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Via E-mail

24 March 2023

Mr. Timothy Schneider, P.E.
New York State Department of Environmental Conservation
6274 East Avon-Lima Road
Avon, NY 14414

Subject: Supplemental Soil Investigation Plan
Site Specific Soil Cleanup Objective For Mercury
Pennsylvania Lines LLC, Elmira 5th Street Site #C808050
Elmira, Chemung County, New York

Dear Mr. Schneider:

On behalf of Norfolk Southern Railway Company (NSRC), B&B Engineers & Geologists of New York, P.C., a wholly-owned New York State licensed engineering affiliate of Geosyntec Consultants, (collectively Geosyntec), has prepared this Supplemental Soil Investigation Work Plan (Work Plan) for the Pennsylvania Lines LLC, Elmira 5th Street Yard (the Site) (NYSDEC Site No. C808050) located in Elmira, Chemung County, New York. This Work Plan was prepared to evaluate and establish a site-specific soil cleanup objective (SCO) for mercury under the Brownfields Cleanup Program (BCP) in accordance with Title 6, Part 375-6.9(e) of the New York Codes, Rules and Regulations (NYCRR).

BACKGROUND

The Site was enrolled in NYSDEC's Voluntary Cleanup Program (VCP) in 2001. NYSDEC issued a Decision Document selecting the Site remedy under the VCP in 2016. Before the remedy could be designed and implemented, NYSDEC notified NSRC in 2017 that the VCP program was being terminated. NSRC subsequently enrolled the Site into the BCP in February 2018. NSRC has been working over the last several years to prepare a Remedial Action Work Plan (RAWP) for a Track 4 Cleanup that complies with the Decision Document and receive approval of the RAWP from NYSDEC. A revised RAWP addressing the latest round of comments from NYSDEC was submitted concurrently with this Work Plan.

As specified in the Decision Document, the revised RAWP includes several excavations where mercury was detected in soil above the industrial restricted use soil cleanup objective (RUSCO) of 5.7 milligrams per kilogram (mg/kg). However, utilizing the default mercury RUSCO of 5.7 mg/kg for the excavations appears to be overly conservative because: (i) the proposed remedy includes construction of a soil cover system over the entire Site coupled with institutional controls to protect against potential human health and ecological exposures to mercury via direct-contact; and (ii) mercury was not detected in groundwater samples collected at the Site during the last sampling events in 2009 (Final Remedial Investigation/Remedial Alternatives Report; Gannett Fleming, March 2013) and 2018 (Pre-Design Investigation Report; Geosyntec, March 2020), which suggest that residual concentrations of mercury in Site soil do not pose an apparent risk to groundwater resources.

NSRC discussed the potential for establishing a site-specific SCO for mercury during our teleconference meeting with you on 2 December 2023. We understand that establishing a site-specific SCO may be possible provided that additional data is collected at the Site where the highest mercury concentration was previously detected to demonstrate that mercury would not leach from soils to the extent that it would pose a risk to groundwater resources. Consistent with our discussion, NSRC is proposing a supplemental soil investigation detailed in the sections below to further assess mercury leaching potential from Site soils. In the event the investigation results show that mercury in Site soils is not an unacceptable risk to groundwater, a site-specific SCO for mercury will be proposed for NYSDEC approval.

SUPPLEMENTAL SOIL INVESTIGATION

Unless otherwise specified below, methods and procedures and quality assurance (QA)/quality control (QC) measures implemented during the supplemental investigation will be consistent with the Field Sampling Plan (FSP)/Quality Assurance Project Plan (QAPP) and Health and Safety Plan (HASP) included as Appendices A and B, respectively, to the Pre-Design Investigation (PDI) Work Plan[1]. The supplemental soil investigation is detailed in the remainder of this section.

Soil Sample Locations and Intervals

The highest mercury concentration detected at the Site was 330 mg/kg, which occurred in 2009 in the sample collected at AC8-SS-4 at a depth of 2-4 feet (ft) below ground surface (bgs). AC8-SS-4 was located in the central portion of RA-7 near the southeast corner of the concrete pad as shown on **Figure**

[1] Geosyntec, 2018. Pre-Design Investigation Work Plan, Pennsylvania Lines LLC, Elmira 5th Street Yard Site, revised 27 June 2018.

1. In 2003, lower but still elevated mercury concentrations were also detected from 2-4 ft bgs at SB-1 (44 mg/kg) and SB-5 (30.2 mg/kg). SB-1 and SB-5 were located approximately 20 feet west of AC8-SS-4 as shown on **Figure 1**. Those results suggest that elevated mercury concentrations are generally present is soil in localized areas south of the concrete pad in RA-7 at a depth of 2-4 ft bgs. Therefore, the supplemental soil investigation will focus on that general area in an effort to collect samples that have high mercury concentrations.

A total of four soil borings will be advanced for the supplemental investigation. Soil borings will be advanced at each of the three previous sample locations AC8-SS-4, SB-1, and SB-5 where elevated mercury concentrations were detected. A new soil boring (RA-7-1-2023) is proposed between AC8-SS-4 and SB-5. Proposed sample locations are illustrated on **Figure 2**.

Each boring will be advanced to a depth of 4 ft bgs. Soil samples will be collected from each boring on 1-foot intervals starting at the ground surface and terminating at 4 ft bgs. Accordingly, 4 samples, one each from 0-1, 1-2, 2-3, 3-4 ft bgs, will be collected at each location and submitted for laboratory analysis. A total of 12 samples will be collected for the supplemental investigation.

In addition, field QC samples will be collected and analyzed to assess the precision and accuracy of the sampling activities. Field QC samples will include one blind field duplicate and one matrix spike/matrix spike duplicate set.

Soil Sampling Methods

Each soil boring will be located using a global positioning system with sub-meter accuracy. Each soil boring will be advanced mechanically using direct-push technology (DPT) or via hand methods (i.e., hand auger). Specific procedures for soil sampling at each boring will include the following:

- Obtain appropriate laboratory prepared sample containers prior to sampling and don appropriate level of Health and Safety according to the approved HASP.
- Mobilize to sampling location.
- Advance the boring with DPT or a hand auger to the desired sampling depth interval(s).
- A geologist or his designee will be responsible for geologic logging of soil, to maintain consistency. Soil will be visually inspected to record details of the color, texture, moisture, density, cohesion, plasticity and any indication of staining or obvious odor, and digital photographs will be taken.

- Place soil sample in a mixing container (decontaminated stainless-steel bowl or sealable plastic bag) and homogenize the sample with decontaminated stainless-steel spoons or other appropriate mixing device.
- Once homogenized, place soil in laboratory provided sample containers and immediately place on ice in laboratory-provided for shipment to and analysis at the laboratory.
- Follow the sample handling and labeling procedures outlined in Section 3.7 and 3.8 of the FSP.
- Place extra soil back in the boring in the approximate order in which it was excavated.
- Mark location with a labeled stake, flag, or other appropriate marker.
- Complete field forms and enter sampling and location information in the bound field book as outlined in Sections 3.8.5 and 3.8.6 of the FSP.
- Decontaminate sampling equipment as outlined in Section 3.5.5 of the FSP.
- Manage decontamination water as outlined in Section 3.5.3 of the FSP.

Laboratory Analysis

Soil samples will be submitted to Eurofins Lancaster Laboratories Environmental, LLC (ELLE) for analysis of total mercury via USEPA method SW-846 7471B. Samples will also be extracted using USEPA's Synthetic Precipitation Leaching Procedure (SPLP) via method SW846 1312, which is the standard test method for evaluating mobility of analytes present in soils. The SPLP extract will be analyzed for mercury via USEPA SW846 7470A to determine the concentration of mercury in the leachate sample. ELLE is an ELAP certified laboratory in the State of New York for these analyses.

Laboratory QA/QC will be consistent with Section 4.2 of the FSP/QAPP.

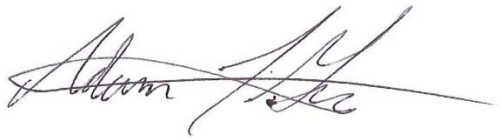
DATA ANALYSIS AND REPORTING

Following receipt, the laboratory results will be validated in accordance with the QAPP and a Data Usability Summary Report will be prepared to assess validity of the data. Within 30 days of receiving the laboratory report from ELLE, a letter report that documents the sampling event and laboratory analytical results will be provided to NYSDEC. The report is expected to include a comparison of the laboratory results to applicable cleanup objectives, a graph comparing the total and SPLP mercury results, and a proposed site-specific SCO for mercury should the data support that conclusion.

CLOSING

Timing is of the essence to complete and report on the supplemental investigation prior to construction of the remedy presented in the RAWP that is planned for later this year. Therefore, we plan to mobilize and complete the work proposed herein immediately upon NYSDEC approval. Should you have any questions or require any additional information regarding the information presented herein, please do not hesitate to contact the undersigned at (410) 381-4333.

Regards,



Adam Gray, P.G.(VA, NY)
Senior Geologist

Attachments:
Figure 1 – Select Historical High Mercury Soil Sample Results RA-7
Figure 2 – Proposed Supplemental Mercury Investigation Plan

Copies to:

Dan Hunt, P.G., Norfolk Southern Corporation
Geoffrey Rathgeber, Norfolk Southern Corporation
David Pratt, New York State Department of Environmental Conservation
Dudley Loew, New York State Department of Environmental Conservation
Justin Deming, New York State Department of Health
Julia Kenney, New York State Department of Health

RA7 Excavation Boundary From RIRAR

Monitoring Well

Historical Mercury Sample Location

Sample Location (Mercury Concentration)

Notes:
1. Mercury concentration in milligrams per kilogram
2. Sample intervals were 2 to 4 feet below ground surface

0 25 Feet

SELECT HISTORICAL HIGH MERCURY SOIL SAMPLE RESULTS RA-7

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Figure 1

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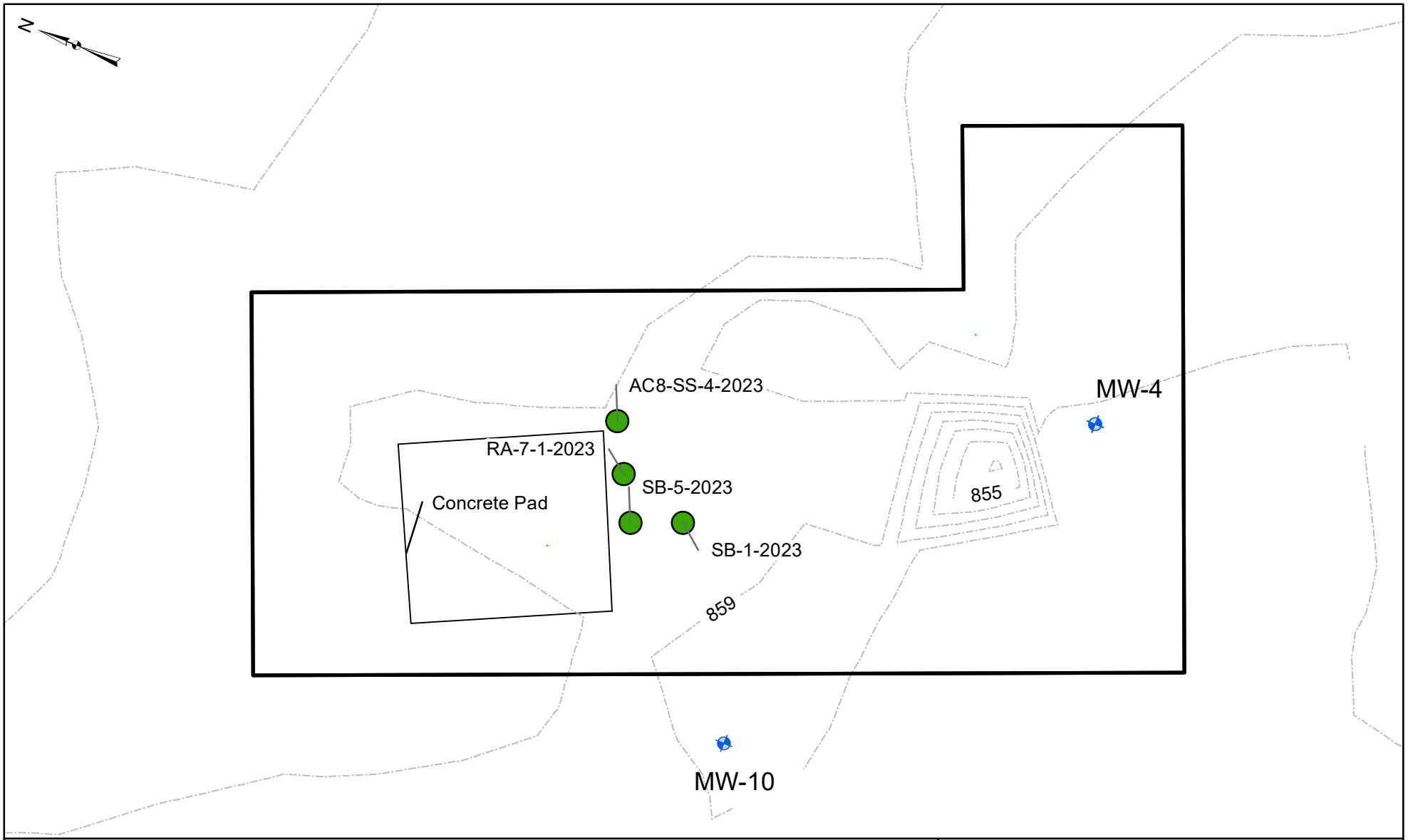

RA7 Excavation Boundary From RIRAR

Monitoring Well

Proposed Supplemental Mercury Investigation Location

Notes:
1. Soil samples will be collected at each location on 1-foot intervals to a depth of 4 feet below ground surface.
2. Soil samples will be submitted for laboratory analyis of total mercury and synthetic precipitation leaching procedure mercury.

0 25 Feet

PROPOSED SUPPLEMENTAL MERCURY INVESTIGATION PLAN

5th Street Yard
Elmira, New York

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Figure 2

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