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1.0 INTRODUCTION

This addendum describes the additional data to be collected as part of the Phase III Pre-Design Investigation (PDI) for Onondaga Lake. Since this scope was not identified in the Phase III PDI Work Plan, the sample locations and details of the additional analyses are described in this document. Unless otherwise stated, the activities described in this addendum will be collected in accordance with the procedures outlined in the Phase I PDI Work Plan (Parsons, 2005).

2.0 OBJECTIVES

The purpose of the Phase III PDI is to collect information required to conduct remedial design activities. Since many of the details around the design have not been finalized, this addendum is intended to address several gaps within the existing data set. Additional PDI will be required to complete the design beyond the scope of this addendum. The additional scope will be submitted to the New York State Department of Environmental Conservation (NYSDEC) as future addenda to the Phase III PDI Work Plan or future PDI phases.

3.0 MOBILIZATION AND LOGISTICS

3.1 Health and Safety

Parsons ranks health and safety as the highest priority. Parsons Project Safety Plan (PSP) and our Subcontractor’s Safety Plans (SSP) prepared for previous PDI activities will be used for this investigation and will be strictly followed by all personnel. Any task outside of the current scope defined in the PSP will have a new Job Safety Analysis (JSA) completed before the task begins. Copies of the PSP and SSPs will be maintained at the support zone and on each vessel.

3.2 Site Facilities, Decon, and Waste Handling

The support zone and facilities established during the Phase I/II PDI will be used for the Phase III investigation. All decontamination and waste management activities will be conducted in accordance with Phase I PDI Work Plan (Parsons, 2005).

4.0 FIELD TASKS

4.1 Geoprobes®

Temperature/Conductivity probes (Geoprobes®) will be advanced to a depth of 10 ft in SMUs 2, 3, 4, 5, 6, and 7 in accordance with the Phase III PDI Work Plan (Parsons, 2007). Each Geoprobe® will produce a continuous conductivity profile, which will be used to calculate chloride profiles, which will be used to estimate groundwater upwelling velocities through the
shallow sediments. The rate of groundwater discharge into the lake is a critical design parameter of the sediment isolation cap. The distribution of the Geoprobe® locations identified on Figures 1 through 3 are intended to provide coverage of all the areas currently proposed for isolation capping. Additionally, duplicate Geoprobes® will be advanced at approximately 5 percent of the proposed locations and will be noted with a suffix of “A.” Location of the duplicates will be determined based on field conditions, but will generally be spread evenly among the SMUs.

Additional Geoprobe® locations in SMU 2 will provide coverage of areas where exceedances of the mercury PEC and/or the mean PECQ have been noted at different intervals within the top meter. However, the final determination of cap areas will be identified following review of available data and discussions between NYSDEC and Honeywell. Table 1 presents a summary of all the proposed Geoprobe® locations.

4.2 Vibracores

At approximately 20 percent of the Geoprobe® locations, sediment cores will be collected to a depth of 10 ft in accordance with the Phase III PDI Work Plan (Parsons, 2007). Sediment samples will be collected from multiple intervals within each core, centrifuged and analyzed for chloride and conductivity. These porewater results will be used to calculate chloride profiles, which will be used to estimate groundwater upwelling velocities. Since this will be a direct measurement of chloride in porewater, these results will be compared to the co-located Geoprobe® locations to determine if both methods are producing similar results.

The intervals specified on Table 1 were selected to focus data collection near the sediment-water interface, which is critical for interpreting the chloride profiles. The 10 ft vibracores will be cut into 1 ft sections and capped onsite and shipped vertically to the lab. The 1 ft sections will be extruded vertically at the lab, measured and sectioned into the sample intervals described in Table 1. Efforts will be made to minimize mixing of surface water and porewater at the sediment interface.

Due to limited sample volume with the fine intervals, major cations and anions will be analyzed on deeper samples to calculate the ion balance in these cores. The raw sediment will also be analyzed from these intervals for percent moisture and specific gravity (Table 1). The sediment results will be used to calculate porosity, which will be used during the generation of the chloride profiles.

5.0 DATA MANAGEMENT AND REPORTING

The sample names, QA/QC procedures, sample collection, data entry, and data validation for this portion of the work will be conducted in accordance with the Phase I PDI Work Plan (Parsons, 2005a). Any deviations from these procedures will be discussed with NYSDEC prior to execution of the work.
6.0 REFERENCES


TABLES
<table>
<thead>
<tr>
<th>Location</th>
<th>Sample Description</th>
<th>Number of Sample Locations</th>
<th>Total Depth (ft)</th>
<th>Sample Intervals (ft)</th>
<th>Specific Conductance (calculate Salinity)</th>
<th>Chloride</th>
<th>Cations/Anions (include chloride)</th>
<th>Percent Moisture</th>
<th>Specific Gravity</th>
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FIGURES