Generally, construction site operators are required to prepare a Storm Water Pollution Prevention Plan (SWPPP) in order to receive National Pollutant Discharge Elimination System (NPDES) permit coverage for their stormwater discharges. The Section entitled *Clean Water Act & Storm Water Pollution Prevention* of the Statement of Work references the requirement that the contractor shall follow the SWPPP that will be developed for this contract. The SWPPP for the construction of the Outfall 200 Mercury Treatment Facility is currently being developed and will likely not be available until the release of the Final Solicitation. Consequently, the Source Evaluation Board has determined that providing a SWPPP for reference may prove helpful in permitting offerors an opportunity to generally familiarize themselves with, and prepare for, the requirements of the forthcoming SWPPP for this contract. The attached “Outfall 200 Mercury Treatment Facility Early Site Preparation Activities Storm Water Pollution Prevention Plan Oak Ridge, Tennessee” (Early Site Prep SWPPP) was developed for the Department of Energy by UCOR, LLC. UCOR, LLC will be responsible for developing the SWPPP for this contract as well. While the Early Site Prep SWPPP is associated with different work scope, it addresses similar site conditions and controls.

Again, this SWPPP is NOT the SWPPP for construction of the Outfall 200 Mercury Treatment Facility and is only being provided for illustrative purposes. This SWPPP is not part of the Draft Solicitation and in no way modifies the terms thereof.
Outfall 200 Mercury Treatment Facility
Early Site Preparation Activities
Storm Water Pollution Prevention Plan,
Oak Ridge, Tennessee

This document is approved for public release per review by:

[Signature]
UCOR Classification & Information Control Office

24 May 17
Date
CDM Federal Services Inc

contributed to the preparation of this document and should not be considered an eligible contractor for its review.
Outfall 200 Mercury Treatment Facility
Early Site Preparation Activities
Storm Water Pollution Prevention Plan,
Oak Ridge, Tennessee

Date Issued—May 2017

Prepared by
CDM Federal Services Inc
Knoxville, Tennessee
under subcontract BA-13-005610

Prepared for the
U.S. Department of Energy
Office of Environmental Management

URS | CH2M Oak Ridge LLC
Safely Delivering the Department of Energy’s Vision
for the East Tennessee Technology Park Mission
under contract DE-SC-0004645
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# APPROVALS

**Outfall 200 Mercury Treatment Facility**  
**Early Site Preparation Activities**  
**Storm Water Pollution Prevention Plan,**  
**Oak Ridge, Tennessee**

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| Exemption Criteria | (1) Non-Intent Change | (2) DOE-Approved Safety Basis Document | (3) Chief Accounting Officer, Internal Audit, Labor Relations, General Counsel, Outreach & Public Affairs, or Project Controls Services | OR | (4) Document identified in USQD-MS-CX-REPORTS-1074 |

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<th>Jimi Henderson</th>
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<td>Name:</td>
<td></td>
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<tr>
<td>Date:</td>
<td>6-5-17</td>
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| Exhibit 1. Mandatory Contractor Document | ☑ No (No PCCB Reviewer Signature Required.) | ☑ Yes (Requires review by the Proforma Change Control Board.) |

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<td>Name:</td>
<td>Date:</td>
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URS | CH2M Oak Ridge LLC
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# ACRONYMS

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<th>Description</th>
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<tr>
<td>BMP</td>
<td>best management practice</td>
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<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</td>
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<tr>
<td>COR</td>
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<td>DOE</td>
<td>U.S. Department of Energy</td>
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<tr>
<td>EPSC</td>
<td>Erosion Prevention and Sediment Control</td>
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<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
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<tr>
<td>ETTP</td>
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<td>FM</td>
<td>Facility Manager</td>
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<td>MTF</td>
<td>Mercury Treatment Facility</td>
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<tr>
<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
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<tr>
<td>OF200</td>
<td>Outfall 200</td>
</tr>
<tr>
<td>OREM</td>
<td>Oak Ridge Office of Environmental Management</td>
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<tr>
<td>ORR</td>
<td>Oak Ridge Reservation</td>
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<tr>
<td>PCB</td>
<td>polychlorinated biphenyl</td>
</tr>
<tr>
<td>POL</td>
<td>Petroleum, Oils, and Lubricants</td>
</tr>
<tr>
<td>SCB</td>
<td>sediment control barrier</td>
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<tr>
<td>SPCC</td>
<td>Spill Prevention, Control, and Countermeasure</td>
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<td>SWPPP</td>
<td>Storm Water Pollution Prevention Plan</td>
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<td>Tennessee General National Pollutant Discharge Elimination System (NPDES) Permit (TNR100000) for Storm Water Discharges Associated with Construction Activity</td>
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<td>Y-12 PSS</td>
<td>Y-12 Plant Shift Superintendent</td>
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PROFESSIONAL ENGINEER CERTIFICATION

The undersigned licensed Professional Engineer (PE) attests:

(i) That I am familiar with the requirements of the Tennessee General National Pollutant Discharge Elimination System (NPDES) Permit (TNR100000) for Storm Water Discharges Associated with Construction Activity.

(ii) That I have visited and examined the designated work area covered by this Storm Water Pollution Prevention Plan (SWPPP).

(iii) That this SWPPP has been prepared in accordance with good engineering practice, including consideration of applicable industry standards.

(iv) That procedures for required inspections and testing have been established.

(v) That this SWPPP is adequate for the work area described within this SWPPP.

This certification in no way relieves the owner or operator of the Facility of his/her duty to fully implement this SWPPP. This SWPPP is valid only for the construction activities described and to the extent that the Facility owner or contractor properly installs storm water controls, inspects storm water controls, maintains storm water controls, and meets all other requirements as prescribed in this SWPPP.

____________________________
Signature

Adam D. Smith
Name

CDM Federal Services Inc
Company

115020
Tennessee PE License Number

Environmental Engineer
Title

5-23-2017
Date
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1. GENERAL INFORMATION

1.1 PROJECT DESCRIPTION

The Oak Ridge Reservation (ORR) is located within and adjacent to the corporate limits of the City of Oak Ridge (COR), Tennessee, in Roane and Anderson County. The ORR is bounded to the east and north by the developed portion of the COR. The ORR hosts three major industrial research and production facilities originally constructed as part of the World War II-era Manhattan Project; these are the East Tennessee Technology Park (ETTP), the Oak Ridge National Laboratory (ORNL), and the Y-12 National Security Complex (Y-12).

Historic manufacturing processes, programs, and waste management practices associated with the Y-12 mission have resulted in the contamination of soil, surface water, sediment, building structures, biota, and groundwater. These processes included chemical separation techniques; weapons manufacturing; research and development; waste storage, management, and disposal; and physical plant maintenance activities that resulted in the release of large quantities of mercury to the environment. Because of the contaminant releases at Y-12 and other U.S. Department of Energy (DOE) facilities, the ORR was placed on the U.S. Environmental Protection Agency (EPA) National Priorities List that was established under the Comprehensive, Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (54 Federal Register 48184, November 21, 1989).

As part of a CERCLA action, a water treatment facility is being constructed to address the legacy mercury contamination in the Outfall 200 (OF200) effluent. The Mercury Treatment Facility (MTF) is being designed and constructed to treat discharges from the storm drain system adjacent to the former mercury-use buildings in the West End Mercury Area. Stormwater capture is targeted to maximize mercury flux reduction. Collected wastewater will be treated to meet a goal of 51 ng/L total mercury in the treated effluent for discharge to Upper East Fork Poplar Creek (UEFPC).

This Storm Water Pollution Prevention Plan (SWPPP) is being prepared specifically for early site preparation activities that will be conducted before the construction of the treatment facility begins. A separate SWPPP will be prepared for activities associated with the balance of the project.

1.2 PREPARATION AND COMPLIANCE

This SWPPP has been prepared in accordance with sound engineering practices to meet the substantive requirements of the Tennessee General National Pollutant Discharge Elimination System (NPDES) Permit (TNR100000) for Storm Water Discharges Associated with Construction Activity (TNCGP). CDM Smith personnel involved with the development of this SWPPP have completed the Tennessee Erosion Prevention and Sediment Control (EPSC) Training and Certification Program, are Certified Professionals in Erosion and Sediment Control, and/or are professional engineers licensed in the State of Tennessee.

This SWPPP identifies potential sources of pollution that may reasonably be expected to affect the quality of storm water from the construction sites. The SWPPP describes and ensures the implementation of practices that will be used to reduce the pollutants in storm water discharges associated with construction activity at the site and to ensure compliance with required CERCLA agreements. A copy of the SWPPP shall be retained onsite at the project location at all times.
This SWPPP shall be amended whenever there is a change in project scope that would be expected to have a significant effect on the discharge of pollutants, when inspections or investigations by site operators, local, state, or federal officials indicate the SWPPP is proving ineffective in eliminating or significantly reducing pollutants, or when site conditions warrant modification.

It is the intention and goal of this SWPPP that any discharge from the property described in this document create no objectionable color contrast in the water body that receives it. The activities described in this document will be carried out in a way that will prevent any discharge that would cause visible solids, bottom deposits, or turbidity that might impair the usefulness of the waters on the property or downstream of the property for fish and aquatic life, livestock watering and wildlife, recreation, irrigation, navigation, or industrial or domestic water supply.

1.3 AUTHORIZED DISCHARGES

This SWPPP conforms to the substantive requirements of the TNCGP. The TNCGP authorizes point source discharges of storm water from construction activities including clearing, grading, filling, excavating, and other similar construction activities that result in the disturbance of one acre or more of total land area. Projects and developments that are less than one acre in land disturbance are exempt unless the construction is part of a larger common plan of development or unless special provisions apply, such as an expected exceedance of a state water quality standard due to the construction activities.

1.3.1 Storm Water from Construction Support Activities

The TNCGP authorizes discharges of storm water from construction support activities, including equipment staging yards, materials storage areas, borrow areas, etc. This is based on the provision that the support activity is primarily related to the construction site covered under the general permit, the operator of the support activity is the same as the operator of the construction site, the support activity is not a commercial operation serving multiple unrelated construction projects by different operators, the support activity does not operate beyond completion of the construction activity, and the appropriate controls and measures are identified in a SWPPP covering the discharges from the support activity areas.

1.3.2 Authorized Non-Storm Water Discharges

Certain non-storm water discharges from active construction sites are authorized by the TNCGP provided that they are identified in the SWPPP; that they are discharged through stable discharge structures; and that the SWPPP identifies and ensures the implementation of appropriate pollution prevention measures for the non-storm water discharge. All authorized non-storm water discharges must be free of sediment and other solids; must not cause erosion of soils; and must not result in sediment impacts to receiving streams.

The following non-storm water discharges from active construction sites are authorized by the TNCGP:

- Dewatering of work areas of collected storm water and groundwater when managed by an appropriate control measure
- Waters used to wash vehicles of dust and soil, not process materials, where detergents are not used and detention and/or filtration is provided before the water leaves the site. Wash removal of process materials such as oil, asphalt, or concrete is not authorized
- Water used to control dust
• Potable water sources, including water line flushing, from which chlorine has been removed to the maximum extent practicable
• Routine external building wash-down, which does not include detergents or other chemicals
• Groundwater or spring water that is known to be uncontaminated based on analytical results or process knowledge
• Foundation and footing drains where flows are known to be uncontaminated based on analytical results or process knowledge

1.4 UNAUTHORIZED NON-STORM WATER DISCHARGES

The following discharges are prohibited:
• Discharges from dewatering activities, unless managed by appropriate controls
• Wastewater from washout of concrete, unless managed by an appropriate control
• Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials
• Fuels, oils or other potential pollutants used in vehicle and equipment operation and maintenance
• Soaps or solvents used in vehicle and equipment washing
• Discharges or discharge-related activities that are likely to jeopardize the continued existence of listed or proposed threatened or endangered aquatic species, or their critical habitat, under the Endangered Species Act or will cause a prohibited “take” of federally or state listed aquatic species

Storm water discharges shall contain no distinctly visible floating scum, oil, or other matter. Storm water discharges must not cause an objectionable color contrast in the receiving stream. The discharge of hazardous substances and/or oil is not authorized by the TNCGP.

1.5 SPILL PREVENTION, RESPONSE, AND REPORTING

When spills of chemicals used or stored on the project occur, immediate response is necessary. Immediately notify the Y-12 Plant Shift Superintendent (Y-12 PSS) and the ETTP Park Shift Superintendent (ETTP PSS) in the event of a release, spill, or leak of a hazardous substance; petroleum, oils, and lubricants (POL); sanitary water; or any other material. The Y-12 PSS will direct actions to secure the area where the spill has occurred and contain the spill until URS | CH2M Oak Ridge LLC (UCOR) gathers the proper resources to take over the incident. UCOR personnel will then be responsible for cleanup of the spill.

1.5.1 Best Management Practices

1. All oil transfer activities, including the fueling of equipment and vehicles, onsite will:
   — be conducted in designated areas that are at least 30 ft from a storm drain inlet or waterway and are not within the flood zone of UEFPC,
   — be continuously monitored, and
— have spill response material at the oil transfer/fueling activities location that can contain a spill during oil transfer/fueling activities.

2. All containers storing POLs, such as tanks and drums, will comply with the Spill Prevention, Control, and Countermeasure (SPCC) Plan applicable to Y-12 or related procedures. This will include, but not be limited to the following:

   — Notification of all stored inventories of POLs will be provided to the SPCC Plan Lead for the Y-12 site.
   
   — Adequate secondary containment for all POL containers of any volume must be provided. POL containers that are 55 gal or greater may be subject to additional SPCC requirements.
   
   — A properly sized and stocked spill kit shall be maintained near all POL storage areas and working areas. These spill kits must be adequate for responding to a spill on land and on water.
   
   — All oil-handling personnel and equipment operators must be trained on how to report a spill and how to properly and safely respond to a spill.
   
   — Any spills shall be reported immediately to the Y-12 PSS office at 574-7172, and the ETTP PSS office at 574-3282. Coordination of spill response and cleanup will be conducted as stated in Sect. 1.5 of this SWPPP.

3. Any hazardous waste generated as part of this project will be managed and disposed of in accordance with EPA and state/local regulations.

4. Portable sanitary units will be provided for use by all workers, as needed, throughout the life of the project. All sanitary waste will be regularly collected from the portable units by a licensed sanitary waste management contractor.

5. Materials and supplies will be stored in designated areas within the disturbed area. Because UEFPC may exceed its banks during heavy precipitation events, material storage areas will not be placed in areas that may be prone to flooding by UEFPC. Materials and supplies may be stored in the open only if they will not cause contamination of any stormwater that comes into contact with them. Materials that may contribute to the contamination of stormwater (i.e., dry fertilizer, concrete mix) must be covered or stored inside to prevent contact with stormwater. Material storage areas will be as small and as few in number as practicable. They will be established only in designated areas that minimize the disturbance of soil during use and minimize the possibility of stormwater runoff being contaminated with sediment or other pollutants.

6. Hazardous wastes and materials must have secondary containment and must be covered or stored inside to prevent contact with stormwater. Chemicals, drums, and bagged materials should not be stored directly on the ground.

7. All onsite vehicles and equipment will be monitored for leaks daily and will receive regular preventive maintenance to reduce the chance of leakage.

8. Potential pollutants, such as metal fines, metal cuttings or shavings, etc., shall be collected in the work areas and properly managed and disposed.

1.5.2 Spill Control and Response Practices

Spill cleanup and response materials should be onsite at all times. If the spilled material is known, personnel are properly trained, and it is deemed safe to do so, the following actions should be taken:

1. Stop the leak.

2. Use appropriate spill response materials to control the spilled material.
3. Properly dispose of contaminated spill response materials. Where the spill gets into the soil, the soil should be excavated, properly treated, and contained.

1.5.3 Spill Reporting and Record Keeping

If a release, spill, or leak should happen, the following actions shall be taken after reporting the incident to the Y-12 PSS office:

1. Place a written report of the spill event and associated response actions in the SWPPP within 14 days of the spill event. The written report will include a description of the release (i.e., quantity and type of material), date of the release, circumstances leading to the release, and steps taken to respond and/or address the release.

2. Evaluate the SWPPP to determine if modifications are warranted to identify measures to prevent the reoccurrence of such releases, spills, or leaks. Revisions to this SWPPP will be prepared if modifications are needed.

1.6 SOLID WASTE AND LITTER CONTROL

Each contractor is responsible to provide litter control for trash generated by their crew. A dumpster for solid waste will be located near the construction trailer and is limited to garbage and paper trash only. Paint cans, oil cans, used oil and filters, and other typical construction and household hazardous waste shall be contained and disposed of by the contractor by taking them to a Hazardous Waste Disposal Center.

1.7 DUST SUPPRESSION

Wet suppression, or “watering,” can be used to control dust generated during demolition activities. Water must be applied often to be an effective dust suppression agent. However, care must be taken not to overwater, which may cause excessive runoff and the transport of particulate materials and other pollutants into the storm drain system.

When possible, the water used for dust suppression should be non-chlorinated. This will prevent the discharge of chlorinated water into the storm drain system in the event of a spill or over-application, thereby preventing potential damage to biota in receiving streams.

The beds of haul trucks that are transporting demolition materials, gravel, soil, or other materials that may contain particulates must be covered to prevent the generation of dust when the trucks are moving.

To prevent additional generation of dust, areas must be stabilized after earth disturbing work has been completed. This may be done by establishing vegetative cover or by placing gravel, mulch, or other materials over areas of exposed soil.

Vehicle traffic in the area of disturbance shall be limited to very slow speeds. Also, the number of vehicles and the amount of vehicle activity at any one time should be controlled to prevent excessive dust generation.
Construction/demolition entry and exit areas should be stabilized with gravel or similar material to prevent the tracking of sediments onto roadways. Any sediment that is tracked onto paved roads should be removed as soon as possible.

To reduce the possibility of excessive dust, high traffic areas should be inspected on a daily basis, and lower traffic areas should be inspected on a weekly basis during dry conditions.

1.8 SOIL STABILIZATION

When possible, existing vegetation should be preserved. Disturbed portions of the site must be stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, gravel, stone, and/or other appropriate measures. Use of impervious surfaces for final stabilization should be avoided unless it is necessary in places such as roadways, driveways, or areas planned for future construction activities.

Stabilization measures shall be initiated as soon as possible in portions of the site where construction activities have temporarily or permanently ceased. Temporary or permanent soil stabilization at the construction site (or a phase of the project) must be completed no later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. In the following situations, temporary stabilization measures are not required:

1. where the initiation of stabilization measures is precluded by adverse soggy ground conditions, stabilization measures shall be initiated as soon as practicable; or

2. where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within 14 days.
2. SITE DESCRIPTION

2.1 OVERALL PROJECT SITE

The MTF will lie in the UEFPC watershed. The UEFPC watershed includes approximately 1170 acres that encompasses the industrialized area of Y-12, and extends along the top of Pine Ridge to the north, the top of Chestnut Ridge to the south, the eastern boundary of the Bear Creek Valley watershed to the west, and the DOE property line to the east. The MTF construction will be conducted in two phases. The first phase will be the Early Site Preparation phase. The second phase will include the construction of the MTF. This SWPPP addresses the first phase, the Early Site Preparation. The Early Site Preparation phase is expected to begin in December 2017 and finish in August 2018. The MTF construction area is divided into the areas:

1. Headworks Site
2. Transfer Pipeline Route
3. Treatment Facility Site

The Headworks Site, including the stormwater storage facilities, is located on approximately 1 acre on the south bank of UEFPC, bounded by E Road to the west and Third Street to the south. The site provides the space necessary for diversion, collection, grit processing, and stormwater storage. Limited future expansion could be accommodated without the significant rerouting of existing roads and infrastructure.

The Transfer Pipeline Route is generally located in a narrow corridor along the south side of UEFPC, north of Third Street. The pipeline crosses to the east side of Third Street and to the north side of UEFPC near the OF200 water treatment facility.

The Treatment Facility Site is bounded by Second Street to the north, Third Street to the south, B Road to the west, and A Road to the east. This site provides the space necessary for the OF200 water treatment facility (about 2.3 acres) and can also accommodate future expansion. Additional space to the east may be available in areas formerly occupied by Bldgs. 9720-7 and 9720-4 if expansion and/or construction support footprint is required in the future.

Site plan figures are presented in Appendices C, D, and E. Figs. 1 through 6 indicate the approximate boundaries for the early site preparation work areas.
Fig. 1. Overall Early Site Preparation Work Area.

Fig. 2. Headwater Early Site Preparation Work Area.
Fig. 3. Treatment Facility Early Site Preparation Work Area.

Fig. 4. Road Crossing Early Site Preparation Work Area.
Fig. 5. Road Crossing Early Site Preparation Work Area.

Fig. 6. Road Crossing Early Site Preparation Work Area.
2.2 ESTIMATION OF THE TOTAL DISTURBED AREA OF THE SITE

The total area that will be affected by construction activities will be approximately 3.8 acres. The area of disturbance can be broken down as follows:

1. Headworks Site—Approximately 1 acre
2. Transfer Pipeline Route—Less than ½ acre (three road crossings)
3. Treatment Facility Site—Approximately 2.3 acres

2.3 DESCRIPTION OF SITE TOPOGRAPHY INCLUDING PERCENT SLOPE

Topographically, the property generally slopes toward UEFPC at approximately 2–5%. Storm water discharges from the work areas will enter UEFPC. UEFPC eventually discharges to Poplar Creek.

2.4 DESCRIPTION OF STREAMS ADJACENT TO THE SITE & RECEIVING WATERS

The receiving water for all storm water runoff from the Early Site Preparation work area is UEFPC. UEFPC is listed on the 2016 Draft 303(d) as being impacted by polychlorinated biphenyls (PCB), mercury, nutrients, Escherichia coli, loss of biological integrity due to siltation, and other anthropogenic habitat alterations. The soils and/or accumulated water within the work area could be contaminated with radionuclides, PCBs, mercury, or other contaminants. Therefore, caution must be taken during earthwork at Y-12 so as to not to further impact UEFPC.

2.5 SOILS

Y-12 is situated in the east Tennessee valley and ridge physiographic province, which is underlain by southeast-dipping sedimentary rocks of Cambrian through Mississippian age. Unconsolidated materials overlying bedrock in the UEFPC watershed include alluvium (stream-laid deposits), colluvium (material transported downslope), residuum (in situ residual material left after weathering of bedrock), weathered bedrock, and fill. Fill material consists of reworked natural materials mixed with construction debris. The unconsolidated materials are predominately clayey silts and silty clays. Very few areas within the watershed have a sequence of natural soil horizons because extensive cut-and-fill grading during construction of Y-12 reworked much of the preexisting unconsolidated material. In addition, the tributary system to UEFPC and a portion of the main channel in the central and western portions of the complex were captured in an extensive storm drain system. The thickness of fill material placed along former UEFPC tributaries is quite variable, ranging from a few feet to nearly 30 ft in the north-central portion of the complex. In most areas of the watershed, the water table lies within the unconsolidated zone or just beneath the bedrock-unconsolidated zone interface at depths ranging from less than 10 ft in the southern portion of the complex to more than 30 ft in the northern portion of the complex. Portions of the storm drain system flow continuously because they capture groundwater base flow as well as storm runoff.

Based on information obtained from the United States Department of Agriculture Natural Resources Conservation Service Soil Survey, it was determined that the soil at this site is classified as UrD—Urban Land. These soils are found in areas where the surface is covered by roads, streets, parking lots, commercial buildings, etc., with predominantly impervious ground cover. These soils are generally well drained and have a slow to moderate permeability.
Because the soil encountered at this site has been disturbed in the past, erodible silts, clays, and sands may be located near the ground surface. For this reason, strict adherence to the utilization of best management practices (BMP) outlined in this plan will be required in order to prevent erosion and control the discharge of sediment from the site. The use of prescribed BMPs, along with the minimization of amounts of area disturbance at any one time, will serve to reduce the likelihood of discharges of sediment occurring at the site. The proposed BMPs are believed to be adequate to prevent sediment-laden waters from reaching the receiving stream.

2.6 HYDROGEOLOGY

The UEFPC watershed utility and infrastructure system includes an extensive network of sumps, storm drains, pipes, and outfalls. These features strongly influence the movement and discharge of shallow groundwater. In several large buildings (e.g., 9201-4, 9201-5, 9204-4, and 9201-2), basement dewatering sumps collect shallow groundwater for discharge through outfalls to UEFPC, depressing the water table in some areas. The subsurface drainage system installed within the unconsolidated material influences groundwater flow and the water table. Within Y-12, infiltrating rainfall percolates through permeable zones in the unconsolidated materials to recharge groundwater where the ground surface is not covered by buildings or paving. Infiltrating groundwater can move downward and laterally quite rapidly within the unconsolidated zone through permeable zones to recharge the bedrock units beneath, or until intercepting a storm sewer or utility trace and discharging to UEFPC.

2.7 PROTECTED SPECIES AND CRITICAL HABITAT

The ecology of the UEFPC watershed has been, and continues to be, strongly influenced by anthropogenic structures and industrial activities. Most of the UEFPC watershed is covered with concrete, gravel, asphalt, industrial structures, or grass. The UEFPC provides very little habitat for terrestrial vertebrate animals; woodchuck, opossum, raccoon, and striped skunk are among the largest and most abundant mammals. Although surveys of protected vertebrates inhabiting the ORR are not comprehensive, the likelihood of federally or state-listed species is very low. Various birds nest and forage in the UEFPC watershed, including the belted kingfisher.

There are two dominant aquatic features in the watershed, UEFPC and Lake Reality. The UEFPC channel has been extensively modified over the years by the installation of structures such as road crossings and weirs and through significant use of riprap and erosion controls. Much of the channel lacks riparian vegetation. Historically, mostly for security reasons, trees have not been allowed to grow along UEFPC. The UEFPC channel aquatic habitat differs substantially from creeks in more natural settings, lacking the “pool and riffle” morphology often associated with creeks in such settings. Lake Reality is a plastic-lined, flat-bottomed, steep-sided settling and spill control basin that is home to turtles and fish, but does not support much vegetation.

Y-12 contains no designated habitat that could support threatened or endangered species of plants; however, most of the area has not been directly surveyed. In 1997, a small wetland was identified just outside the complex in an area between New Hope Cemetery and Bear Creek Road. The area is dominated by jewelweed, cardinal flower, and microstegium as groundcover species and sycamore, red maple, ironwood, and green ash as woody species, none of which is threatened, endangered, or in need of special protection.

Several species of submersed macrophytes and emergent aquatic plants previously grew in and near the edge of the former New Hope Pond. None of these are considered to be rare or endangered.
2.8 WATER QUALITY RIPARIAN BUFFER ZONES

The TNCGP requires a minimum 30-ft natural water quality riparian buffer be preserved between the top of stream bank and the disturbed construction area. However, because of the selected MTF location, earth-disturbing work will be required within the riparian zone. BMPs will be used within this zone to prevent erosion and control sediment so as to minimize the impact of sediment to UEFPC.

2.9 WORK TO BE CONDUCTED ALONG THE STREAM BANK

As part of the early site preparation activities for the MTF, trees and other vegetation will be removed along the banks of UEFPC. Vegetation will be removed only to ground level. No grubbing or soil disturbance will be performed as part of the vegetation removal activities. Clearing or other disturbance of areas immediately adjacent to UEFPC will be minimized during installation of the treated water discharge line. Where appropriate, disturbed areas will be stabilized and revegetated.

Adherence to the substantive principles of the Aquatic Resource Alteration Permit was considered during the selection of the BMP utilized in the UEFPC stream banks.

2.10 CONSTRUCTION WORK PACKAGES

The DOE Oak Ridge Office of Environmental Management (OREM) has obtained approval to conduct early site preparation in preparation for the MTF construction. Early site preparation actions will include clearing, demolition and removal of existing above-grade structures, installation of underground piping at road crossings, tie-in and routing of utility services to the sites, rerouting existing Y-12 utilities, and construction of the secant pile walls. Early site preparation has been segmented into three work packages: Early Site Preparation Construction, Early Site Preparation Secant Wall Construction, and Early Site Preparation Utilities Relocation.

While a general outline of construction activities is provided below, it should be noted that no specific phasing of construction is explicitly planned. At no time during construction are any areas of the project to remain exposed for more than seven calendar days. Site stabilization shall be per the requirements of the stabilization plan. Additionally, no construction shall take place on the project until initial erosion and sedimentation control measures are in place and properly functioning.

2.10.1 Early Site Preparation Segment

Headworks Site

- Installation of temporary soil erosion and sediment control devices as described in this SWPPP
- Removal of steel cover plates and filling of Bldg. 9404-8 foundation (east of Headworks) with flowable fill (for contractor laydown area)
- Clearing and grubbing of the site
- Removal of existing structures with exceptions noted on site plan figures. (see Appendices C, D, and E for site plan figures)
- Cutting of the trees and vegetation in the stream bank (no soil grubbing or disturbance is planned for this action)
Transfer Pipeline Route

- Installation of temporary soil erosion and sediment control devices as described in this SWPPP
- Installation of underground piping at road crossings at
  - C Road
  - Third Street North
  - Third Street South

Treatment Facility Site

- Installation of temporary soil erosion and sediment control devices as described in this SWPPP
- Removal of designated section of railroad line and asphalt
- Cutting of the trees and vegetation along the stream bank (no grubbing or soil disturbance is planned for this action)

2.10.2 Early Site Preparation Secant Wall Construction

Headworks Site

- Installation of temporary soil erosion and sediment control devices as described in this SWPPP
- Construction of secant pile wall along the north and south sides of UEFPC

2.10.3 Early Site Preparation Utilities Relocation

Headworks Site

- Installation of temporary soil erosion and sediment control devices as described in this SWPPP
- Removal of existing overhead utility lines and utility poles
- Removal of building 9417-8 and demolition of the eye wash station
- Routing of potable water to the site
- Installation of conduit for underground communications cable
- Isolation and capping of the two existing 24 in. flow augmentation water pipes
- Installation of new steam condensate return piping system per Y-12 design
- Installation of power and antenna to existing NPDES Monitoring Bldg. 9422-6

Treatment Plant Site

- Installation of temporary soil erosion and sediment control devices as described in this SWPPP
- Installation of potable water for fire water loop
- Installation of potable water line across Third Street to provide eventual tie in to MTF
- Installation of sanitary sewer tie-in
• Installation of underground fire alarm and communication line conduits for eventual alarm and communications line installation
• Removal of existing overhead lighting, power lines, and two utility poles on south side of site
• Removal of existing fire hydrant and post indicator valve on the south side of site
3. STORM WATER RUNOFF CONTROLS

3.1 EROSION PREVENTION AND SEDIMENT CONTROLS

The primary purpose of construction phase EPSC measures is to prevent offsite sediment transport by retaining sediment onsite while land disturbing activities are ongoing. Controls should be selected, installed, and maintained in accordance with the manufacturer’s specifications and good engineering practices. An EPSC Plan that incorporates a combination of structural, non-structural, and stabilization practices has been prepared for the construction activities associated with this project and is included in Appendices C, D, and E. EPSC measures must be in place before earth moving operations begin, and must be maintained throughout the construction period. All EPSC measures proposed for this project have been designed or selected to control storm runoff generated by a 2-year, 24-hour storm event.

3.2 NON-STRUCTURAL PRACTICES

The limits of clearing and grubbing shown on the EPSC Plan have been held to the minimum necessary for equipment operation in order to preserve existing vegetation at the site to the maximum extent possible. Litter, debris, and construction chemicals exposed to storm water shall be picked up prior to anticipated storm events or otherwise prevented from becoming a pollutant source. Generation of dust shall be minimized by spraying or misting with water or by other similar methods. Concrete washout, material storage, and equipment and vehicle washing activities shall be limited to designated areas that will be field located by the contractor.

3.3 STRUCTURAL PRACTICES

Structural practices proposed for use on this project to reduce the transport of sediment and to control erosion include silt fences, inlet protection, sand bag berms, storm water diversion structures, and deployed booms. The locations of these measures are shown on the EPSC Plans in Appendices C, D, and E. Details for proposed structural EPSC measures, in accordance with the Tennessee Erosion and Sediment Control Handbook, or as specified by the design engineer, are also included in Appendix B.

Muddy accumulated water pumped from excavation and work areas must be held in the settling basins or filtered prior to discharge to surface waters. The discharge of accumulated water shall be through the selected dewatering structure that will be field located by the contractor.

3.4 STABILIZATION PRACTICES

Pre-construction vegetative ground cover shall not be removed or disturbed more than 14 days prior to earth moving, unless the area is seeded or mulched or other temporary cover is installed. Stabilization of disturbed areas shall be initiated immediately whenever earth-disturbing activities have temporarily or permanently ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. Slopes exceeding 35% shall be stabilized no later than seven days after construction activity on the slopes has temporarily or permanently ceased.

Temporary stabilization measures are not required where construction activity on a portion of the site has temporarily ceased but will resume within 14 days or in areas where initiation of stabilization measures is
precluded by snow cover, frozen ground conditions, or soggy ground conditions. Stabilization measures shall be initiated as soon as practicable when such conditions exist.

Permanent stabilization shall be established on all unpaved disturbed areas and areas not covered by permanent structures at the conclusion of the early site preparation project. Final stabilization will be attained when all soil-disturbing activities at the site have been completed and either gravel cover has been installed or permanent vegetative stabilization has achieved a uniform density of at least 70% throughout the site.

3.5 GUIDELINES FOR THE IMPLEMENTATION OF EPSCS

3.5.1 General guidelines for the implementation of EPSCs

- EPSC measures have been designed to keep sediment onsite to the maximum practicable extent. EPSC measures must be properly selected, installed, and maintained in accordance with the manufacturer’s specifications. EPSC measures must be able to slow runoff to prevent the formation of rills and gullies. If periodic inspections or other information shows that an EPSC measure has proven to be ineffective, it must be replaced or modified to meet relevant site circumstances.

- Specific EPSC measures (e.g., silt fences and other appropriate controls) for this project are described and shown in detail in Appendix B.

- If sediment escapes the permitted area, offsite accumulations of sediment that have not reached a stream or other surface waterway must be removed at a frequency sufficient to minimize offsite impacts. For example, sediment that has escaped the construction site and has collected in a roadway must be removed so that it is not subsequently washed into storm sewers and/or streams by the next rain and to prevent it from becoming a safety hazard to users. Contact the UCOR Facility Manager (FM) or MTF Project Manager if sediment reaches a receiving stream.

- Concrete trucks will wash out at the designated areas. Concrete washout areas will be field located to meet the needs of the construction activities and shall be designed in accordance with the BMP.

- Sediment and/or concrete washout debris will be removed from EPSC measures when design capacity has been reduced by 50%.

- After use, materials used for EPSC (e.g., silt fence) will be removed or otherwise prevented from becoming a pollutant source for stormwater discharges.

- Existing vegetation will not be removed or disturbed more than 14 days before clearing and excavation begins. Vegetation clearing will be held to the minimum necessary. Existing vegetation at the site will be preserved to the maximum extent practicable.

- Construction will be sequenced to minimize the exposure time of the disturbed area.

- EPSC measures must be in place and functional before any earth disturbance activity begins, and must be maintained throughout the construction period. Temporary measures may be removed at the beginning of the workday but must be replaced before the end of the workday.

- Major grading dates, the dates when construction activities temporarily or permanently cease on a portion of the site, dates when stabilization measures are initiated, and inspection records and rainfall records will be maintained onsite.
3.5.2 Drill Rig Operations

This SWPPP describes the actions to be taken and practices to be employed to minimize impact to UEFPC from surface runoff from drilling activities.

BMPs to be followed as part of drill rig operations include the following:

- Silt fencing, wattles and/or Erosion Eels™ shall be utilized to contain all drill fluids, bentonite slurry, cuttings, or turbid water produced from drilling activities. All cuttings, water, or spoil produced from drilling activities shall be contained and not allowed to flow or runoff into drainage channels, storm drains, or receiving waters.

- Drilling residue, including all drill fluids, bentonite slurry, cuttings, or turbid water, shall be properly managed and disposed of in accordance with the applicable project requirements, UCOR procedures, and applicable regulations. Management and disposal shall be coordinated with the UCOR Facility Manager and UCOR EC&P personnel.

- If drill fluids, bentonite slurry, cuttings, or turbid water from drilling activities is stored on site prior to disposal, then they shall be stored in areas approved by UCOR EC&P personnel. These areas shall be located at least 30 feet away from drainage channels, storm drains, or receiving waters. Storage areas must not be placed in areas that may be prone to flooding by UEFPC. These storage areas shall be included in the routine stormwater inspection.

- Oil spill response materials shall be staged near the immediate work area of the drilling operations. This staging shall allow for quick deployment and containment of fuel, oil, and/or hydraulic fluid.

The effectiveness of these BMPs shall be continuously monitored during drilling activities. If at any time, it is observed that the selected BMP is not properly containing water and materials from the drilling activities, then drilling activities must stop and the modifications to the selected BMPs must be made. These modifications may include adjusting how BMPs are deployed or the reassessment of a BMPs effectiveness and the selection and deployment of an alternate BMP. UCOR EC&P personnel must be notified if a BMP is thought to be ineffective; UCOR EC&P personnel will coordinate the selection of an alternate BMP.

3.5.3 Rainfall Monitoring Plan

EPSC measures and devices are utilized to minimize the dislodging and suspension of soil in runoff and to retain mobilized sediment on site. Storm water runoff is directly proportional to the intensity and duration of a given rainfall event. Rainfall monitoring is necessary in order to estimate the effectiveness of EPSC measures and devices at the construction site. The intent of the rainfall-monitoring plan is to provide a means to record the volume of rainfall and the time period in which it fell in order to estimate the intensity of the rainfall event.

- A rain gauge or records of a locally applicable rain gauge (meteorological tower) shall be checked after every rainfall event occurring on the project site.

- If an onsite gauge is used, a fence post type rain gauge shall be used to measure rainfall. The standard fence post rain gauge shall be a wedge-shaped gauge that measures up to six (6) in. (150 mm) of rainfall (e.g., Tru-Chek® Direct-Reading Rain Gauge). An English scale should be provided on one face, with a metric scale on the other face. Graduation shall be permanently molded in durable
weather-resistant plastic. The minimum graduations shall be 0.01 in. (or 0.1 mm). An aluminum bracket with screws may be used for mounting the gauge on a wooden support.

- The rain gauge will be located at or along the project site in an open area such that the measurement will not be influenced by outside factors (i.e., overhangs, gutters, trees, etc.). At least one rain gauge will be located within each linear mile (as measured along the center line of the primary alignment) of the project where clearing, grubbing, excavation, grading, cutting or filling is being actively performed, or exposed soil has not yet been permanently stabilized.

- The rain gauge shall be checked after every rainfall event occurring on the project site. Detailed records of the rainfall event(s), including dates, amounts of rainfall, and the approximate duration or starting and ending times, shall be maintained. Records of rainfall gauge readings will be maintained in the Rainfall Data Log in Appendix A. Copies of rainfall logs and inspection records will be maintained with this SWPPP.
4. INSPECTIONS

4.1 INSPECTION SCHEDULE

Inspections of EPSC measures should be performed as follows:

1. Before anticipated storm events or a series of events, such as intermittent showers over one or more days (when a 50% or higher chance of rainfall is predicted from a recognized weather source):
   — The weather forecasting source should be consistently checked at the same time each day.
   — The weather forecasting source should be checked a minimum of 24 hours and maximum of 48 hours in advance of the workday in question.
   — Inspections and associated necessary repairs done 60 hours before a rain event constitute compliance with “before anticipated storm events.”

2. During or within 24 hours after the completion of any storm event of 0.5 in. or greater

3. At least twice per calendar week, at least 72 hours apart, during any construction and thereafter until the site is fully constructed and all disturbed areas are permanently stabilized. For unpaved areas, permanent stabilization requires a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of at least 70%.
   — During prolonged rainfall, daily inspections are suggested, and repairs will be made as needed. However, these do not replace the required inspections. The construction inspector or designee will ensure that inspections are made on non-work days (weekends and holidays) as necessary. If a reduction in the frequency of inspections is warranted, UCOR will follow the notification and approval requirements outlined in the TN-CSGP. Written documentation of the intent to change the inspection frequency and the justification for the change must be amended to this SWPPP.

4.2 INSPECTION PROCEDURE

Disturbed areas and storage locations shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures in these areas shall be inspected for proper operation. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking. Storm water runoff discharge points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impact to receiving waters. UEFPC shall be inspected for stream conditions that may indicate impact from sediment from storm water runoff (e.g., dead or dying vegetation, stressed or dying fish, discoloration of stream bottom potentially related to sediment deposition).

- Inspector(s) responsible for the inspection of EPSC measures must have an active “Fundamentals of Erosion Prevention and Sediment Control—Level I” certification. Copies of the inspectors’ certifications will be kept on site.

- Inspections will include, but are not limited to the following:
  — The condition of disturbed areas that have not been permanently stabilized
  — The condition and proper functioning of EPSC measures
  — The condition of material storage areas exposed to precipitation
  — The condition and proper functioning of construction exits
— The condition and noted impacts to stormwater outfalls that receive runoff from the disturbed area
— UEFPC stream conditions

• The results of these inspections and necessary repairs will be logged utilizing the inspection report in Appendix A or an approved equivalent.
• Inspection sheets will be maintained in a logbook. The site inspector(s) will be responsible for keeping the logbook up-to-date.
• Inspection records and construction records shall be maintained for three years after the finalization of the early site preparation work activities.

4.3 INSPECTION RESULTS

Inadequate control measures or control measures in disrepair shall be replaced, repaired, or modified before the next rain event if possible, but in no case more than seven days after the need is identified. If the EPSC measure appears to be inadequate, the UCOR FM or MTF Project Manager should be notified. Site or project changes shall be included in the SWPPP within seven days following the inspection. Implementation of changes to the SWPPP shall be implemented within 14 days.

4.4 REPORTING

Inspection reports will be maintained onsite and made available to Tennessee Department of Environment and Conservation (TDEC) upon request. The following records shall be maintained on or near the site:

• dates when major grading activities occur
• dates when construction activities temporarily or permanently cease on a portion of the site
• dates when stabilization measures are initiated
• inspection records
• rainfall records

The permittee shall also retain following items/information in an appropriate location onsite:

1. Detailed records of the rainfall event(s) including dates, amounts of rainfall, and the approximate duration or starting and ending times shall be maintained
2. A copy of the site inspector’s certification or training record for inspector certification
APPENDIX A.
FORMS AND LOGS
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APPENDIX A CONTENTS

RAINFALL DATA LOG ................................................................. A-5
MAJOR ACTIVITIES LOG .............................................................. A-7
CONSTRUCTION STORM WATER INSPECTION FORM ................................................................ A-9
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RAINFALL DATA LOG

At a minimum, the Construction Manager or designee shall record the rain gauge readings, dates, and approximate duration of rain event, along with the name of individual logging rainfall data. Rainfall data should be recorded each day. Maintain a copy of this Rainfall Data Log with this Storm Water Pollution Prevention Plan (SWPPP).

<table>
<thead>
<tr>
<th>Rain Gauge Reading (inches)</th>
<th>Date</th>
<th>Approximate Duration of Rain Event</th>
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MAJOR ACTIVITIES LOG

For major activities associated with site construction and erosion prevention and sediment controls (EPSC), at a minimum the Construction Manager or designee shall record a description and date, along with the name of individual logging the activity, for each major activity. Major activities shall include, but not be limited to, the beginning of major grading, the temporary or permanent cessation of construction activities, the initiation or resumption of construction activities, the implementation of temporary or permanent stabilization practices, and the installation of EPSC measures. Activity descriptions should be recorded each day. A copy of this Major Activities Log shall be maintained with this SWPPP.

<table>
<thead>
<tr>
<th>Description of Major Activity</th>
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FOR EXAMPLE ONLY
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CONSTRUCTION STORM WATER INSPECTION FORM

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)
Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-6332 (TDEC)
General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)
Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

<table>
<thead>
<tr>
<th>Site or Project Name:</th>
<th>NPDES Tracking Number: TNR</th>
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<tbody>
<tr>
<td>Primary Permittee Name:</td>
<td>Date of Inspection:</td>
</tr>
<tr>
<td>Current approximate disturbed acreage:</td>
<td>Has rainfall been checked/document daily?</td>
</tr>
<tr>
<td>Current weather conditions:</td>
<td>Name of Inspector:</td>
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</tbody>
</table>

Please check the box if the following items are on-site:
- Notice of Coverage (NOC)
- Stormwater Pollution Prevention Plan (SWPPP)
- Twice-weekly inspection documentation
- Site contact information
- Rain Gage
- Off-site Reference Rain Gage Location

Best Management Practices (BMPs):

<table>
<thead>
<tr>
<th>Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly? If &quot;No,&quot; describe below in Comment Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are all applicable EPSCs installed and maintained per the SWPPP?</td>
</tr>
<tr>
<td>2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?</td>
</tr>
<tr>
<td>3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?</td>
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<tr>
<td>4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?</td>
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<tr>
<td>5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If &quot;No,&quot; describe below the measures to be implemented to address deficiencies.</td>
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<tr>
<td>6. If construction activity at any location has temporarily permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If &quot;No,&quot; describe below each location and measures taken to stabilize the area(s)</td>
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<tr>
<td>7. Have pollution prevention measures been installed, implemented and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If &quot;No,&quot; describe below the measures to be implemented to address deficiencies.</td>
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<tr>
<td>8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained?</td>
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<tr>
<td>9. Have all previous deficiencies been addressed? If &quot;No,&quot; describe remaining deficiencies in Comment section.</td>
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Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.6.2 (g) and 7.7.2 of the CGP):
I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-15-702(a)(4), this declaration is made under penalty of perjury.

<table>
<thead>
<tr>
<th>Inspector Name</th>
<th>Signature:</th>
<th>Date:</th>
</tr>
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<tr>
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<td>Signature:</td>
<td>Date:</td>
</tr>
</tbody>
</table>

CN-1173 (Rev. 6-16) (Page 1 of 2) RDA 2366
Construction Stormwater Inspection Certification Form (Twice-Weekly Inspections)

Purpose of this form/ Instructions

An inspection, as described in section 3.5.8.2. of the General Permit for Stormwater Discharges from Construction Activities ("Permit"), shall be performed at least twice every calendar week and documented on this form. Inspections shall be performed at least 72 hours apart. Where sites or portion(s) of construction sites have been temporarily stabilized, or runoff is unlikely due to winter conditions (e.g., site covered with snow or ice), such inspection only has to be conducted once per month until thawing results in runoff or construction activity resumes.

As described in section 3.5.9.1 of the Permit, inspectors performing the required twice weekly inspections must have an active certification by completing the “Fundamentals of Erosion Prevention and Sediment Control Level I” course (http://www.mpesc.org/). Twice weekly inspections can also be performed by: a licensed professional engineer or landscape architect; a Certified Professional in Erosion and Sediment Control (CPESC) or a person who has successfully completed the “Level II Design Principles for Erosion Prevention and Sediment Control for Construction Sites” course. A copy of the certification or training record for inspector certification should be kept on site.

Qualified personnel, (provided by the permittee or cooperatively by multiple permittees) shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, structural control measures, locations where vehicles enter or exit the site, and each outfall.

Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the site’s drainage system. Erosion prevention and sediment control measures shall be observed to ensure that they are operating correctly.

Outlet points (where discharges leave the site and/or enter waters of the state) shall be inspected to determine whether erosion prevention and sediment control measures are effective in preventing significant impacts to receiving waters. Where discharge locations are inaccessible, nearby downstream locations shall be inspected. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

Based on the results of the inspection, any inadequate control measures or control measures in disrepair shall be replaced or modified, or repaired as necessary, before the next rain event if possible, but in no case more than 7 days after the need is identified.

Based on the results of the inspection, the site description identified in the SWPPP in accordance with section 3.5.1 of the Permit and pollution prevention measures identified in the SWPPP in accordance with section 3.5.2 of the Permit, shall be revised as appropriate, but in no case later than 7 days following the inspection. Such modifications shall provide for timely implementation of any changes to the SWPPP, but in no case later than 14 days following the inspection.

All inspections shall be documented on this Construction Stormwater Inspection Certification form. Alternative inspection forms may be used as long as the form contents and the inspection certification language are, at a minimum, equivalent to the division’s form and the permittee has obtained a written approval from the division to use the alternative form. Inspection documentation will be maintained on site and made available to the division upon request. Inspection reports must be submitted to the division within 10 days of the request.

Trained certified inspectors shall complete inspection documentation to the best of their ability. Falsifying inspection records or other documentation or failure to complete inspection documentation shall result in a violation of this permit and any other applicable acts or rules.
APPENDIX B.
BEST MANAGEMENT PRACTICES DETAILS
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SEDIMENT CONTROL BARRIER BMP

Sediment Control Barriers (SCB) are shown on the EPSC Plans and described as silt fencing and wattles.

The silt fencing shall be installed where SCB is indicated and:

1. there is adequate space to allow the silt fence to be installed
2. surface conditions allow the proper trenching and staking of the silt fence

Where silt fencing cannot be installed, wattles will be utilized where ground conditions allow the proper trenching and staking of the wattles.

1. Silt fencing will be installed in accordance with the Silt Fencing Best Management Practice (BMP).
2. Wattles will be installed in accordance with the Wattles BMP.

Where neither silt fencing nor wattles can be installed due to either workspace allowances or ground conditions, then Erosion Eels™ shall be utilized.

1. Erosion Eels will be installed in accordance with the BMP for the Erosion Eels™ for Sediment Control Under Sheet Flow Conditions.
2. Localized control of activities such as drilling may utilize Erosion Eels in accordance with the BMP for the Erosion Eels for Sediment Control Under Sheet Flow Conditions.
BEST MANAGEMENT PRACTICES FOR THE INSTALLATION OF SILT FENCING

Silt fencing is a temporary sediment control measure composed of woven geotextile fabric supported by posts. Silt fence is used to intercept sediment transported from disturbed areas. The silt fence is designed to temporarily dam the flow of storm water runoff and allow slow flow through the porous geotextile fabric. Suspended sediment in the ponded water will settle out upstream of the barrier.

The following general notes and installation instructions shall apply to all silt fencing utilized. The contractor should follow all manufacturer installation instructions. The following list is intended to emphasize select aspects of silt fence installation and maintenance.

1. All silt fencing must be installed along the ground contour. No silt fencing shall be installed running up and down slope. The bottom of the fence at the ground line shall be on grade, +/- 0.5%.
2. All silt fencing must be properly trenched and staked as shown in Figs. B-1 and B-2.
3. Silt fencing has a life span of approximately 6 to 12 months. All silt fencing installed longer than 12 months shall be replaced with new silt fencing.
4. Ensure the height of the silt fence does not exceed 24 in. above the ground.
5. Ensure ponding water depth does not exceed 1.5 ft.
6. The silt fence should be created from a continuous roll of filter fabric cut to length to avoid joints. If joints are necessary, they shall be constructed to ensure the fabric can be rolled together and fastened to a support post.
7. Attach fabric on the upstream side of the posts.
8. Install posts no more than 6 ft apart and no less than 2 ft deep.
9. When silt fence is installed adjacent to streams, wetlands, and other natural resources, silt fencing with wire or mesh backing shall be used.
10. Silt fencing with backing shall use 1.25 lb/ft T-type steel posts with 14 gauge wire backing that has a maximum mesh size of 6 in.
11. Silt fencing without backing support posts shall be hardwood posts that are 2.25 in. × 2.25 in. × 58 in. nominal size. T-type steel posts may also be used. If T-type steel posts are used, then they shall be 1.25 lb/ft.
12. Silt fencing fabric shall meet the specifications listed in Fig. B-3.
Fig. B-1. Silt fence (elevation view).
Drawing obtained from Tennessee Erosion and Sediment Control Handbook (TNEPSC) Handbook

Fig. B-2. Silt fence (sectional view).
Drawing obtained from TNEPSC Handbook
<table>
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<td>60 lb (fill direction)</td>
</tr>
</tbody>
</table>

Fig. B-3. Silt fence fabric requirements.  
*Table obtained from TNEPSC Handbook*
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BEST MANAGEMENT PRACTICES FOR THE INSTALLATION OF SEDIMENT CONTROL WATTLES

Wattles are a temporary sediment control measure constructed to intercept sheet flow. Wattles used to intercept sheet flow should function to decrease runoff velocity, allow for the ponding of water, and let suspended sediment settle out of the ponded water upstream of the barrier.

The following general notes and installation instructions shall apply to all wattles installed as part of EPSC controls for the MTF. The contractor should follow all manufacturer installation instructions. The following list is intended to emphasize select aspects of wattle installation and maintenance.

1. Install wattles along the ground contour.
2. Wattles must be properly staked as shown in Figs. B-4 through B-7. Wattles shall not be installed if surface conditions do not allow proper staking.
3. Wattles shall be 18 in. diameter in size.
4. Where long rows of wattles are required, the ends of the wattle segments should be overlapped as shown in Fig. B-4.
5. Remove all rocks, clods, vegetation, or other obstructions so that installed wattles have direct contact with the underlying ground surface.
6. Install wattles by laying them flat on the ground in an excavated small trench 2–3 inches in depth. Wattles shall be installed on the contour and perpendicular to water flow. Soil from the excavation should be saved to backfill the upslope length of the wattle. Compact the backfilled soil. Allow no gaps between the wattle and the ground surface.
7. Wooden stakes at least 40 inches in length shall be used to secure the wattles in place. Install stakes at 4 ft intervals or as specified by manufacturer. Less than 1–2 inches of stake shall be left exposed above the wattle. Stakes may be placed on each side of the wattle and tied across with a natural fiber twine, or stakes may be placed in a crossing manner.
8. Terminal ends of wattle rows shall hook up slope to ensure containment of runoff.
Fig. B-4. Wattle installation guide.
Figure obtained from TNEPSC Handbook
BEST MANAGEMENT PRACTICES FOR THE CREATION OF A DEWATERING STATION

Dewatering stations are temporary sediment control structures that use proprietary structures or a combination of geotextile fabric and stone to filter sediment from accumulated water discharges. A dewatering structure must be sized and operated to allow pumped water to flow through the filtering device without overtopping or bypassing the structure.

Approved options for this SWPPP include:

1. Straw bale/silt fence pit
   - The capacity of the dewatering pit will depend on the pump selected for dewatering activities. The storage volume of the pit shall be calculated using the following formula:
     
     \[ \text{Pump discharge (gpm)} \times 16 \text{ = cubic feet of storage required} \]
   - Pumping of water into the dewatering pit must be continuously monitored. Discharge from the dewatering pit cannot cause an objectionable color contrast in the receiving stream. When the water level nears the top of the dewatering pit wall, the pump must be shut off while the structure drains down.
   - When the pit is 50% full of accumulated sediment, it shall be cleaned out.
   - The pit shall be constructed as shown in Figs. B-7 and B-8.
   - The dewatering pit shall not be located so that the effluent flows directly to a storm drain catch basin, utility structure, or surface water.

2. Sediment filter bag
   - The capacity of a sediment filter bag should be adequate to handle the dewatering pump discharge and should be based on manufacturer’s recommendation on pump sizing. The filter bag must be equipped with a sleeve to receive the pump hose; slitting the filter bag to provide a hose connection is not acceptable.
   - Pumping into the bag must be continuously monitored. Discharge from the filter bag cannot cause an objectionable color contrast in the receiving stream.
   - When the filter bag has 6 in. of accumulated sediment, it shall be replaced and properly disposed.
   - A stone pad shall be constructed as shown in Figs. B-5 and B-6.
   - The sediment bag shall not be located so that the effluent flows directly to a storm drain catch basin, utility structure, or surface water.
Fig. B-5. Filter bag installation (plan view).

Figure obtained from TNEPSC Handbook
Fig. B-6. Filter bag installation (section view).
Figure obtained from TNEPSC Handbook

Fig. B-7. Straw bale/silt fence pit (plan view).
Figure obtained from TNEPSC Handbook
Fig. B-8. Straw bale/silt fence pit (plan view).
Figure obtained from TNEPSC Handbook.
Construction exits/entrances are temporary controls used to minimize the tracking of soil from the construction area to adjacent roadways. This control will prevent tracked soil from becoming re-suspended during precipitation events and creating sediment runoff to surface waters.

A construction exit/entrance is required where vehicles will exit the work area and enter the paved roadway. The construction exit/entrance shall be constructed as shown in Fig. B-9.

**Fig. B-9. Construction entrance.**
*Figure obtained from TNEPSC Handbook*
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BEST MANAGEMENT PRACTICES
FOR THE CREATION OF A STOCKPILED SOIL BERM

All excavated soil and debris must be properly managed so as to not cause sediment runoff. Excavated soils must be transported offsite and properly disposed of in accordance with applicable regulations or stockpiled onsite as described in this BMP.

All stockpiled soil shall be placed on an impermeable barrier and properly bermed (Note: asphalt and concrete are not considered impermeable barriers). The material used to create the berm structure (e.g., straw bales) must also be covered by the same impermeable barrier. All stockpiled soil will be covered with plastic sheeting prior to any precipitation events to prevent surface runoff and accumulated water buildup.
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BEST MANAGEMENT PRACTICES FOR THE INSTALLATION OF AN OIL AND DEBRIS BOOM

An oil and debris boom will be deployed on Upper East Fork Poplar Creek (UEFPC). This boom shall be capable of containing debris that might fall into UEFPC from brush and tree clearing activities (e.g., sawdust), as well as contain any oil that might spill into UEFPC. The boom shall meet the following requirements:

1. The boom shall be deployed across UEFPC immediately downstream of any work being conducted within the stream banks of UEFPC.
2. The boom shall be deployed before the beginning of any construction work, and it shall remain in place until all construction work covered by this SWPPP has been completed.
3. The boom shall be deployed in accordance with manufacturer instructions. This shall include ensuring there are no gaps between the surface water and the boom at any time while work is being conducted.
4. Remove any debris buildup from behind the boom that is noted during periodic inspections or during work activity. If an oil sheen is observed, the Y-12 National Security Complex (Y-12) Plant Shift Superintendent’s (PSS) office shall be notified.
5. The boom shall be designed for strong current and shall be at least 14 in. tall with a minimum of 8 in. of draft.
6. The boom length shall be sufficient to maintain proper deployment during high flow conditions.

Installation of the boom shall be coordinated with Y-12 Environmental Compliance (EC) personnel.
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A sandbag berm is a temporary sediment barrier constructed of stacked sandbags. This type of berm is utilized to intercept sediment-laden storm water runoff from disturbed areas as well as to redirect or prevent water flow. A sandbag berm is to be used in the immediate area of the flow augmentation structure removal to control runoff from the structure removal action as well as prevent Upper East Fork Poplar Creek (UEFPC) flow from entering the structure removal work area.

Due to the extremely volatile flow dynamic of Outfall 200 (OF200), the sandbag berm is being sized to minimize the flow impact from UEFPC. It is understood that during high flow conditions from OF200, the specified sandbag berm will likely be overtopped. Therefore, this structure will be installed immediately before the removal action of the flow augmentation structure and it shall be removed immediately after the removal action is complete and the area is stabilized.

The sandbag berm shall be installed as follows.

1. Large stones and/or debris shall be removed to allow good contact between the sandbags and the stream bottom.
2. The sandbag berm will be built to a height of 18–24 in. Each row of sandbags will tie into the concrete stair structure on the west end, extend beyond the flow augmentation structure, and tie into the creek bank on the east end.
3. The sandbags will be 18 in. long, 12 in. wide, and 3 in. thick.
4. The sandbags shall not exceed 75 lb.
5. Sandbag material shall be
   — polypropylene or polyethylene woven fabric
   — have a minimum unit weight of 4 oz per yd$^2$
   — have a minimum grab strength of 100 psi in any principal direction
   — have a puncture strength exceeding 300 psi
   — have an ultraviolet stability exceeding 70% after 500 hours of exposure
6. The ends of the sandbags shall be tightly butted together to ensure the structure is as water resistant as possible.
7. The butt joints of each row of sandbags should be overlapped with those of each successive row of sandbags.
8. Sandbags should be stacked using a pyramid approach. The sandbag berm shall have a top width of at least 24 in. with a side slope of 2:1 or flatter if three or more layers of sandbags will be utilized in the construction of the berm.
9. All sandbag fill material shall be non-cohesive, Class 3 or similar permeable material free from clay and other potentially deleterious material such as recycled concrete or asphalt.
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BEST MANAGEMENT PRACTICES FOR THE
CONSTRUCTION OF A CONCRETE WASHOUT STRUCTURE

Concrete washout stations are temporary structures that serve as a designated area where concrete washout materials can harden, be broken up, and disposed of or backfilled. All concrete washout activities that occur at the project site must use a properly installed and well-maintained concrete washout. Discharge of concrete washout runoff is not allowed from the washout structure. Washout activities shall be monitored and operated so as to not overtop or bypass the washout structure.

Approved options for this SWPPP include

1. Prefabricated concrete washouts
   — Ensure containers are water tight and durable
   — Locate at least 50 ft away from storm drain catch basins or surface waters

2. Site-built concrete washouts
   — Can be a temporary pit or bermed area as shown in Figs. B-10 and B-11. The construction detail below shows an earthen bermed pit. However, straw bales, wattles, or other sufficiently sized material may be utilized for the berm structure. Excavated pits are also allowed.
   — The liner fabric shall be inspected and ensured to be in good condition prior to use.

All concrete washout structures shall be properly labeled in accordance with Fig. B-12.

---

Fig. B-10. Concrete Washout (sectional view).
*Figure obtained from TNEPSC Handbook*
Fig. B-11. Concrete washout (plan view).
Figure obtained from TNEPSC Handbook

Fig. B-12. Concrete washout sign posting.
Figure obtained from TNEPSC Handbook
BEST MANAGEMENT PRACTICES FOR THE USE OF EROSION EELS FOR SEDIMENT CONTROL UNDER SHEET FLOW CONDITIONS

In areas where sediment controls are needed and silt fencing or wattles cannot be installed because of limited space or inability to trench or stake in the ground surface, Erosion Eels™ will be used.

Erosion Eels is a proprietary product of Friendly Environment located in Shelbyville, Tennessee. Figures B-13 through B-16 were provided by the manufacturer. In addition, the general notes as well as installation instructions below were provided by the manufacturer. It is important for the contractor to be aware of and follow all manufacturer notes and instructions when installing and maintaining Erosion Eels™.

1. Erosion Eels used for sheet flow conditions shall have specification mixture 1.0 (a filter mixture comprised of 100% shredded rubber that has been washed and processed to remove most, if not all, metal components. The material shall be derived from recycled tires and shall be shredded to produce a maximum particle size of +/- ¾ in.)

2. Erosion Eel size shall be a nominal diameter of 20 in. and a standard nominal length of 10 ft.

3. Erosion Eels shall be manufactured from a woven geotextile covering with interior filter materials as specified above.

4. Erosion Eels shall be installed along the ground contour.

5. Erosion Eels shall be installed on a bed prepared by removing any large debris including rocks, soil clods, and woody vegetation. All surfaces shall be uniformly compacted for maximum seating of eel in place. No trenching is required for installation of Erosion Eels.

6. If more than one Erosion Eel is placed in a row, the Erosion Eels shall be overlapped a minimum of 12 in. to prevent flow and sediment from passing through the joint. The overlapped ends of the Erosion Eels shall be compressed tightly together either by hand or by manufacturer-approved mechanized means.

7. Erosion Eels shall be installed where the handles will be positioned at the top of the device to ease deployment.
Fig. B-13. Construction entrance.
Figure obtained from Friendly Environment

Fig. B-14. Construction entrance.
Figure obtained from Friendly Environment
Fig. B-15. Construction entrance.
Figure obtained from Friendly Environment

Spacing Recommendations for the Erosion Eel™ for Perimeter Controls and Intercepting Sheet Flow on Slopes

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* Dual stack refers to two eels stacked atop one another and stabilized with T-posts. See detail E2-E on Sheet E-2.

Fig. B-16. Construction entrance.
Figure obtained from Friendly Environment
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As described in the *Tennessee Erosion and Sediment Control Handbook*, inlet protection is a temporary protective device that is placed around a storm drain catch basin to prevent sediment from entering the storm drain system. Many different types of inlet protections are available.

Storm drain inlet protection to be utilized as part of this SWPPP requires the placement of Erosion Eels™ as shown in Figs. B-17 through B-20.

1. Erosion Eels™ to be utilized for inlet protection shall have specification mixture 1.0 (a filter mixture comprised of 100% shredded rubber that has been washed and processed to remove most, if not all, metal components. The material shall be derived from recycled tires and shall be shredded to produce a maximum particle size of +/− 3∕₄ in.)

2. Erosion Eel™ size shall be a nominal diameter of 9.5 in.

Erosion Eels™ are to be installed in accordance with the following manufacturer’s requirements:

---

**Fig. B-17. Construction entrance.**

*Provided by Friendly Environment*
Fig. B-18. Construction entrance.  
*Provided by Friendly Environment*

Fig. B-19. Construction entrance.  
*Provided by Friendly Environment*
Fig. B-20. Construction entrance.
Provided by Friendly Environment
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APPENDIX C.
OUTFALL 200 MERCURY TREATMENT FACILITY
EARLY SITE PREPARATION – SITE PLAN FIGURES
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APPENDIX C CONTENTS

EARLY SITE PREPARATION PLANS ............................................................................................................................ C-5
SITE PLAN FIGURES FOR EARLY SITE PREPARATION .............................................................................................. C-7
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The following site plan figures show the locations for selected best management practices (BMPs). The BMPs for the Early Site Preparation portion of the work include:

1. Headworks Site
   — Sediment Control Barrier (SCB)
   — Inlet Protection
   — Dewatering Station
   — Sandbag Berm
   — Debris and Oil Containment Boom
   — Construction Entrance/Exit
   — Soil Stockpile Berm

2. Transfer Pipeline Route (three road crossings)
   — Sediment Control Barrier
   — Soil Stockpile Berm
   — Erosion Eels to Control Sheet Flow
   — Inlet Protection

3. Treatment Facility Site
   — SCB
   — Inlet Protection
   — Soil Stockpile Berm
   — Debris and Oil Containment Boom
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APPENDIX D.
OUTFALL 200 MERCURY TREATMENT FACILITY
UTILITIES RELOCATION – SITE PLAN FIGURES
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APPENDIX D CONTENTS

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UTILITIES RELOCATION PLANS

The following site plan figures show the locations for selected best management practices (BMPs). The BMPs for the Early Site Preparation of the utility relocation portion of the work include:

1. Headworks Site
   — Sediment Control Barrier (SCB)
   — Inlet Protection
   — Dewatering Station
   — Concrete Washout
   — Debris and Oil Containment Boom
   — Construction Entrance/Exit
   — Soil Stockpile Berm

2. Treatment Facility Site
   — SCB
   — Inlet Protection
   — Soil Stockpile Berm
   — Debris and Oil Containment Boom
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NOTES:
1. AREA (SHAL: BE BELT FENCE OR BEATTIES. BELT FENCE (SHALL NOT BE INSTALLED IN THE ORDER INDICATED. EROSION EELLS SHALL BE USED ON ALL UMBRELLA CONCRETE SURFACES.
2. BELT (SHALL BE FIXED TO GROUND AT SPACE AS SHOWN. BELT FENCE (SHALL NOT BE INSTALL BE EROSION EELLS AND CONCRETE. BELT FENCE (SHALL NOT BE INSTALL IN THE SAME PLACE AS BELT FENCE (SHALL NOT BE INSTALL.
3. CONSTRUCTION ENTRIES (SHALL BE LOCATED AT ALL POINTS WHERE VEHICLE TRAFFIC ENTERS AND LEAVES THE ROADWAY.
4. ALL STABILIZED SOIL (SHALL BE PLACED LOCATION AND MANAGED PER THE SWPPP.
5. DETERRING STATIONS (SHALL BE PLACED AT THE SHPPP.
6. REFER TO DRAWINGS CH2M 1-903 AND OTHER IF INTERDIMENSION FOR ADDITIONAL INFORMATION.

FIGURE D1
HEADWORKS UTILITY RELOCATION, SWPPP
OF200 MERCURY TREATMENT FACILITY
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APPENDIX E.
OUTFALL 200 MERCURY TREATMENT FACILITY
SECANT PILE WALL – SITE PLAN FIGURES
APPENDIX E CONTENTS

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SITE PLAN FIGURES FOR SECANT PILE WALL........................................................................ E-6
SECANT PILE WALL PLANS

The following site plan figures show the locations for selected best management practices (BMPs). The BMPs for the Early Site Preparation of the Headworks area portion of the work (including construction of the secant pile wall) include:

- Sediment Control Barrier (SCB)
- Inlet Protection
- Concrete Washout
- Debris and Oil Containment Boom
- Construction Entrance/Exit
- Soil Stockpile Berm
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