# DELIVERABLE COVER SHEET

**Project:** OF200 Project

**Client:** URS | CH2M Oak Ridge LLC (UCOR)  
**Project No.:** 683020

<table>
<thead>
<tr>
<th>Document Title:</th>
<th>Y-12 Outfall 200 Mercury Treatment Facility Headworks and MTF Sutsurface Profiles</th>
</tr>
</thead>
</table>
| Document Number: | UCOR-TMEM-027  
**Revision Number:** 0  
**See Below** |

<table>
<thead>
<tr>
<th>Function</th>
<th>Name</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Originator:</td>
<td>Mike Eller/CVO</td>
<td>[Signature]</td>
<td>01/14/2017</td>
</tr>
<tr>
<td>Reviewer/Checker:</td>
<td>Jen Schaeffer/KNV</td>
<td>[Signature]</td>
<td>01/14/2017</td>
</tr>
<tr>
<td>Approval:</td>
<td>Laird Ellis/DEN</td>
<td>W. Laird Ellis, Jr.</td>
<td>06/16/2017</td>
</tr>
</tbody>
</table>

**Comments:** None

## Revision History

<table>
<thead>
<tr>
<th>Revision No.</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Initial Issue</td>
<td>06/16/2017</td>
</tr>
</tbody>
</table>
Y-12 Outfall 200 Mercury Treatment Facility Headworks and MTF Subsurface Profiles

PREPARED FOR: URS|CH2M Oak Ridge LLC
PREPARED BY: Jen Schaeffer|CH2M, Michael Eller|CH2M
DATE: June 16, 2017
PROJECT NUMBER: 683020/ROS 410

Revision History

<table>
<thead>
<tr>
<th>Revision No.</th>
<th>Description</th>
<th>Effective Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Initial Issue of Rev 0</td>
<td>06/16/2017</td>
</tr>
</tbody>
</table>

Purpose

The purpose of this technical memorandum (TMEM) is to provide interpreted subsurface profiles for the proposed Headworks and Mercury Treatment Facility (MTF) sites associated with the Y-12 Outfall 200 (OF200) Mercury Treatment Facility Project, located in Oak Ridge, Tennessee.

Geotechnical Explorations at the OF200 Sites

A site specific exploration was performed by GEOServices, LLC (GEOServices) in late 2015 and early 2016. A second geotechnical exploration was performed in November 2016 by Strata-G, with a report provided in January 2017.

Brief summaries of the geotechnical data reports are provided below. Additional information of the geotechnical explorations can be found in the geotechnical data reports.

- Strata-G. 2017. Geotechnical Report for Data Gap Characterization at the Proposed Outfall 200 Mercury Treatment Facility Sites (DOE-EMCHAR-012, Rev 1). January 4. The geotechnical exploration included 22 geotechnical borings using hollow-stem auger methods in soil and wireline rock coring methods in rock. Geophysical testing was performed within nine borings, and included caliper logging and natural gamma logging to characterize void infilling and distribution. No soil samples were collected, and no laboratory testing was performed on recovered rock samples.


Subsurface Profiles

Subsurface profiles for the Headworks and MTF, based upon the 2016 GEOServices and 2017 Strata-G geotechnical explorations have been developed by CH2M are included as Attachment A. Further
descriptions of soil conditions and groundwater are provided within the referenced geotechnical data reports available as part of the construction documents.

Limitations

This technical memorandum has been prepared for the exclusive use of URS|CH2M Oak Ridge LLC for specific application to the proposed structures associated with the Outfall 200 Mercury Treatment Facility Project in accordance with generally accepted geotechnical engineering practice. No other warranty, expressed or implied, is made.

The subsurface interpretations contained in this technical memorandum are based on available published literature, and on data obtained from subsurface explorations and laboratory testing. Exploration data indicate soil conditions and water levels only at specific locations and times, and only to the depths penetrated. Subsurface conditions and water levels at other locations may differ from conditions occurring at these explored locations. In addition, the passage of time may result in a change in conditions at these locations. Some of the information provided is based upon interpretation. The information provided in this technical memorandum reflects the opinion of the engineer for the specific evaluation presented herein. Any use of interpreted information for other purposes could lead to erroneous assumptions and faulty conclusions.

If subsurface conditions differing from those described in the referenced data reports are encountered during subsequent explorations or construction, then the subsurface profile interpretations provided in this technical memorandum should not be considered valid unless the changes are reviewed and the recommendations revised or verified in writing by CH2M.

CH2M is not responsible for any claims, damages, or liability associated with interpretation of subsurface data or for reuse of subsurface data, without CH2M’s express written authorization.
Attachment A – Subsurface Profiles
FIGURE 10
MERCURY TREATMENT FACILITY, SECTION EW-A
OF200 MERCURY TREATMENT FACILITY
FIGURE 12
MERCURY TREATMENT FACILITY, SECTION EW-C
OF 200 MERCURY TREATMENT FACILITY
FIGURE 13
MERCURY TREATMENT FACILITY, SECTION EW-D
OF200 MERCURY TREATMENT FACILITY

CH2M NUCLEAR CONTROLLED DOCUMENT
FIGURE 17
MERCURY TREATMENT FACILITY, SECTION NS-4
OF200 MERCURY TREATMENT FACILITY