of obtaining documentation in accordance with the above-referenced NYSDEC permit requirements. Previous sampling and analyses of sediments was completed in this area under the Remedial Investigation of the Greenpoint Energy Center and the Remedial Investigation of Newtown Creek.

1.1 SWPH Project Overview

The BCU project scope includes all engineering design, procurement, construction, testing, startup supervision, commissioning and other work necessary to provide a complete new operating SWPH including a new intake pump structure (pump well) at the National Grid Greenpoint Liquefied Natural Gas (LNG) facility located in Greenpoint, Brooklyn, New York. The work includes the construction of a scour pad in the creek in the area adjacent to the new SWPH intake structure. The scour pad has been designed as a permanent structure; however, it is intended to be installed as a temporary measure pending the final Newtown Creek remedy selected by USEPA. The new SWPH is being constructed to replace the existing SWPH structure. The new SWPH will be a storm-resilient elevated one-story structure constructed to the northwest of the existing SWPH, to the southeast of the Warehouse Building, and to the south of the New York City Fire Department (FDNY) fire boat manifold on the LNG facility.

2.0 SEDIMENT SAMPLING

2.1 Purpose and Scope

This work will consist of sediment sampling and chemical laboratory analysis for the purposes of characterizing the sediments located directly below the planned sediment dredge depth in the new SWPH scour pad area for the purpose of meeting the sampling and testing protocol requirements of the Newtown Creek Guide to Permit Applicants.

2.2 Sediment Sampling

Sediment samples will be collected from two locations spaced approximately 50 feet apart along the shoreline at the planned location of new SWPH intake scour pad. The planned sediment sample locations SD-1 and SD-2 are indicated on Figure 1. The sediment samples will be collected from the 2-foot depth interval (includes two 1-foot sample intervals) directly below the planned 4.5 foot sediment dredge depth at the planned scour pad shoreline location and laboratory tested for the parameters specified in the Newtown Creek Guide to Permit Applicants.

The coordinates of the proposed sample locations will be loaded into a global positioning system (GPS) receiver capable of sub-meter accuracy. A GPS unit will be used to navigate a boat with the sediment sampling equipment and personnel as close as practicable to each sample location. Temporary visual landmarks (e.g., high visibility flagging on the chain-link fencing) will also be established along the shoreline in line with the in-water sample locations to aid in positioning the boat for the sampling. The GPS coordinates of the actual completed sample location will be documented. Boat anchors will be used to hold position while the sediment cores are collected.

An oil sorbent boom will be available on the boat to deploy in the event that an oil sheen is observed at the location during the sediment sampling.

The sediment sampling will be performed by a contractor utilizing a vibracore-type sediment sampling assembly. The vibracore sediment sampling system will be equipped with a 3-inch diameter, 10-foot-long core barrel sampler. New clear polyvinyl chloride (PVC) core liners with dedicated core catchers will be used for the collection of the sediment samples. At each location, the sediment core barrel/liner assembly will be slowly lowered through the water column until it is in contact with the sediment surface, the water depth will be recorded, and a visual mark will be placed on the topping pipe. The core barrel vibrating process will then advance the core barrel assembly into the sediment to the target depth of 6.5 feet, which is 2 feet below the planned 4.5 foot sediment removal depth, or refusal is encountered, and the completed depth of penetration will be recorded. General notes regarding the conditions of any core refusal (e.g., presence of a coarse material, or a hard surface) will be recorded in the core log or field notebook.

For each sample interval, the core sampling device will be removed from the sediment, taking care to keep the core in a vertical position and minimize sample disturbance. As the core is pulled from the water, it will be visually evaluated for penetration and release of sediment from the tube. The core catcher will be inspected for rocks or other obstacles that may have plugged the core while penetrating. A core sample may be rejected if there is doubt about its representativeness. The

bottom of the core barrel will be capped with a plastic cap and the tube will be placed in the processing rack. The excess core tube above the recovered sediment will be cut off from the top of the tube. A plastic cap will be immediately placed over the top of the tube and both caps will be adhered to the core liner with duct tape. The observed core sediment recovery length at the time of retrieval will be marked on the outside of the core tube, measured and recorded. A sample recovery of 75 percent (%) or greater will be considered acceptable and representative of an individual location and sample penetration depth. If sample recovery is below 75% or the core shows signs of disturbance, another core will be attempted at the station. If 75% recovery is not possible due to substrate limitations, these limitations will be documented in the sample log. The core sample compaction will be estimated (measured recovery/penetration) and will be used to determine the in-situ sampling depths. When 100% core recovery is not achieved, recovered core samples will be "expanded" to their penetration depth to compensate for core compaction.

If the core sediment recovery from the retained core is less than the volume required for the planned lab analyses, additional cores will be completed for the compositing of multiple cores from the location. Depending upon core sample recovery and refusal, multiple cores may be required from around each location to achieve the target depth and/or collect the required sample volume. The TRC sampler will label the outside of the liners with the sample location identification, top of core, bottom of core, sample interval/depth, and date and time of collection. The collected core tube samples will be kept in an upright position to minimize sample disturbance prior to the core sample opening, screening, logging, and processing.

Sediment cores will be processed each day at a designated on shore location on the Greenpoint Energy Center. The processing area will be located on a flat surface (e.g., concrete slab) covered with plastic sheeting. First, the top end cap will be removed from the core and standing water in the core tube will be carefully removed using a peristaltic pump equipped with low-density polyethylene (LDPE) tubing. The sediment cores will be handled carefully and any standing water will be slowly removed to minimize the removal of fine sediment material at the top of the sediment core surface. The water will be collected in 5-gallon plastic pails for proper waste management. After removing the standing water, the cores will be carefully placed on their side on the plastic sheeting, the bottom end cap will be removed, and each PVC core tube will be carefully cut open lengthwise with a core liner cutter. The core tube will be carefully split/opened with a deconned flat blade tool (putty knife or spatula) to allow for immediate field screening and sediment sample collection. The sediment cores will be photographed, sediment recovery recorded, and the sediment physically/geologically described in core logs (includes moisture content, density, color, major and minor constituents), odor (e.g., hydrogen sulfide-like, petroleum-like), debris, and visual impacts (sheen, blebs, coated, saturated, etc.). Where multiple cores are collected at a sample location to obtain the required sample volume, only the core with the greatest sediment sample recovery will be logged.

Sediment samples will be collected from two locations, with two samples collected from each location for laboratory analysis. At each sediment sample locations, sediment samples will be collected from the two core sample intervals representative of the 4.5- to 5.5-foot and 5.5- to 6.5-foot depth intervals. A summary of the sediment sample analyses parameters, methods, containers, and preservation is provide in Table 1.

The sediment sampling will include the collection of both discrete grab samples and composite samples from each 1-foot interval. Upon opening the cores, the sediment core samples will be screened with a portable organic vapor analyzer (OVA) equipped with a photoionization detector (PID) having a 10.2 eV lamp. The sample intervals with PID readings will be noted in the core log. Sediment samples for VOCs (BTEX) and EPH analysis will be collected as discrete grab samples. The VOCs and extractable petroleum hydrocarbon (EPH) grab sampling and collection will be performed as soon as possible and prior to any sample compositing and/or homogenization of the sediment sample for the remaining sediment sample analyses. The samples for VOCs analysis will be collected in accordance with USEPA Method 5035 and placed on ice in a cooler.

After the sample logging has been completed and the grab sample collected for VOCs analysis, the remaining sediment from the two 1-foot sample intervals will be collected separately for analysis for metals, polynuclear aromatic hydrocarbons (PAHs), pesticides, polychlorinated biphenyls (PCBs), dioxins and furans, and extractable petroleum hydrocarbons (EPH). Prior to placement into sample containers, the sample remaining from each interval after collection of the VOC grab samples will be placed into dedicated new aluminum disposable trays, dedicated new plastic pails, or other dedicated new containers for sample homogenization/mixing. Sediment core sample amounts proportional to the recovered depth of sediment from each core at the sample location will be composited for each 1-foot sample interval. To avoid cross contamination between sample intervals, sediment along the outer core edges that contacted the liner will be avoided and not used in the sample composite. Once all the sample for each 1-foot interval in the retained cores at a location are in a mixing container, each composite sample will be thoroughly homogenized using a dedicated new plastic spoon, scoop, spatula, or other equivalent new or decontaminated device. The composite samples will be transferred to the appropriate sample containers. The sample containers will be labelled and stored in coolers on ice for transport to the analytical laboratory.

Sample processing equipment may be new, single-use, and disposable; or may be re-used at the discretion of the field sampling crew, if the equipment can be adequately decontaminated prior to each use. Sampling equipment reused at a location for collection of additional sample volume from the same interval will be reused at that location without decontamination. All reuseable sampling equipment that directly contacts sediments during sampling (e.g., core barrels, spatulas, spoons) and any other non-dedicated, non-disposable sampling equipment will at a minimum be decontaminated in accordance with Section 3.1 prior to use at each sample location.

Investigation derived waste (IDW) streams generated during the sediment sampling are anticipated to include excess sediment sample material, core sample decant water, equipment decontamination fluids, and general refuse (e.g., used personal protective equipment (PPE), single-use sampling equipment, and trash). Excess sediment sample material and decontamination fluids will be collected separately in 5-gallon pails or a 55-gallon drum. Any solvents or citric-based cleaners used for sampling equipment decontamination to remove oily residues will also be collected separately for waste disposal. The IDW containers will be closed tight, labeled with the date and contents, and temporarily stored at a secure location at the Greenpoint Energy Center facility pending receipt of the waste characterization test results and then transferred to an approved off-site waste disposal facility. General refuse including used PPE and rinsed disposable sampling

supplies will be collected in closed plastic trash bags and placed in an on-site solid waste dumpster owned or contracted by BCU for the SWPH project.

Quality assurance/quality control aspects of the sediment sampling and sample laboratory analyses are summarized in Section 4.0.

2.3 Subcontractors

TRC will use the following subcontractors for the sediment sampling and analysis:

Sediment Sampling:

- TG&B Marine Services
  P.O. Box 773
  Monument Beach, MA 02553
  508-326-3686

Laboratory Analyses:

- Alpha/Pace Analytical Services (PAHs, Metals, Pesticides)
  320 Forbes Boulevard
  Mansfield, MA 02048
  508-844-4124
- Alpha/Pace Analytical Services (EPH, TSS, and Chloride)
  8 Walkup Drive
  Westborough, MA 01581
- Pace Analytical Services (PCBs and Dioxins/Furans)
  1700 Elm Street SE
  Minneapolis, MN 55414

3.0 GROUNDWATER SEEP SAMPLING

3.1 Purpose and Scope

The Newtown Creek Guide to Permit Applicants specifies that the applicant survey the site for groundwater seeps into the creek. The site conditions do not include an intertidal zone nor an exposed bulkhead without an intertidal zone. However, prior to any sediment disturbance activities, where sheens are observed associated with suspect groundwater seeps, opportunistic sheen sampling will be performed. The following provides a summary of the site conditions and planned groundwater seep sampling.

3.2 Seep Sampling

As indicated by the design drawings for the new SWPH, the elevation of the Mean Low Low Water (-2.60 feet) is approximately equal to the elevation of the bottom of the timber decking (-1.63 feet) of the loading platform. Nearly all materials below the loading platform are always below the water of the creek, including the sediments and existing riprap below the timber decking and adjacent to the timber cutoff wall along the upland portion of the Site. Because of these existing site conditions, there is no exposed bank through which a seep may migrate, and as such there will not be an opportunity to observe any seeps prior to the start of construction.

During construction, a portion of the loading platform will be removed to accommodate the installation of the new pile supported concrete intake structure. During that period of construction, the timber cutoff wall along the upland portion of the Site will remain under the loading platform and will not be exposed or visible for inspection. Similar to the pre-construction conditions, there will not be an opportunity to observe any exposed shoreline groundwater seeps during this brief period of construction. Following the removal of the loading platform, construction activities that will result in the disturbance of sediments will commence including pile removal, dredging, and pile installation.

While direct observation of a potential shoreline groundwater seep is not possible due to the physical site conditions, National Grid will observe the open area following the loading platform decking removal and prior to active sediment disturbance activities for indirect evidence of any suspected seep locations. This may include surface sheens associated with suspected seep locations along the exposed portion of the timber decking closest to the timber cutoff wall along the upland portion of the Site. This will not include sampling of disconnected or localized sheens or blebs that cannot be verified to be in contact with the timber cutoff wall.

In the unlikely event that a surface sheen associated with a suspected groundwater seep location is observed at the timber cutoff wall during the brief period between the removal of the loading platform and the start of construction activities that will result in the disturbance of sediments, remote sampling using a sheen net will be attempted from the surface of the Site approximately 8 to 10 feet above the water level. The Standard Operating Procedure for the seep sheen sampling is provided in Appendix A. Suspected seep sheen samples will be analyzed for Alkylated PAHs. A summary of the sheen sample analysis parameters, methods, containers, and preservation is provided in Table 1.

3.3 Subcontractors

The following laboratories will conduct the seep sheen sample analysis:

Laboratory Analyses:

- Alpha/Pace Analytical Services (Alkylated PAHs)
  320 Forbes Boulevard
  Mansfield, MA 02048
  508-844-4124

4.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

The following presents a summary of several of the key QA/QC requirements for the sediment and groundwater seep sampling and analysis program described in this plan.

4.1 Equipment Decontamination

Dedicated sampling equipment, including new PVC core liners, aluminum mixing trays, 5-gallon plastic pails, sheen nets, and/or sample scoops, will be used for the collection of sediment and sheen samples for laboratory analysis and as result, field decontamination of the sampling equipment is not anticipated. At a minimum, the core barrel device that holds the dedicated core liner will be washed between locations with a nonphosphate soap/potable tap water wash and deionized (DI) (or distilled water) water rinse (using a scrub brush as necessary to remove solids). If a residual oily sheen is present on reuseable sampling equipment that contacts the sediment sample, the equipment will also be rinsed with isopropanol and/or a citrus-based cleaner (with waste collected separately), solvents allowed to air dry, rinsed with DI water, and followed by a potable tap water rinse.

4.2 Quality Control/Quality Assurance Samples

Site-specific matrix-spikes (MS), matrix-spike duplicates (MSD), equipment rinsate blank, blind field duplicate, equipment blank, and a trip blank will be collected/analyzed for this sediment sampling and testing program. An equipment rinsate blank and duplicate sample will be collected at a minimum frequency of one sample per 20 sediment samples collected. A new unused Teflon® sheen net will be submitted as an equipment blank to the laboratory. The rinsate blank, blind duplicate sample, and equipment blank will be analyzed for the analytical parameters analyzed in the associated samples. A laboratory-supplied aqueous trip blank will accompany every sediment sample shipment requiring VOCs analysis and analyzed for the same VOCs as the samples. In addition, sufficient sample quantity (i.e., three times the volume) will be provided for the laboratory to perform required method matrix spike and matrix spike duplicate analyses on at least 1 sediment sample per twenty sediment samples.

4.3 Sample Handling

The sediment sample locations will be identified by the letters SD and the sample location number (1 or 2), as indicated on Figure 1. Sediment samples will be assigned an individual sample identification number in the following manner:

SD#-##-##
Where:
SD# = Sediment Location Number (where # = 1 or 2)
- ## = top and bottom depth increment in feet (4.5-5.5 or 5.5-6.5)

The groundwater seep sheen samples will be assigned an individual sample identification number in the following manner:

GWS-#
Where:
GWS = Groundwater Seep Sample
# = Sample Number

Sediment sample containers will be labeled with an adhesive label, that will include the unique sample identifier/number, the date and time of collection, sampler's initials, analysis required, and sample preservative. The labeled sample containers will be placed promptly on ice in field coolers.

All sample shipments will be accompanied by a completed Chain of Custody (COC) form initiated in the field by the sampler. The field portion of the custody documentation will include: the sampler contact information, the project name, project location, sampler signature, sample identification number, sample date and time, sample matrix (e.g., sediment), sample analyses, sample containers, sample preservatives, data turnaround time, and data deliverables. Sample coolers with the samples, packing material, ice and the COCs will be transported by a laboratory courier service to the laboratory.

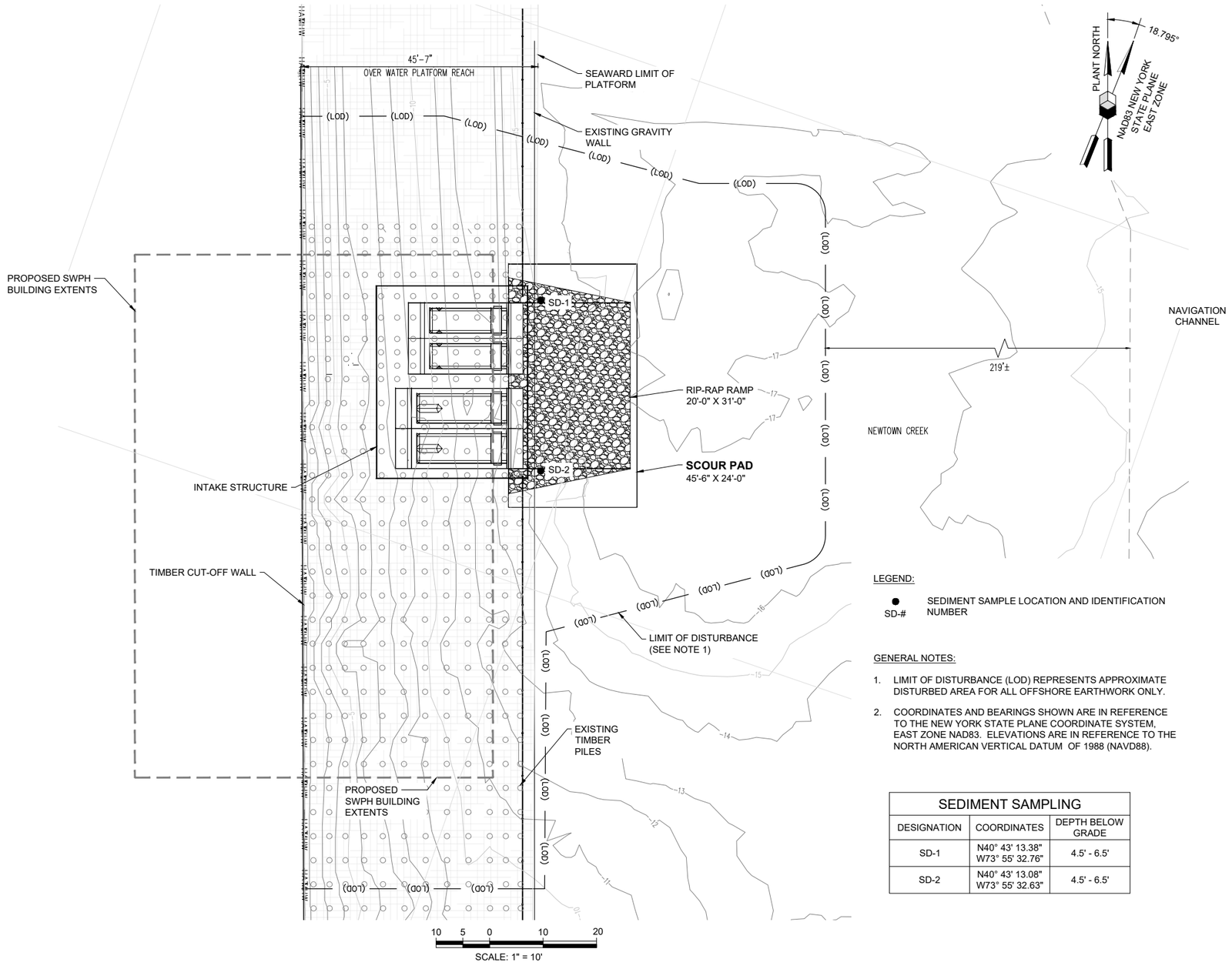
4.4 Analytical Protocols

New York State Department of Health (NYSDOH)-approved laboratories will perform the laboratory analyses of the site samples. The laboratory shall maintain a current NYSDOH Environmental Laboratory Approval Program (ELAP) Certificate of Approval for Laboratory Service and NJDEP National Environmental Laboratory Accreditation Program (NELAP) for the analyses being performed for this project.

All samples shall be analyzed using standard USEPA methods, except for EPH which will adhere to the Massachusetts Department of Environmental Protection (MassDEP) EPH method. The detection limits for the planned USEPA Methods are defined by the methods. Laboratory data will be provided as a NYS Analytical Services Protocols (ASP) Category B Laboratory Deliverable, NYSDEC EQuIS Electronic Data Deliverables (EDD), and MS Excel spreadsheet.

Sample holding times shall comply with the most stringent of USEPA, MassDEP and NYSDEC ASP holding time requirements. All excess samples and extract shall be archived by the laboratory for 21 days after invoicing unless otherwise directed by NGRID. Disposal of excess sample and extracts will be the responsibility of the laboratory.

Figures



LEGEND:

● SD-# SEDIMENT SAMPLE LOCATION AND IDENTIFICATION NUMBER

GENERAL NOTES:

1. LIMIT OF DISTURBANCE (LOD) REPRESENTS APPROXIMATE DISTURBED AREA FOR ALL OFFSHORE EARTHWORK ONLY.
2. COORDINATES AND BEARINGS SHOWN ARE IN REFERENCE TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, EAST ZONE NAD83. ELEVATIONS ARE IN REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

SEDIMENT SAMPLING

DESIGNATION	COORDINATES	DEPTH BELOW GRADE
SD-1	N40° 43' 13.38" W73° 55' 32.76"	4.5' - 6.5'
SD-2	N40° 43' 13.08" W73° 55' 32.63"	4.5' - 6.5'

DOCUMENT MAY BE PRINTED AT REDUCED SIZE

SHEET SIZE: 24" X 36"

PROJECT:
NATIONAL GRID GREENPOINT SALTWATER PUMP HOUSE
287 MASPETH AVENUE, BLOCK 2837, LOT 1
BROOKLYN, NEW YORK

TITLE:
SEDIMENT SAMPLE LOCATION PLAN

DRAWN BY:	H. DELGADO	PROJ NO.:	309641
CHECKED BY:	J. PERONTO		
APPROVED BY:	J. PERONTO		**FIGURE 1**
DATE:	AUGUST 2024		

TRC
1407 Broadway, Suite 3301
New York, NY 10018
Phone: 212.221.7822
www.TRCcompanies.com

FILE NO.: Fig.1 - Sed. Samp. Loc.Plan (NGGEC-SWPH).dwg

Tables

TABLE 1
SAMPLE METHOD ANALYSIS SUMMARY
GREENPOINT ENERGY CENTER, SWPH PROJECT, BROOKLYN, NY

Parameter	List of Constituents	Method	Container & Preservation	Laboratory	QC Samples
Sediment Samples:					
Polynuclear Aromatic Hydrocarbons (PAHs) and Alkylated PAHs	18 TOGS 5.1.9 PAHs & Alkylated PAHs	USEPA SW-846/ 8270E SIM(M)	1 - Glass 250ml/8oz & Cool 0-4°C	Alpha/Pace, Mansfield, MA	Duplicate, FB, MS, MSD
Metals (Arsenic, Cadmium, Copper, and Lead)	TOGS 5.1.9 Metals	USEPA SW-846/ 6020B			Duplicate, FB, MS, MSD
Mercury	Mercury	USEPA SW-846/ 7474			Duplicate, FB, MS, MSD
Pesticides	6 TOGS 5.1.9 Pestlcides	USEPA SW-846/ 8081B			Duplicate, FB, MS, MSD
Polychlorinated Biphenyl (PCB) Congeners	22 TOGS 5.1.9 PCB Congeners	USEPA SW-846/ 1668A	1 - Glass 250ml/8oz & Cool 0-4°C	Pace, Minneapolis, MN	Duplicate, FB, MS, MSD
Dioxins & Furans (PCDD/PCDF)	17 & TEQ TOGS 5.1.9 Dioxins & Furans	USEPA SW-846/ 1613B			Duplicate, FB, MS, MSD
Extractable Petroleum Hydrocarbons (EPH)	EPH (Hydrocarbon Ranges)	MassDEP 19-2.1	1 - Amber Glass 125ml/4oz & Cool 0-4°C	Alpha/Pace, Westborough, MA	Duplicate, FB, MS, MSD
Benzene, Toluene, Ethyl Benzene, Xylene (BTEX)	BTEX	USEPA SW-846/ 8260D&5035	3 - Glass 40 ml Vial w/Septa & Cool 0-4°C/1- MeOH	Alpha/Pace, Westborough, MA	Duplicate, FB, TB, MS, MSD
Groundwater Seep Sheen Samples:					
Alkylated PAHs	Alkylated PAHs	USEPA SW-846/ 8270E SIM(M)	1 - Teflon Sampling Net placed in Glass 4oz & Cool to 0-6°C	Alpha/Pace, Mansfield, MA	Equipment Blank

TEQ = Toxic Equivalence
FB = Field Equipment Rinsate Blank
TB = Trip Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate

Appendices

STANDARD OPERATING PROCEDURE

SS-001 Remote Surface Sheen Sampling

1. Objective

This SOP describes the use of remote equipment for the collection of sheens from surface water.

These devices are typically implemented from a boat or shoreline and are relatively easy to handle and operate, readily available. Remote sampling conducted from an elevation above the surface water or a location remote from the shoreline must be conducted using telescoping poles to place the sampling device within the area to be sampled. The device proposed for remote sampling should provide sufficient reach to allow sampling to be conducted at the targeted location safely. Samplers must be sufficiently sized to provide adequate sample volume to support the proposed analyses, although multiple sheen net may be necessary.

The use of sheen nets for collection of surface sheens is indicated for:

- Sample collection of surficial sheens for chemical analysis for purposes of evaluating contamination and/or migration pathways.

2. Materials

Equipment needed for collection of sheen samples may include:

- Teflon® (tetrafluorethylene [TFE]-fluorocarbon polymer) sheen sampler net, 4-inch diameter (vendor: https://www.generaloceanics.com/net-oil-sampling-4-dia-teflon-5080-250.html)
- Lightweight telescoping rod
- Zip ties
- Laboratory provided sample jars.
- Resealable plastic bags
- Ice
- Coolers, packing material.
- Chain of custody records, custody seals
- Decontamination equipment/supplies
- Maps/plot plan
- Safety equipment, including Floatation Device
- Tape measure
- Camera
- Field data sheets/field notebook/waterproof pen
- Permanent markers
- Sample bottle labels.
- Paper towels
- Personal Protection Equipment (PPE)

- Nitrile sampling gloves
- Global Positioning System (GPS)

3. Execution

- Prior to sample collection the Teflon sampler will be shipped to the laboratory for decontamination to remove trace materials from the net prior to sampling.
- Don appropriate PPE including Nitrile sampling gloves and flotation device.
- Attach the sampling net to the sample ring. Attach the sample ring to the telescoping pole using zip ties. Do not use any tape or other adhesives.
- Document the location of the surface sheen with photos, videos, and a description in the field notebook. Ensure photographs include background shots to identify the location of the sample.
- Observe and document the color (i.e., silver/gray, rainbow, metallic, dark/true color, or translucent) and structure of the sheen (i.e., streamers, patches, spots, or no structure).
- While maintaining careful footing and balance, lower the sheen net attached to the telescoping pole to the surface of the water.
- Pass the net through the surface sheen to collect the sample. Get as much of the net in contact with the surface sheen as possible. The net is used in a mop-like manner, not straining. Hold the net so that the opening of the ring is perpendicular to the surface of the water. Submerge the ring so that about half of the ring is above the surface of the water and half is below the surface of the water. Move the ring parallel to the surface of the water and through the sheen, back and forth. The sheen will stick to the net.
- Repeat as necessary throughout the extent of the target area. A minimum of three passes will be made with the same net in an attempt to capture an adequate quantity of sheen for analytical analysis.
- While maintaining careful footing and balance, raise the sheen net attached to the telescoping pole to the ground surface and move to a safe area away from the water's edge.
- Remove the net from the ring by unsnapping the ring and rotating the net off the ring.
- Place the net in a laboratory supplied sample container.
- Secure the sample jar cap tightly.
- Label the sample container using indelible ink or permanent marker.
- The samples should be placed in bubble wrap and then placed in a cooler with ice until transfer to the analytical laboratories.
- At the time of the sample collection, the sample location will be measured from known reference points or may be surveyed with GPS or other survey equipment.

4. Limitations

Vendor purchased Teflon® nets often are not sufficiently decontaminated to prevent false positives from laboratory analysis. Coordinate with the selected laboratory to decontaminate the nets prior to use in the field and to analyze duplicate samples, trip blanks, or other approved method to confirm no contamination.

Do not touch the sheen sample net with bare hands, as oils from the skin can be detected in the analysis and will interfere with the sheen analytical results.

Typically, either a large sheen or a number of small sheens need to be sampled with one net to get sufficient mass on the net for adequate laboratory reporting limits. If the sheen is blossoming in single drops, approximately ten drops are needed to have sufficient mass. If there is not enough mass on the net, there may be elevated reporting limits because of laboratory analytical challenges.

5. Site Cleanup

Excess sheen on the pole or the sample ring should be wiped clean and the materials disposed of as an investigation derived waste.

6. Record Keeping and Quality Control

There are no specific quality assurance activities which apply to the collection of sheens using a sheen net, but the following guidelines apply:

- An equipment blank (unused sheen net) will be collected and submitted for analysis with the sheen net samples.
- All data must be documented on field data sheets or within site field notebooks.
- Descriptions of any deviations and the reason for deviations from this SOP should be noted in the field notebook.

7. References

[ITRC] Interstate Technology & Regulatory Council. 2018. LNAPL Site Management: LCSM Evolution, Decision Process, and Remedial Technologies. LNAPL-3. Washington, D.C.: Interstate Technology & Regulatory Council. LNAPL Update Team. https://lnapl-3.itrcweb.org.

[USCG] United States Coast Guard, 2013. Oil Sampling Handling & Transmittal Guide, Eight Edition, U.S. Coast Guard Marine Safety Laboratory. January 2013, https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/Marine%20Safety%20Lab/TransmittalGuide8pt0.pdf?ver=2017-06-26-112521-147.

8. Contacts

Matthew O'Neil