



March 2024
Former Nepera Plant Site, Harriman, New York



Parking Lot Feasibility Study Data Gap Work Plan

Prepared for Nepera, Inc. and Warner-Lambert Company, LLC (Corporate Defendants) and
ELT Harriman, LLC

March 2024

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Prepared for

Nepera, Inc.
Warner-Lambert Company, LLC
ELT Harriman, LLC

Prepared by

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Certification Page

I, Timothy I. DiGiulio, certify that I am currently a New York State-registered professional engineer as defined in 6 NYCRR Part 375 and that this Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER-10).



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Date: March 22, 2024



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ABBREVIATIONS

CPT	cone penetrometer testing
FS	Feasibility Study
HASP	Health and Safety Plan
ISMP	Interim Site Management Plan
NYSDEC	New York State Department of Environmental Conservation
PID	Photo ionization device
QAPP	Quality Assurance Project Plan
TCLP	toxicity characteristic leaching procedure
TRM	Turf reinforcing mat
XRD	x-ray diffraction
XRF	x-ray fluorescence

1 Background and Objectives

As part of the Former Nepera Harriman Site in Harriman, NY (Site No. 336006), Anchor QEA is submitting this Parking Lot Feasibility Study Data Gap Work Plan. The purpose of this proposed scope of work is to collect visual, chemical, geochemical, and geotechnical data to inform the alternatives that will be presented in the Parking Lot Feasibility Study (FS), which will be submitted to the New York State Department of Environmental Conservation (NYSDEC) following review and integration of the data collected as part of this program.

Calcium sulfate was a byproduct of the plant's manufacturing processes and disposed of on site in the area of the former administrative office building and parking lot. An interim cover of approximately 6 inches of asphalt was applied in the parking lot area to reduce infiltration and address potential exposure to the waste material and associated constituents. In addition, exposure to mercury contamination in the adjacent riverbank area has been controlled through the placement of an interim cover consisting of geotextile, turf reinforcing mat (TRM), riprap, and vegetation.

This Work Plan includes the completion of a series of Geoprobe® borings in and around the parking lot area to confirm the extent of the waste material in the area and aid in the evaluation of remedial alternatives in the upcoming FS. All activities will be performed in accordance with the Interim Site Management Plan (ISMP; Brown and Caldwell and Anchor QEA 2023) submitted to NYSDEC December 1, 2023.

The objectives of the data gap program are to collect additional information pertaining to the following:

- Lateral extent of the waste material at the edges of the parking lot cover, especially near the State Pollutant Discharge Elimination System lagoon and Arden House Road
- Geochemical composition, structure, and physical properties of the waste material beneath the parking lot asphalt cover
- Chemical concentrations of mercury in the waste material and the soils beneath the waste material
- Geotechnical parameters of the waste material and the soils beneath the waste material
- Subsurface strength and thickness of the waste material and underlying soil in the parking lot
- Toxicity characteristic leaching procedure (TCLP) characteristics of the waste material

2 Scope of Work

2.1 Geoprobe Borings

Thirteen borings will be collected from in and around the parking lot area to further identify the composition of the waste material (Element 1) and to confirm the lateral extent of the waste (Element 2).

For Element 1, representative samples of waste material will be collected from five locations in the parking lot area to characterize the visual, chemical, geochemical, and geotechnical parameters at each location. Soil will be continuously collected and visually described from the ground surface through the underlying waste materials to at least 1 foot into the native soils below the waste deposit at each location (Figure 1). Because the waste material has been observed in previous efforts to be as much as 8 feet thick, borings may go to a depth of 10 feet below ground surface. To prepare samples of the waste material, observable waste material will be placed into a 2-mil polypropylene bag and homogenized. A minimum of 84 ounces of waste material will be provided to the laboratories for the proposed testing program: geochemical, chemical, geotechnical, and TCLP. If a boring does not provide enough waste material for testing, another collocated boring will be advanced within 1 to 2 feet from the original boring. The waste material from this second boring will be homogenized with the material from the first boring to provide the requisite amount of material for testing.

In addition to the waste material, samples will be collected from the soil layer directly beneath the waste material. The soil samples will be collected a minimum of 1 foot below the base of the waste layer, based on visual observation.¹ Each soil sample will be a no more than 6-inch homogenized segment of the underlying soils to best characterize soils present beneath—but separate from—the waste. These samples will be tested for chemical and geotechnical parameters.

For Element 2, borings will be completed at eight locations to confirm the extent of waste material around the outside of the parking lot area. If waste material is not visibly identified, no chemical or geotechnical samples will be collected. If waste is encountered, one representative soil sample will be collected a minimum of 1 foot below the bottom of the waste and analyzed for chemical and geotechnical parameters. Step-out samples are not planned at this time because there are boring locations from previous sampling efforts outside of the proposed sample locations that bound the

¹ According to the 2010 Parking Lot Investigations, the calcium sulfate waste material is visually different from the underlying soil: "The calcium sulfate material was observed to vary between white and white with black, gray, tan or blue swirls. In all cases the calcium sulfate material was soft and easily penetrated by the GeoProbe equipment, with the consistency of the material dependent upon moisture content. Typically, it was observed to be drier and somewhat crumbly at shallow depths above the water table with a more varied consistency with depth ranging from a stiff to soft clay like material to a thick slurry. In most cases, the calcium sulfate material would maintain its shape when removed from the liner. However, there were isolated intervals where the moisture content was sufficiently high enough that when removed from the liner the material would slump."

extent of the waste material. However, after review of observations in the field, it may become apparent that additional boring locations are needed. In such an instance, additional data will be collected, if it is deemed feasible and safe to do so.

Given the location of the fence between the parking lot and the adjacent berm of the lagoon area, sample locations in this area were placed against the fence line. The adjacent berm provides structural stability for the lagoon and materials within the lagoon. If additional impacts are present beyond the fence line, those elements will be addressed in the FS of the lagoon area.

Table 1 provides an overview of projected sample counts.

Table 1
Projected Sample Counts

Boring Samples	Number of Borings	Samples Per Analysis and Test				
		Geochemical ¹	Chemical ²	CPT	Geotechnical ³	TCLP
Waste Material	5	5	10	5	10	5
Exterior Soil	8	0	0 ⁴	0	0 ⁴	0

Notes:

1. Geochemical analyses are x-ray fluorescence, x-ray diffraction after digestion.
 2. Chemical testing is for mercury.
 3. Geotechnical analyses are grain size, moisture content, Atterberg limits, specific gravity, and organic content.
 4. If waste material is observed in an exterior boring, samples of the underlying soil will be collected and analyzed for mercury and geotechnical parameters.
- CPT: cone penetrometer test

2.1.1 Geoprobe Methods

Before the start of field work, all sample target locations will be identified with a handheld GPS device, marked with paint, public utility markout called-in (UDIG NY), and finally cleared of underground obstructions by a geophysical contractor. After drilling, the actual coordinates of sample collection will be recorded with a handheld GPS device.

All borings are anticipated to be completed via direct-push drilling using standard GeoProbe® equipment. All recovered soils will be described in the field by a qualified field engineer or geologist. Recovered soils will be photographed and screened with a photo ionization device (PID) and mercury vapor analyzer. Once drilling work has been completed at a location, the sampler and any tooling that was in contact with subsurface waste materials or soils will be decontaminated with soapy water followed by clean water rinse in accordance with the procedures in the Health and Safety Plan (HASP: Anchor QEA 2023). All visibly impacted soil and investigation derived waste arising from Geoprobe® activities or any other site activity will be drummed, labelled, and disposed of properly in accordance with the Excavation Work Plan in the ISMP (Appendix B; ISMP).

2.2 Cone Penetrometer Testing

Cone penetrometer testing (CPT) is a direct-push, in situ testing procedure that uses a relatively small diameter (typically less than 2 inches) cone and rod assembly equipped with strain gauges and a load cell. The strain gauges and load cell feed continuously collected data via a cable in the rod to a computer onboard the CPT rig, which processes the data in real time. Correlations with data collected allow for a detailed understanding of the subsurface conditions, especially when coupled with borings and laboratory test data.

CPTs will be performed immediately adjacent to each of the five boring locations in the parking lot. Each CPT will be advanced to a target depth of 35 feet below ground surface or practical refusal, whichever is encountered first. In addition, pore pressure dissipation testing will be conducted at three CPT locations to estimate groundwater levels at the time of the investigation and the soil response to pore pressure changes. Water level measurements will be collected at four adjacent shallow monitoring wells (MW-101, MW-24S, MW-35AQ, and MW-35S) to confirm depth to water during the field program. Groundwater and soil data collected from the CPT will be used as part of the FS evaluations of the waste material and underlying native soils.

2.3 Analytical Testing

2.3.1 *Geochemical Analysis*

The five waste samples taken from the parking lot area will undergo analysis of the full elemental composition and physical structure of the material. This will be done by SGS Laboratory through digestion and x-ray fluorescence (XRF) and x-ray diffraction (XRD) analyses.

2.3.2 *Chemical and Geotechnical Analyses*

Eurofins US Laboratories will complete both the analysis of mercury concentrations and the geotechnical parameters for this effort. The geotechnical analyses will include the parameters of grain size, moisture content, Atterberg limits, specific gravity, and organic content to further evaluate the geotechnical properties associated with subsurface conditions present at the Site.

2.3.3 *Waste Characterization*

Eurofins US Laboratories will also conduct the TCLP analyses for the five waste samples collected in the parking lot area. Homogenized samples of the waste material will be provided to the laboratory and results obtained from TCLP analysis will be used to determine alternatives available for disposal of waste material in the FS.

3 Health and Safety

Given the nature of the Geoprobe® operations, which do not produce soil cuttings similar to a drilling auger, and the direct-push technology of the CPT equipment, very limited quantities of soil or waste will be removed from the subsurface. Therefore, a Community Air Monitoring Program will not be required for this field program. Air monitoring of the worker's breathing zone will be conducted during all intrusive and sampling activities including the use of a photoionization detector, dust monitoring tracker, and mercury vapor analyzer within the limits set in the HASP.

4 Data Usability, Validation, and Reporting

Quality assurance sampling and data validation will be conducted in accordance with the procedures outlined in the Quality Assurance Project Plan (QAPP) presented in Appendix F of the ISMP. During sample collection, soil mercury, percent moisture, and total organic content samples will be subject to field duplication at a frequency of 1 per 20 samples. Soil mercury samples will also be subject to blank, matrix spike, and matrix spike duplicates at a frequency of 1 per 20 samples. Validation procedures will be in accordance with the QAPP. In accordance with the ISMP, a Data Usability Summary Report will be prepared following validation of the analytical data. The results of this investigation will be reported in the Parking Lot FS.

5 Project Schedule

The work is anticipated to require 2 to 3 days to complete and is currently projected for mid-April, contingent on the timeline for NYSDEC review and approval. In compliance with the ISMP, the NYSDEC will be notified at least 5 business days in advance of the sampling event.

6 References

Anchor QEA, LLC, 2023. *Health and Safety Plan*. Nepera Harriman Site.

Brown and Caldwell and Anchor QEA (Brown and Caldwell Associates and Anchor QEA, LLC), 2023.
Interim Site Management Plan. NYSDEC Site Number: 336006. USEPA ID No. NYD002014595.

Figures



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Figure 1
Proposed Parking Lot Borings
Parking Lot FS Data Gap Study
Former Nepera Plant Site, Harriman, New York