

**PROJECT SPECIFICATIONS**  
**FOR**  
**SWSA-2 PARKING / SOLAR CHARGING FACILITY**

**OAK RIDGE, NATIONAL LABORATORY**  
**OAK RIDGE, TENNESSEE**

July 2010

**SPECIFICATIONS**

For

**SWSA-2 Parking/Solar Charging Facility**

Prepared by

UT-Battelle

For

OAK RIDGE NATIONAL LABORATORY

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## TABLE OF CONTENTS

### **Division 01 – General Requirements**

01010 – General Work Requirements  
01110 – Safety and Health  
01500 – Temporary Facilities and Site Controls  
01550 – Environmental Protection and Waste Management  
017419 – Demolition Waste Management and Disposal

### **Technical Specifications**

Item #1:

*Project Manual “SWSA-2 Finished Parking Lot”* (Document # 34553-45 dated June 01, 2010).

Item #2:

*Project Manual “SWSA-2 Solar Charging”* (Document # 34676-01 dated June 01, 2010).

### **Drawings**

Item #1: C3E020019A712 Rev. 1, C3E020019A713 Rev. 0, C3E020019A714 Rev. 0, C3E020019A715 Rev. 0, C3E020019A716 Rev. 0, C3E020019A717 Rev. 0, C3E020019A718 Rev. 0, C3E020019A719 Rev. 0, C3E020019A720 Rev. 1, C3E020019A721 Rev. 1, C3E020019A722 Rev. 1, E3E020019D114 Rev. 0

Item #2: A3E020019A004 Rev.0, A3E020019A005 Rev.0, E3E020019D115 Rev.0, E3E020019D116 Rev.0, E3E020019D117 Rev. 0, E3E020019D118 Rev. 0, S3E020019B042 Rev. 0, S3E020019B043 Rev. 0

END OF TABLE OF CONTENTS

**SECTION 01010 - GENERAL WORK REQUIREMENTS**

## PART 1 - GENERAL

## 1.1 SUMMARY OF WORK

- A. Work is located at the Oak Ridge National Laboratory (ORNL), a Government owned facility, managed by UT-Battelle, LLC, (the Company), for the Department of Energy (DOE), in Oak Ridge, TN.
- B. Additional ORNL campus parking of approximately 100 parking spaces including Solar Collectors, Electric Vehicle Charging Stations, and DC Battery Array with a associated structural steel canopy with standing seam metal roof is to be constructed within the scope of this project.
- C. Perform work in accordance with 29 CFR 1926 and applicable portions of 29 CFR 1910.
- D. Work shall be completed in strict accordance with the subcontract documents.

## 1.2 COMPANY INTERFACE

- A. Communication between the Seller and the Company shall be through the Company's Technical Project Officer (TPO). The Seller shall communicate issues affecting the contract with a Request for Information (RFI). An RFI form is posted on the Procurement website.

## 1.3 SECURITY

- A. Badge and Dosimeter Requirements
  - 1. Workers must be badged to enter ORNL. Access points are located on Bethel Valley Road. Submit the badge request form, located on the Procurement website, at least seven calendar days, but not more than 14 calendar days, in advance of scheduled plant entrance. Proof of the following current training is a prerequisite for obtaining a badge and for performing work at ORNL:
    - a. ORNL Site Access Training (SAT), or Y-12/ETTP General Employee Training (GET), within the past two years.
    - b. ORNL Environmental Management System Awareness Training.
  - 2. Request badges only for employees assigned or scheduled to work at the site.

3. Beta-gamma external radiation dosimeters are required when entering Controlled Areas, Radiological Areas, and Radioactive Material Areas and will be issued to workers under this Agreement. The dosimeters shall be worn with the badge above the waist on outer clothing.
4. Submit temporary badge request forms for one-time visitors at least 48 hours in advance of scheduled visit using Construction Badge Request Form on the Procurement website.
5. Return all badges and dosimeter upon completion of work. **Final payment will not be processed until badges and dosimeters are returned.**

B. Vehicle Requirements

1. Personal vehicles may only be parked in spaces designated for open employee parking. Parking violations may result in termination of employee access to ORNL.
2. Parking and work site access for vehicles used to conduct the subcontract work shall be coordinated with the TPO.
3. Parking along roads is prohibited.
4. If vehicle access is required to designated secure areas of ORNL (HFIR complex, portions of SNS, etc.), submit a written list of vehicles needing access to these areas at least 48 hours in advance of required access. Provide the make of vehicle, model, license plate number, and insurance carrier. A Vehicle Access Request Form is located on the Procurement website.

1.4 SUBMITTAL REQUIREMENTS

- A. Coordinate submittal information through the Company's TPO and Procurement representative.
- B. Provide the submittal information as stated in the subcontract documents. A preferred submittal form is included on the Procurement website.
- C. Identify submittal information with contract number, project title, Seller's name, and date submitted.
- D. Number of submittal copies: Three, except as noted otherwise within the specification.
- E. Items submitted for review and comment will be returned to the Seller within five business days.
- F. Items submitted for approval will be returned within five business days with one of the following comments:
  1. Approved As Is.
  2. Approved with comments, revise and resubmit.

3. Approved with comments, resubmittal not required.
4. Not approved, revise and resubmit.
5. Review not required.

## 1.5 SPECIFICATION AND DRAWINGS

### A. Specification

1. The specification is written in a streamlined form and directed to the Seller, unless specifically noted otherwise.
2. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.
3. The term "provide" means to furnish and install, complete and ready for intended use.

### B. Drawings

1. Work shall conform to the drawings.
2. Reference drawings are furnished for information only.

## 1.6 WORKING AND STORAGE AREAS

- A. Limit activities and storage to the immediate project site and designated storage areas.
- B. Limit travel to the main roads.
- C. Store only work-related material and equipment in stockpile areas, storage trailers, and designated storage sites located on Government-controlled land.
- D. Perform cleanup, trash disposal, and neatly arrange material and equipment on a daily basis.
- E. ORNL has a smoking policy that limits cigarette smoking to certain designated ORNL areas. For work in existing ORNL facilities, the Seller shall only allow its employees, and employees of its lower tier providers, to smoke in the ORNL designated smoking areas. For work on other ORNL construction sites (e.g., outdoor work and/or new facilities) the Seller may request that a site-specific, outdoor smoking area be designated for the Seller's work; such designated area must be 25 feet away from any building entrance or building air intake.

## 1.7 PROJECT WORK AND PAYMENT SCHEDULE [EDIT]

- A. The Seller shall be 100% complete with work by 9-30-2010. All work shall be complete by this date. There are no provisions for a contract extension in The Agreement. Within 21 days of award, the subcontractor shall submit a cost-loaded, baseline project schedule with activities and related costs that match the schedule of values.
- B. The baseline schedule shall consist of a precedence network diagram using the critical path method (CPM) to show each individual essential activity in sequence to meet the contract milestones. The schedule shall also show durations and dependencies, including off-jobsite activities such as design, fabrication of equipment, and procurement and delivery of material, as well as total float and free float times. A rolling four-week schedule showing one week actual progress and a three-week look-ahead forecast shall be reviewed and maintained weekly in Company review meetings. The baseline schedule shall be used for critical path and total float analysis.
- C. Submit for approval, within 21 calendar days after the award of contract, a schedule of values (payment schedule) allocated to various portions of the work. The schedule of values shall be in enough detail to verify applications for payment and be traceable to the activities and progress on the schedule. Activities with substantial material values shall be listed separately and in accordance with the provisions for delineating the non-ARRA and ARRA work scopes as defined in the Solicitation and Statement of Work.
- D. Update the project work schedule weekly during on site work. Updated schedules shall be presented and distributed at weekly project status meetings to be held in a building on the ORNL campus (exact building number to be determined after contract award).

## 1.8 PROJECT COORDINATION

- A. Normal construction working hours are 7:00 a.m. to 5:00 p.m., Monday through Friday. Provide sufficient personnel to complete the project within the specified time. Notify the Company at least 48 hours in advance if performing work at times other than the normal working hours. The Seller is expected to properly man the project to complete all work by 9-30-2010. There are no provisions for a contract extension in The Agreement.
- B. Company holidays are New Years Day, Martin Luther King's Birthday, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving and the day after, and Christmas (two days). Request 72 hours in advance to access the Plant on holidays observed by the Company. The Company retains the right to reject requests to work on holidays.
- C. A pre-construction meeting will be held at ORNL five calendar days before starting field work. The Seller's superintendent and key personnel shall attend. The date and time will be mutually agreed upon by the Company and the Seller.
- D. A progress and coordination meeting will be held weekly. This meeting will be chaired by the Company's TPO. The Seller's superintendent and/or Project Manager shall attend this meeting and have authority to resolve field problems and make changes in cost and schedule. The project schedule shall be updated prior to the meeting and used as a basis for the discussion.

- E. All work shall be coordinated with the Company, to allow integration with the balance of ORNL's activities, to ensure the mutual safety all work activities. The Seller shall notify the TPO no later than 24 hours in advance of work activities scheduled by the Seller. No work shall take place on any day without explicit approval from the TPO.
  - 1. For all work in or around existing ORNL facilities or infrastructure, protect the existing ORNL facilities and infrastructure from damage, and protect all personnel from injury resulting from Seller's activities.
- F. Submit requests for outages a minimum of eight calendar days in advance of need. Hold outages to a minimum in number and duration.
- G. Request project specific permits such as hotwork and lockout/tagout at least 48 hours in advance of need.
- H. Provide 48 hours advance notice before shut down of the sprinkler system to make proper arrangements with the Company's Fire Protection Department.
- I. Provide 48 hours advance notice before shut down of any portion of the Public Address System as may be required for a project.
- J. Provide 48 hours advance notice before shut down of any safety systems devices.
- K. Seller to furnish a land surveyor, licensed in the state of Tennessee, to verify depths of canopy pier foundations to ensure they are drilled to the depths specified in The Agreement and design drawings. This surveyor shall be on site and able to verify depths at all times during the performance of the drilling operations. The Company's TPO or other authorized representative shall witness the findings of the surveyor – (1) **prior** to reaching the bottom of the excavation and (2) at such time the Seller determines the foundation is ready to have reinforcing steel installed (*at the completion of the respective pier foundation excavation and prior to concrete placement*). This requirement also applies to poured concrete electrical duct banks. **Verification** of the depths by the Company's TPO or other authorized representative shall be based on a "sketch" (*prepared by the surveyor*) of the pier excavation depths (for each pier) showing the elevations of the bottom of each pier AND the elevations of the bottom of the duct bank(s). Each "sketch" shall be signed by the licensed surveyor AND the Company's TPO or other authorized representative prior to proceeding with the next phase of the work process. No foundation for any structure shall be excavated (drilled) deeper than shown on the design drawings.

#### 1.9 UNUSUAL CONDITIONS

- A. Health Physics personnel will be on site to monitor all excavation and demolition activities which have a potential of containing unidentified contamination to ensure contamination is not present. All work for the project will be performed on "engineered fill" placed previously "by others". All material that comprises this "engineered fill" will have already been checked by Health Physics technicians and will be deemed "clean fill". Periodic surveys of the work area and equipment, will be performed to verify there are no anomalies. If radiological contamination is encountered, the Company will evaluate conditions and delete the radiological work scope where applicable.

- B. The following have been identified as safety concerns and/or are in close proximity to the work site:
1. The new parking lot construction is adjacent to an existing parking lot. The seller shall protect the existing pavement from potential damage created by heavy construction equipment movement and staging. The seller is responsible for repairing any damage that might occur as a result of construction and mobilization of heavy equipment.
  2. The seller is responsible for preventing unauthorized access to the construction site by pedestrians not associated with the project by the use of flagging, barricades, signage, et c. Under no circumstances shall non-authorized pedestrians be allowed access to the site as a means of travel to adjacent buildings.
  3. High Visibility Vest Requirements: All workers exposed to the risks of moving roadway traffic or construction equipment should wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Safety Apparel" (see Section 1.A.11), or equivalent revisions, and labeled as ANSI 107-1999 standard performance for Class 1, 2, or 3 risk exposure. A competent person designated by the Seller to be responsible for implementing the worker's safety plan within the activity should make the selection of the appropriated class of garment.
- C. Work within existing confined space areas will not be required for this project.

## 1.10 SEQUENCING

The Seller is responsible for procurement and installation of all contract components. The seller shall document the proposed work sequence in the approved project schedule. The sequence shall be such that the Seller can complete all work prior to or by the contract completion date of 9-30-2010.

## PART 2 - PRODUCTS

### 2.1 PROPERTY FURNISHED TO THE SELLER

- A. There will be no Company furnished property provided to the Seller.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Training.
1. Ensure work-specific training is provided before performing work activities.

2. Each worker shall provide proof of current SAT

### 3.2 TESTING

- A. The Seller shall perform subcontract specified tests in accordance with the following:

1. Provide labor and technical support, annually calibrated (unless more frequent calibration is specified) and properly maintained equipment, and materials required to perform testing. Equipment calibration records shall be submitted upon request. All testing shall be in accordance with the Technical Specifications or Design Drawings as specified in The Agreement.
2. Notify the Company 24 hours before performing tests and inspections.
3. Perform tests and inspections in a manner that allows observation by the Company.
4. Submit a copy of tests performed within 48 hours after test completion.

### 3.3 EXCAVATION AND PENETRATION ACTIVITY

- A. An excavation/penetration permit will be provided at the pre-construction meeting. A representative of the Seller is required to sign the permit. Ensure the issuance of an approved permit before starting excavation or penetration work. Work covered by the excavation/penetration permit requires an underground survey by the Company before work begins. Contact the Company TPO before digging or penetrating the surfaces.
- B. The Seller shall obtain approval by the Company before covering existing or newly installed utilities. The Company shall verify that utility locations are recorded before allowing the utilities to be covered.
- C. Penetrations less than 2" deep:
- D. For penetrating activities (including installation of fasteners less than 2") where subsurface elements are unknown, the following requirements will be performed.
  1. Investigate and/or survey for subsurface elements.
  2. Use GFCI protection or electrically-operated equipment and tools.
  3. Connect non-double insulated electrically operated equipment and tools with an insulated #8 AWG or larger copper conductor. This applies to non-electric coring/cutting machines also.
  4. Workers shall wear appropriately rated electrically insulated gloves.

### 3.4 CONTROL OF MOLD DURING CONSTRUCTION

- A. The Company recognizes that mold infestation represents a risk during the construction phase. To reduce the risk of mold infestation the Company requires the following actions by the Seller.
1. Avoid trapping water in finished work.
  2. Replace or clean any material that has visible signs of mold.
  3. Protect building materials and components from flowing or standing water once the building roof is installed.
  4. Keep interior spaces and materials or components stored in those spaces, reasonable clean and protected from water damage.
  5. Maintain drywall, ceiling tiles, insulation, and other porous materials dry. Replace or properly dry any porous materials that get wet.
  6. Don't cover any fireproofing, insulation or other porous materials that are clearly wet.
  7. Maintain appropriate levels of ventilation during construction. Ventilate spaces and storage areas that are enclosed before construction is completed.

### 3.5 PROJECT SIGN

- A. Post identification and emergency notification signs in a conspicuous location at the work site. All points of entry shall have a sign warning of the pre-requisites.
- B. Identification signs shall be weatherproof and have the following information:
1. Project title and contract number.
  2. Name, address, and phone number of Seller's business.
  3. Name and phone number of person available 24 hours, seven days per week, to be notified in case of an emergency. Phone number may be pager or cellular phone.

### 3.6 NEW BURIED UTILITIES

- A. Buried underground utilities shall include a tracer wire.
- B. Requirements for the tracer wire include:
1. Tracer wire shall be No. 10 or No. 12 AWG copper wire with water resistant thermoplastic (Type TW) insulation.

2. Tracer wire shall be installed on top of the buried utility.
3. Tracer wire shall be positively attached to the buried utilities by plastic wire ties or similar type of attachment every ten (10) feet for straight utility segments and at all changes of direction.
4. The ends of the tracer wire shall be exposed above finished grade with a twelve (12) inch coil of wire at each end. Depending on the circumstances the ends of the tracer wire exposed above finished grade shall be attached to the utility as it leaves the ground or secured in a valve box or junction box.
5. Tracer wire shall be continuous between locations where wire ends come to the surface. Tracer wire shall be tested for continuity in the presence of a representative of the company.

### 3.7 AS-CONSTRUCTED DRAWINGS, MANUALS AND WARRANTY INFORMATION

- A. The Seller shall maintain one set of contract documents that reflect the as constructed condition. The as constructed conditions shall be noted in red.
- B. Seller shall submit an Operations and Maintenance/Warranty package. The package shall be organized and tabbed by construction specification divisions and shall contain at minimum the following information:
  1. O&M manuals for all systems/equipment.
  2. Test / Balance reports as required by subcontract documents.
  3. List of contacts for service and warranty issues for all equipment.
  4. List & summary of warranties (including at minimum the scope of the warranty, term of warranty, and required preventive maintenance to maintain valid warranty).
  5. Copies of specific written vendor warranties if required by contract (e.g., roof warranties).

**At substantial completion of the project, the Seller shall submit the *as constructed* documents and the O&M/Warranty package to the Company. Final payment will not be made until both submittals are received and approved by the Company.**

### 3.8 MANAGEMENT REPORTING OF ACCIDENTS AND INCIDENTS

- A. Notification:

1. If there is any unplanned, unusual work condition that presents an actual or potential hazard or threat to workers or facility infrastructure, it shall be reported to the Company as soon as possible after the event occurs, and in no case longer than 15 minutes after the event occurs unless acute personnel or facility hazards associated with the event prevent subcontractor personnel from contacting the TPO.
- B. Preservation of the site following an accident or incident:
1. The Seller shall make every effort to preserve the site following an accident or near-miss incident.
  2. Taking care of any injured personnel takes precedence over preservation of the accident site.
- C. Accident/Incident report:
1. Submit an "Individual Accident/Incident Report" (DOE Form 5484) within two working days of a recordable or lost time injury or illness (OSHA definition). The Company will provide the report form upon request.
  2. The Seller must perform a structured accident investigation for any recordable or lost time injury and/or for any significant non-injury accident/incident that disrupts project operations. An accident investigation report (in addition to the Form 5484, if applicable, discussed in Section C.1 above) containing the following information must be submitted to the Company within three (3) working days:
    - a. A timeline of critical events before, during, and immediately after the accident/incident.
    - b. A causal analysis listing the direct cause, contributing cause(s), and root cause(s) of the accident/incident; the causes shall also identify in which area of the five core functions of ISM (see Section 01110, 1.2.A) the cause occurred.
    - c. A corrective action plan listing actions and completion dates that the Seller has taken or plans to take, to correct any deficient conditions or worker behaviors that led to the accident/incident. The corrective action plan should also consider the applicability of the actions to other projects that the Seller may be performing at ORNL.

**END OF SECTION 01010**

**SECTION 01110**  
**TABLE OF CONTENTS**

**PART 1: GENERAL**

- 1.1 SAFETY AND HEALTH PROGRAM
- 1.2 SAFETY AND HEALTH ENFORCEMENT
- 1.3 APPLICABLE CODES, REGULATIONS, AND STANDARDS
- 1.4 HAZARDOUS WORK REQUIREMENTS
  - A. AIRBORNE CONTAMINANTS
  - B. CONFINED SPACE
  - C. DEMOLITION
  - D. ELECTRICAL
  - E. EXCAVATION/PENETRATION
  - F. HAZARD COMMUNICATION
  - G. HEAT/COLD STRESS
  - H. HOISTING AND RIGGING
  - I. LOCKOUT/TAGOUT
  - J. NOISE/HEARING PROTECTION
  - K. RESPIRATORY PROTECTION REQUIREMENTS
  - L. WELDING, CUTTING, AND HOTWORK REQUIREMENTS
- 1.5 ADDITIONAL SAFETY REQUIREMENTS
- 1.6 OCCUPATIONAL HEALTH PROTECTION THRESHOLD EXPOSURE LIMITS
- 1.7 EMERGENCY SERVICES AND EQUIPMENT
- 1.8 EQUIPMENT AND MACHINERY

**PART 2: EXECUTION**

- 2.1 PREPARATION
- 2.2 PROTECTION OF WORK AREA
- 2.3 WORKING AND STORAGE AREAS

**SECTION 01110 - SAFETY AND HEALTH****PART 1 - GENERAL****1.1 SAFETY AND HEALTH PROGRAM**

A. Oak Ridge National Laboratory (ORNL) is committed to accomplishing construction work in a manner that ensures protection of workers, the public, and the environment. In order to meet that commitment, ORNL has implemented an Integrated Safety Management System (ISMS). The objective of ISMS is to WORK SAFELY. By systematically integrating safety into management and work practices at all levels, work is accomplished while protecting the public, the worker, and the environment. Safety management activities can be grouped into five core safety management functions:

1. Define the scope of work;
2. Analyze the hazards;
3. Develop and implement hazard controls;
4. Perform work within controls; and
5. Provide feedback and continuous improvement.

These five core safety management functions provide the necessary structure for safely accomplishing any work activity and are applied as a continuous cycle with the degree of rigor appropriate to address the type of work activity and the hazard involved.

- B. Submit for approval a written project specific Safety and Health Plan 21 calendar days prior to site activities. The plan shall:
1. Address how the Seller will implement the Safety and Health requirements described in the project subcontract documents, i.e., terms and conditions, technical specifications, and drawings.
  2. Designate the individual responsible for on-site implementation of the plan and who has authority to act on behalf of the Seller, including the qualifications of the designated individual.
  3. Provide a list of those project activities for which subsequent hazard analyses are to be performed.

- C. Submit for approval a written hazard analysis (HA), addressing project specific hazards, to the Company 21 calendar days prior to site activities. Using ISMS as described in Section 1.1.A, the HA shall identify work tasks anticipated during the construction work, as well as any potential health, safety, and environmental hazards that could reasonably be expected during the work activities, and list specific actions or precautions that will be taken to minimize the risk of such hazards that could cause an accident, injury, illness, or environmental insult. Prior to submission to the Company for approval, the HA shall be approved by a safety manager (or equivalent) and a line manager in the Seller's work execution team.

The HA shall be revised whenever activities, hazards, or hazard controls change. Minor revisions (not significantly changing the safety risk profile of the job) shall be approved by a competent manager or supervisor of the Seller. In addition, significant revisions to the HA (changes in job scope, Seller means and methods, etc. from the previously approved HA that result in a significant change in the safety risk profile of the work) shall be submitted to the Company for approval. All final, approved changes to the HA shall be communicated to the affected workers.

The HA shall identify competent persons required for workplace inspections of the construction activity, where required by OSHA standards.

The HA shall provide drawing and/or other documentation of protective measures for which applicable OSHA standards require preparation by a Professional Engineer or other qualified professional.

A copy of the HA shall be readily available at the work site in such a way as to make the information readily available to workers in the work area on a continuous basis. Anyone performing hands-on work and anyone requiring unescorted access to the site shall be required to review and sign the HA prior to entering the work area. Each worker shall be briefed on the hazards specific to their work before signing the HA, and shall be re-briefed as often as necessary to ensure their understanding of the HA hazard controls applicable to their daily work activities.

A sample of the Change Summary sheet, HA Form, and signature sheet are available on the ORNL Procurement web site.

- D. The Seller and its lower tier subcontractors shall conduct pre-task briefings, sufficient to ensure job site safety, with affected workers to review hazards and hazard controls for tasks planned that day.
- E. The Seller shall confirm that training for their employees and their lower tier subcontractor employees is adequate for the tasks being performed. Documentation of training shall be provided if requested by the Company.
- F. Submit tabulation of manhours worked on a monthly basis using the "Tabulation of Work Hours" form provided on the Procurement website. This should include all work hours for both manual and non-manual personnel on the job.

## 1.2 SAFETY AND HEALTH ENFORCEMENT

- A. During all execution of field construction activities, the Seller shall designate a person to be responsible for enforcement of safety rules and regulations associated with the ongoing work. This designated individual shall have sufficient knowledge and understanding of the work, the Seller's means and methods, and any applicable regulatory requirements to ensure the work can be prosecuted safely and compliantly. This person shall also have:
1. Minimum 30-hour OSHA Construction Safety Course.
  2. Experience and the authority to stop work if the safety and health of a worker or the environment are in danger.
  3. Sufficient time and resource to execute the designated safety and health responsibilities as a first priority of work. The designated person may have concurrent additional jobsite duties only to the extent those additional duties do not interfere with the ability to perform S&H responsibilities. S&H shall be the first priority and any other duties shall be immediately suspended if they interfere.
- B. The designated S&H person shall have the following responsibilities:
1. Attend a one-hour ORNL Construction Safety Meeting every month. The location and time will be designated.
  2. Perform and document **daily** safety inspections and correct deficiencies immediately. If deficiencies cannot be corrected, immediately stop related work until correction is completed. Maintain a logbook of inspections, safety meetings, and other project related activities.
  3. Conduct safety meetings/briefings with workers to discuss precautions, needed improvements, and relevant safety topics for the work being performed prior to beginning new tasks, and as often as necessary thereafter to assure that workers recall the essential HA elements of the work they're undertaking.
  4. Ensure project personnel and un-escorted visitors review and sign-off as having reviewed a copy of the project HA before entering the construction site.
  5. Revise the HA to reflect changes in the project scope of work, Seller means and methods, or changes resulting from site conditions. Document additional work tasks, hazards associated with those tasks, and required safety actions in the HA.
  6. Serve as the Seller's point of contact for site S&H concerns.
  7. Ensure appropriate industrial hygiene monitoring and safety services are provided, including instrument calibration and record keeping.
  8. Remain on site or ensure a competent, designated alternate remains on site at all times during work activities.
  9. Ensure initial and daily inspections of equipment and certification/qualification of equipment operators are current.

10. Submit documentation for resolution of serious findings identified by the Company.

### 1.3 APPLICABLE CODES, REGULATIONS, AND STANDARDS

- A. Work shall be performed in accordance with the following codes and regulations without limitations:
  1. Occupational Safety and Health Administration (OSHA) 29 C FR 1926 (with the exception of 1926.53 superseded by 10 C FR 835) and applicable sections of 1910 including all referenced codes and standards.
  2. Department of Energy (DOE) 10 CFR 851.
  3. ANSI B30 Series.
  4. ANSI/SAE J67 (Oct80), Shovel Dipper, Clam Bucket, and Dragline Bucket Rating (equipment design specification only).
  5. ANSI/SIA A92.2 (1990), American National Standard for Vehicle-Mounted Elevating and Rotating Aerial Devices (equipment design specification only).
  6. ASME B 56.6 (1993), Rough Terrain Fork Lift Trucks (equipment design specification only).
  7. NSC A 10.31 (1995), Construction and Demolition--Digger Derrick Safety Requirements (equipment design specification only).
  8. U. S. Department of Transportation, (DOT) Hazardous Materials Regulations, 40 CFR 106 199 and 49 CFR 325-399.
  9. National Fire Protection Association (NFPA) Standards including NFPA 51B-1989, "Fire Prevention in Use of Cutting and Welding Processes."
  10. National Electrical Code Handbook.
  11. American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values and Biological Exposure Indices."
  12. ANSI Z49.1, "Safety in Welding and Cutting."
  13. ANSI Z88.6, 1984, "For Respiratory Protection - Respirator Use - Physical Qualifications for Personnel" and ANSI Z88.2, "Practices for Respiratory Protection."
  14. Department of Energy, DOE Standard. Hoisting and Rigging, DOE-STD-1090-2007 (available on the ORNL Procurement web site)
- B. In the event of conflicts between the cited regulations, notify the Company for resolution.

## 1.4 HAZARDOUS WORK REQUIREMENTS

## A. Airborne Contaminants.

1. Airborne contaminants (chemicals, dust, cutting/grinding debris, etc.) shall be minimized to the extent reasonably practical, and in no case shall personnel exposures be allowed greater than the accepted standards for airborne contaminants to:
  - a. Workers without PPE or other protective measures outside the designated work area;
  - b. Workers inside the work area, including those utilizing protective measure or equipment.
2. Use appropriate dust-reducing methods such as vacuuming, wetting, enclosures, air flow control, and PPE during operations that can introduce airborne contaminants.
3. The Company shall be notified of planned activities that produce airborne contaminants so that it can assess whether appropriate protections are in place to avoid over-exposures outside the job boundary, and/or to avoid plant upset conditions (such as inadvertently triggering a facility smoke alarm).

## B. Confined space

1. ORNL confined spaces are classified as Permit-Required or Non-Permit-Required.
  - a. Non-permit spaces require a job hazard evaluation, work guideline, or a standard operating procedure approved by the Company.
  - b. Permit-required spaces require a confined space permit, which addresses all the elements of 29 CFR 1910.146.
2. Any construction operation involving a confined space entry requires an evaluation of work by the Seller and the Company's S&H Representative to classify the space as Permit-Required or Non-permit.
3. Provide retrieval equipment to facilitate non-entry rescue for all Permit-required spaces unless evaluation of the Permit-required confined space determines that the use of retrieval equipment creates greater S&H hazards. In this case, rescue services shall be notified that entry into the confined space may require rescue operations.

## C. Demolition

1. An engineering survey of the structure to determine the condition of the framing, floors, and walls, and possibility of unplanned collapse of any portion of the structure shall be performed. The Seller shall provide written evidence that such survey has been performed.
2. Company shall ensure electric, gas, water, steam, other service lines be shut off, capped, otherwise controlled outside building line before demolition work is started.

3. The Company shall determine if any type of hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous substances have been used in any pipes, tanks, or other equipment on the property. When the presence of any such substances is apparent or suspected, testing and purging shall be performed and the hazard eliminated before demolition is started.

D. Electrical

1. Electrical Safety

- a. Conduct electrical installation and maintenance operations in accordance with requirements in 29 CFR 1926 Subpart K, applicable requirements in 29 CFR 1910 Subpart S, National Fire Protection Association (NFPA) *Standard for Electrical Safety in the Workplace* (NFPA 70E) 2004 edition, and the National Electrical Code.
- b. Ensure electrical work is performed by qualified persons as defined in 1910.331-335.
- c. Provide a ground fault circuit interrupter for cord sets, receptacles, and electrical tools including plug and cord connections to generators and equipment for employee use.

2. The HA is utilized to ensure workers understand their role in the work to be performed, as well as what others involved in that project or task will be doing. Supervisory approval for “working on or near” or “working hot” shall be given in the Electrical Energized Work Permit (available on the ORNL Procurement web site). “Working on or near” or “working hot” requires approval by the Subcontractor Supervisor, UT-B TPO, and UT-B Level II Manager. Subcontractor shall follow the guidelines presented in the NFPA 70E tables for determining approach boundaries and PPE.

3. Safety Concerns Regarding Shared Neutrals

The Seller shall be aware that the lockout/tagout of individual electrical circuits will not ensure that its associated electrical wiring will be completely de-energized. Disconnected neutrals of circuits which employ shared neutrals can remain energized with normal system voltage, a condition which is prevalent in industry wide 120/240 volt, 120/208 volt and 277/480 volt building circuitry. For example, in 120/208 volt lighting circuits, a shared neutral is commonly used for up to three 120 volt circuits. Three phase wires fed from three circuit breakers (circuits 1, 3 & 5; etc.) and a shared neutral are sent from an electrical panelboard to distant light fixtures via a common conduit and junction box system. If one of the circuit breakers is locked out and the other two remain energized, and the shared neutral conductor is disconnected, 120 volts will routinely be present on the disconnected neutral conductor. In such cases, 120 volts will be fed from an associated circuit breaker hot phase, through the electrical load (such as the filament of an incandescent bulb), to energize the disconnected neutral conductor with 120 volts.

When working on circuitry employing shared neutrals, measuring for the presence of voltage on disconnected neutrals is not an adequate safety measure. For example, a light switch on one of the associated circuits may be off, with its circuit breaker still closed (light switches are typically not locked out). A case can result, when zero voltage is measured on a disconnected neutral, due to a light switch being turned off. If one proceeds to work on the disconnected neutral of that circuit, and a light switch is turned on, then 120 volts will be injected onto the disconnected neutral. Note that a similar situation can exist in facilities where the neutrals are cross-connected between circuits (including circuits from different panels); hence isolating all the circuits in a single panel (using a main breaker or disconnect) may also not ensure that circuit wiring is de-energized and/or isolated.

Due to the above, when work is performed on neutral conductors of any building electrical system, the neutral conductors should be considered as “energized”, regardless of lockout/tagout actions, and “on or near” electrical safety measures shall be exercised. Appropriate safety precautions to minimize the hazards of “energized” disconnected neutral conductors shall be listed in the project specific HA.

E. Excavation/Penetration

1. The Company will provide the Seller with an Excavation/Penetration Permit, as applicable, prior to the excavation/penetration of surfaces in order to identify Company utilities and other subsurface Company infrastructure. The Seller shall utilize Tennessee One Call services in accordance with State Law to manage protection of non-Company utilities at ORNL. Protect underground or subsurface installations from damage or displacement. The excavation permit and requirements to utilize Tennessee One Call shall be referenced in the HA and be available at the work site.

F. Hazard communication

1. Demonstrate compliance with a written hazard communication program as required by 29 CFR 1926.59, including employee information and training, provisions for labeling and availability of material safety data sheets (MSDS) as a section of the Seller S&H Plan.
2. List all hazardous chemicals/materials brought on site on the form entitled “Contractor Hazardous Materials Inventory Report” (available via the Procurement web site) before starting on-site work. Provide to the TPO a copy of the MSDS for each chemical/material listed. Update the report monthly and provide a final inventory upon completion of work.
3. Seller shall maintain MSDS for hazardous chemicals brought onsite and shall supply information regarding hazardous chemicals to the Company representative prior to initiation of activities that may potentially expose Company personnel to a hazard at the job location.
4. Seller shall remove all unused chemicals or materials brought to the site at the completion of the job.

## G. Heat/Cold stress

1. Personnel exposed to temperature extremes should be protected in accordance with the ACGIH guidelines by implementing appropriate engineering controls, work rest regimens, and/or PPE. Activities must be evaluated for variables such as air temperature, wind speed, humidity, clothing and/or PPE being worn, and acclimatization status of workers to determine if there is a threat of heat/cold stress. Appropriate work rest regimens are selected based on environmental and/or physiological monitoring.
2. Personnel shall receive proper training on the hazards of working in temperature extremes. The instruction should include signs and symptoms associated with heat/cold stress, appropriate controls to protect against these hazards, first aid measures, and other factors which may increase a worker's susceptibility to heat/cold injury (e.g., age, weight, consumption of alcohol, taking medications such as diuretics, infection, pre-existing medical conditions, etc.).
3. In hot environments, cool liquids shall be made available to workers and workers shall be encouraged to frequently drink small amounts, e.g., one cup every 15-20 minutes.
4. Since prolonged exposure to cold air or to immersion in cold water, at temperatures well above freezing can lead to dangerous hypothermia, whole body protection must be provided. Personnel should be protected by proper clothing and implementing a work/warm-up schedule per the ACHIH guidelines.

## H. Hoisting and rigging

1. General
  - a. Perform hoisting and rigging activities in accordance with the DOE Hoisting and Rigging Standard (DOE-STD-1090-2007), and the applicable parts of 29 CFR 1910 Subpart N, 29 CFR 1926 Subparts H and N, and ASME B30 and B56 Series. Provide for review by Company upon request, documents of certification that Seller's hoisting and rigging equipment meets the requirements in these documents. If an inspection certificate expires while the equipment is on site, re-inspect the equipment and update the inspection certificate before continuing work activities.
  - b. The Seller shall develop a HA content specifically for hoisting and rigging operations required for the work.
  - c. Provide load-rating plates attached in a prominent location. When modifications or changes are made to lifting or hoisting equipment or when equipment is modified to permit lifting or hoisting, attach a new manufacturer's load rating plate. In lieu of a manufacturer's load rating plate, a certification that the equipment has safely undergone a performance test of at least 125 percent of the maximum anticipated load may be furnished. This load rating shall then be affixed to the equipment.

- d. Seller's hoisting and rigging equipment/devices may be inspected by the Company with the right to suspend operation if found deficient or unsafe.
  - e. Cranes, boom trucks, and other types of hoisting equipment which do not have an anti-two-blocking device shall be equipped with a warning feature sufficient to alert the operator before the cable hook assemble is drawn into the top pulley, e.g., cable coating, cable wrapping, alarm device, etc.
  - f. The use of forklifts, backhoes, and trackhoes for hoisting or rigging activities is not permitted unless the manufacturer's written documentation specifies the equipment is designed for that purpose and lifting limits are properly identified.
  - g. Do not operate forklifts within 10 feet of any electrical lines without Company approval. Contact the Company's TPO for a determination of safety requirements to conduct forklift operations that must be performed within 10 feet of electrical lines.
2. Operator qualifications
- a. Equipment operators and riggers, including alternates, shall be qualified to perform their assigned functions. Qualifications shall include physical, knowledge, and skills proficiency based on job function.
  - b. The Seller, or their lower tier subcontractor, shall maintain a program for evaluating crane operators. The program shall be available for review by the Company. The program shall include written testing to evaluate operator knowledge and performance testing to evaluate operator skills. Elements of the program shall be consistent with the requirements of DOE Hoisting and Rigging Standard, and include but not be limited to the following.
    - 1) Pre-use crane inspection.
    - 2) Crane specifications, operator's manual, load charts, instrumentation, controls, operator aides, and operating characteristics.
    - 3) Operating procedures under emergency conditions.
    - 4) Setup, shutdown and parking of the crane.
    - 5) Crane attachments.
    - 6) Configurations and loading effects on the crane.
    - 7) Standards, rules and regulations.
    - 8) Rigging practices.
    - 9) Personnel lifting procedures.
3. Ordinary, critical, and pre-engineered lifts.

- a. Ordinary Lifts less than 5000 pounds
  - 1) The Seller is responsible for ensuring that all lifting meets the requirements of the regulatory documents noted in this section.
- b. Ordinary lifts above 5000 pounds.
  - 1) The Seller shall require an appropriate review and approval by the Seller's Field Supervisor and Hoisting and Rigging Supervisor in a documented "lift planning" or equivalent format. An example of a lift planning document is available on the Procurement web site.
- c. Critical lifts.
  - 1) A lift shall be designated as a critical lift if the requirements applicable for ordinary lifts do not adequately eliminate or control the likelihood or severity of the following:
    - a) Personnel injury or significant adverse health impact (onsite or offsite).
    - b) Significant release of radioactivity or other hazardous material or other undesirable conditions.
    - c) Undetectable damage that would jeopardize future operations or the safety of a facility.
    - d) Damage that would result in delay to schedule or other significant program impact such as loss of vital data.
    - e) The use of two or more cranes or forklifts or special hoisting/rigging equipment.
    - f) If the lift exceeds 75% capacity of crane (steel erection only).
  - NOTE: A lift could also be designated as critical if the load requires exceptional care in handling because of size, weight, close-tolerance installation, high susceptibility to damage, or other unusual factors.
  - 2) The Seller shall submit a critical lift plan, using the Critical Lift Plan form (available on the Procurement web site), to the Company for approval. The plan shall be submitted at least 10 days in advance of the scheduled lift. The lift shall not be made until approval in writing from the Company is received.
    - a) Include a layout sketch of the crane set up plan that includes the planned and maximum operating radii for the lift. Also show the item to be lifted. ( Note: Show set up plans for other lifting machinery [e.g. Fork Lift] if not using a crane.)
    - b) Include Proof Load Tests for Slings, Shackles, and Hooks used for the H&R activities. The same components that were tested must be used for the critical lifting activities.
  - 3) The Seller shall conduct a pre-lift meeting prior to making the lift. The Company TPO (or designees) and all Seller personnel involved in the lift shall attend.

## I. Lockout/Tagout

1. Hazardous energy sources (electrical, mechanical, etc.) that are present at the work site must be de-energized and locked out before the Seller can begin work involving these hazardous energy sources. The Seller prepared HA shall include identification of hazardous energy sources, methods for performing lockout/tagout, and a sufficiently detailed lockout/tagout (LO/TO) implementation plan addressing how the Company (if applicable to the work) and all tiers of subcontractors will perform LO/TO on the project in order to ensure a clear understanding of LO/TO coordination between all parties (e.g., will all subtier subcontractors use the prime subcontractor's locks and tags; or will each subtier use their own style of locks and tags; etc.)?
2. The Company will perform a lockout/tagout of applicable Company controlled systems and equipment. Seller must provide at least five calendar days advance notice to the Company field representative of systems requiring lockout/tagout.
3. For work in existing ORNL facilities, the Seller's work may not proceed until the Company has conducted a coordination briefing with the Seller to facilitate integration between Company and Seller lockout/tagout activities (including determination of Company versus Seller control of applicable systems and equipment).
4. Following any applicable isolation and lockout/tagout by the Company, a representative of the Seller shall review and approve the protection provided. In cases where a Company lockout/tagout permit is issued, the Seller's representative shall indicate this approval by signing the permit as the "service supervisor." Seller employees shall verify isolation, and overlock isolation points (or a lockbox) with their personal locks. These locks shall be identified with the Seller employee's name and a unique employee identification number. Seller shall, as necessary, provide subtier authorized and/or affected employees with a pre-job briefing (approximately 1 hour). The briefing will cover the scope of work to be performed, the method(s) of energy isolation, and the method(s) for verifying isolation and safe energy conditions.
5. Upon completion of work, Seller employees shall remove all personal locks and notify the Company's TPO. The removal of the Company's lock(s) shall not precede the removal of the Seller's lock(s) except in emergency conditions approved by the ORNL Laboratory Shift Superintendent.
  - a. Unforeseen circumstances may require the Company to temporarily suspend the lockout/tagout and have Seller to remove the overlock. If the temporary suspension occurs during Seller off-shift hours, the Company's LSS will contact the Seller for removal of the overlock. If Seller cannot be contacted, the LSS will remove Seller's lockout /tagout or overlock device and inform Seller prior to start of Seller's next work shift.
6. Hazardous energy sources introduced by the Seller must be controlled through the use of Seller's hazardous energy control procedure contained in the Seller's S & H Program. Seller shall also provide subtier authorized and/or affected employees with a pre-job briefing (approximately 1 hour). The briefing will cover the scope of work to be performed, the method(s) of energy isolation, and the method(s) for verifying isolation and safe energy conditions.

## J. Noise/Hearing protection

1. When employees are exposed to sound levels exceeding those specified by the ACGIH, "Threshold Limit Values and Biological Exposure Indices," feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within those specified by the ACGIH, PPE shall be provided and used to reduce the sound levels.

Note: The more stringent ACGIH criteria are used instead of the OSHA criteria presented in 29 CFR 1926.52.

## K. Respiratory protection requirements

1. Seller personnel are required to follow all OSHA (29 CFR 1926.103) requirements for respirator use.
2. The Seller personnel will determine which respirator type or class will offer adequate protection based on:
  - a. Respiratory hazard(s) to which the worker may be exposed;
  - b. Workplace and user factors that have the potential to affect respirator performance and reliability;
  - c. His or her informed professional judgment; and
  - d. Scientific literature.
3. Seller shall provide respirators in accordance with the following:
  - a. Seller employees required to wear negative or positive pressure, tight-fitting respirators shall be medically evaluated per 29 CFR 1926.103. The Seller is responsible for the medical evaluation.
  - b. Ensure respirator wearers have completed the respirator quantitative or qualitative fit testing and respirator training.
  - c. Provide respirators and cartridge type specified to protect worker from exposure to identified or suspected hazards as specified in the Seller prepared HA.
  - d. Provide breathing air, if required. The compressed breathing air quality supplied to the air respiratory protection systems meet the ANSI/CGA G7.1, Commodity Specification for Air, requirements.
  - e. Provide optical corrections for appropriate respirators.
  - f. All respirators shall be certified by the National Institute for Occupational Safety and Health (NIOSH).
4. Temporary storage of respirators for reuse shall be in accordance with 29 CFR 1926.103(h)(2).

## L. Welding, cutting and hotwork requirements

1. The Seller shall have a permit system addressing S&H and fire prevention for the following applications when work is conducted in a non designated area; welding and allied processes, grinding, heat treating, thawing pipes with a torch or flame, torch-applied roofing, powder driven fasteners, hot riveting, and similar applications producing a spark or flame. Designated areas are permanent locations designed or approved for hot work operations to be performed regularly. Examples of hot work permits are contained in NFPA 51B.
2. All hot work operations shall be coordinated with the Company to ensure protection of surrounding work areas, and avoid accidental trips of fire protection alarms.
3. Welders and burners shall wear protective clothing which meet requirements of ANSI Z49.1. The selected clothing shall be specified in the Seller's HA for hotwork activities. Protective clothing requirements shall be determined and noted on each hotwork permit issued during this project. Fire watchers who may be exposed to the same hotwork hazards as the welders and burners shall also wear the selected protective clothing.
4. If operations require welding/burning/ hotwork where anti-contamination clothing is required, Seller personnel shall wear flame-resistant clothing for all layers. Flame resistant clothing shall meet the requirements of NFPA 701. Fire watchers who may be exposed to the same hotwork hazards as the welders and burners shall also wear the selected protective clothing.
5. A fire watch must be designated if any of the following conditions exist:
  - a. A significant amount of combustible material is closer than 35 ft to the point of operations;
  - b. A significant amount of combustible material is more than 35 ft away, but could be easily ignited by sparks;
  - c. Hot work is conducted in areas where the employee must wear multiple layers of clothing and respiratory protection.
6. The fire watch shall be instructed to:
  - a. Remain present in direct line of sight to the work area and perform no other activities other than fire watch duties;
  - b. Be alert for any condition that could lead to a fire;
  - c. Guard passers-by from welding hazards;
  - d. Interrupt the work when a hazardous condition develops and deal with the situation appropriately;
  - e. Ensure that appropriate fire extinguishing equipment is readily available and know how the equipment is to be used;

- f. Remain on the scene for at least thirty minutes after completion of hot work to detect and report a fire resulting from stored heat.

#### 1.5 ADDITIONAL SAFETY REQUIREMENTS

- A. Explosives (other than powder-actuated tools) are prohibited unless written approval is obtained from the Company.
- B. Seller shall not obstruct fire protection equipment, including fire extinguishers and sprinkler systems.
- C. Warnings or indications of impending severe weather conditions (heavy rains, strong winds, tornadoes, floods, etc.) shall be monitored and appropriate precautions taken to protect personnel and property from the effects of the severe weather.

#### 1.6 OCCUPATIONAL HEALTH PROTECTION THRESHOLD EXPOSURE LIMITS

- A. Exposure to any chemical or physical agent via inhalation, ingestion, skin absorption, or physical contact in excess of the acceptable limits specified in 29 CFR 1926, Subpart Z and/or the ACGIH "Threshold Limit Values and Biological Exposure Indices" shall be prohibited. In the event of conflicts between ACGIH and OSHA criteria, the more stringent shall prevail.
- B. Seller shall be responsible for all monitoring to ensure compliance with the exposure criteria. Approved and calibrated testing devices shall be provided for the measurement of hazardous substances, agents, or environments. Individuals performing testing and monitoring shall be trained in testing and monitoring procedures and hazards. Testing devices shall be used, inspected, and maintained in accordance with the manufacturer's instructions.
- C. Determination of the concentrations of, and hazards from, hazardous substances, agents, and environments shall be made by a qualified industrial hygienist or other competent person during initial start up and as frequently as necessary to ensure the safety and health of the work environment.

#### 1.7 EMERGENCY SERVICES AND EQUIPMENT

- A. Seller shall make provisions prior to commencement of the project for prompt medical attention in case of serious injury. If professional medical attention is not available within a reasonable time, Seller is required to have a person trained in first aid at the work site and have the necessary first aid supplies. OSHA regulations do not set specific response time requirements for the term "reasonable time". However, OSHA's interpretation is that in areas where accidents resulting in suffocation, severe bleeding, or other life threatening or permanently disabling injury or illness are likely, a 3 to 4 minute response time, from time of injury to time of administering first aid, is required. In other circumstances, i.e., where a life threatening or permanently disabling injury is an unlikely outcome of an accident, a longer response time, such as 15 minutes, is acceptable.

- B. Proper equipment for prompt transportation of the injured person to a physician or hospital, or a communication system for contacting necessary ambulance service shall be provided by the Seller.
- C. If a serious or life-threatening injury occurs, the Company will provide emergency ambulance and fire fighting services. Seller employees must use a Company facility phone to dial 911 or pull a fire alarm box to notify Company for emergency response. If using a privately owned cell phone, Seller must call the LSS at 574-6606.
- D. ORNL Health Division will attend any serious life-threatening injury to the level of stabilization. After stabilization, the Seller employees should be transported to the emergency facility of their choice.
- E. The Company will provide fire fighting services. Seller employees must use a Company facility phone to dial 911 or pull a fire alarm box to notify Company for emergency response. If using a privately owned cell phone, Seller must call the Laboratory Shift Superintendent (LSS) at 574-6606.

#### 1.8 EMERGENCY PREPAREDNESS AND RESPONSE

- A. Observe and participate in notices to evacuate the work area. The evacuation notices may be a drill or actual event.
- B. Seller shall appoint a person to ensure that all Seller employees are aware of an evacuation alert.
- C. Evacuate to the assembly point identified in the HA.
- D. Before evacuating the work area, shut down or make safe equipment or processes that could become a safety or fire hazard if left unattended.

#### 1.9 EQUIPMENT AND MACHINERY

- A. Seller employees shall be trained in the operation, inspection, and maintenance of the equipment; and the safety features and procedures to be utilized during operation, inspection, and maintenance of the equipment.
- B. Before any machinery or mechanized equipment is placed in use, it shall be inspected and tested by a competent person and certified to be in safe operating condition. Inspections and tests shall be in accordance with manufacturer's recommendations and shall be documented. Records of tests and inspections shall be maintained by the Seller, and shall be made available upon request.
- C. All machinery and equipment shall be inspected daily (when in use) to ensure safe operating conditions. The Seller shall designate competent persons to conduct the daily inspections and tests.

- D. Whenever any machinery or equipment is found to be unsafe, or whenever a deficiency that affects the safe operation of the equipment is observed, the equipment shall be immediately taken out of service and its use prohibited until unsafe conditions have been corrected. A tag indicating that the equipment shall not be operated, and that the tag shall not be removed, shall be placed in a conspicuous location on the equipment.
- E. Only designated qualified personnel shall operate machinery and mechanized equipment. Machinery and equipment shall not be operated in a manner that will endanger persons or property nor shall the safe operating speeds or loads be exceeded. Utilize equipment only for the purpose for which it was designed and in accordance with the manufacturer's instruction and recommendations. Modifications, extensions, replacement parts, or repairs of equipment shall maintain at least the same factor of safety as the original equipment. The manufacturer shall authorize modifications in writing.

## PART 2 - EXECUTION

### 2.1 PREPARATION

- A. Before starting on-site work provide the following:
  - 1. Notify Company in advance of all scheduled on-site activities.
  - 2. Notify the TPO of any Seller employee receiving radiopharmaceutical treatment.
  - 3. Notify the Company of employees who are "Declared Pregnant Workers."
  - 4. Brief everyone entering the work-site boundaries on identified hazards, control measures, and proper work practices. Maintain documentation of this briefing by signature on HA Log Sheet.

### 2.2 PROTECTION OF WORK AREA

- A. Ensure that the work areas and storage areas are conspicuously flagged and barricaded, as needed, prior to initiation of work.
- B. Furnish, post, erect, and install safety devices, equipment, signs, barricades, flagging, and any other item necessary to give adequate warning and caution of hazards, and to provide instructions and directions to workers and the public. Signs identifying the Seller shall be posted for the work area and storage areas.

### 2.3 WORKING AND STORAGE AREAS

- A. Limit activities and storage to the immediate project site and designated storage areas. Limit travel to the main roads.
- B. Store only work-related material and equipment in stockpile areas, storage trailers, and designated storage sites located on Government-controlled land.

- C. Perform cleanup, trash disposal, and neatly arrange material/equipment on a daily basis.

**END OF SECTION**

**SECTION 01500 - TEMPORARY FACILITIES AND SITE CONTROLS**

## PART 1 - GENERAL

## 1.1 SUMMARY

- A. This section provides the requirements for temporary utilities, control of the project area, change facilities, borrow sites, and dust control.

## 1.2 REFERENCES

- A. American National Standards Institute (ANSI) A 225.1, 1987, Manufactured Home Installation.
- B. ANSI/NFPA 70-1993, National Electrical Code (NEC).
- C. NFPA 501A, 1992, Manufactured Home Installation, Sites, and Communities.
- D. ANSI D 6.1, "Manual on Uniform Traffic Control Devices for Streets and Highways."

## PART 2 - PRODUCTS

## 2.1 MATERIALS

- A. Barrier Fence: 48 in. high, orange plastic barrier fence, Vallen Safety Catalog No. FNC-450.

## PART 3 - EXECUTION

## 3.1 INSTALLATION

- A. Temporary utilities
  1. Provide temporary lines to use existing plant utilities. Tie-ins and disconnects to existing systems will be performed by the Company. Provide material and equipment, in place and ready for tie-in. Remove temporary utilities after final disconnect.
  2. Electric power; Provide GFCIs for temporary electrical lines. Perform temporary electrical work in accordance with ANSI/NFPA 70 (NEC) requirements.
  3. Water; Install reduced-pressure backflow preventers for all temporary water lines.
  4. Telephone service is available through U.S. West. The Seller is responsible for providing their own telephone service.

5. Provide chemical toilet facilities at the site location. Maintain the toilets in a clean, safe, and sanitary condition for duration of the project.
- B. Protection of the work area
1. Provide and maintain an orange plastic barrier fence around the perimeter of the Work site and storage areas.
  2. Provide flags and barricades for job site, storage areas, and hazardous work areas. Provide flags and barricades for storage areas and hazardous work areas.
  3. Post a sign providing Seller's name, telephone number, project title, and contract number for storage areas not located within the Work site.
- C. Traffic and pedestrian control
1. At the kick-off meeting, provide a schedule of plant roads needed to be closed to perform work.
  2. A traffic control plan shall be developed to identify required road closures and potential impediments to emergency vehicle traffic. Submit plan, for approval, at least four calendar days before implementation. The plan shall be approved by the Company's Lab Shift Superintendent prior to implementation.
  3. Provide and maintain sufficient traffic control signs, barriers, and flashing warning lights or reflectors when closing lanes on streets.
  4. Provide structurally sound temporary crossing walkways for pedestrian traffic over open excavations.
  5. Potential traffic interruptions during the project are possible on White Oak Ave.
  6. Provide traffic control that conforms to ANSI D 6.1, "Manual on Uniform Traffic Control Devices for Streets and Highways."
  7. Provide and maintain pedestrian walkways and building access during the project. The work area shall be flagged with orange plastic barrier fencing and flagging with applicable project signs.
  8. Provide an adequate number of concrete barricades in front of open trenches adjacent to vehicle traffic.
- D. Trailer facility
1. Provide a trailer that includes office space and storage space.
  2. Locate the trailer a minimum of 35 feet clear of existing buildings.
  3. Provide a platform, stairs, and handrails at each exterior door. Platforms shall be level with the trailer floor. Platforms and steps shall have a non-skid surface.
  4. Anchor and support the trailer to prevent sliding and overturning according to ANSI A225.1 and NFPA 501A
  5. Outside the trailer, provide a sign containing the company's name, name and phone number of supervisor. Provide a listing of phone numbers to reach a responsible individual at all times including off-shift and weekend hours.
- E. Borrow
1. Seller is responsible for providing any needed fill material.

NOTE: Use of the West Borrow Area requires written approval from LMES and may include maintenance and clean-up requirements.

F. Dust control

1. Control dust emissions during Work. Prevent dust from migrating to areas adjacent to the Work site. Limit use of water to prevent erosion. Provide hoods, enclosures, and other methods of containment during sandblasting or similar operations.

**END OF SECTION**

## **SECTION 01550 - ENVIRONMENTAL PROTECTION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Specification Section 01010, General Work Requirements
- B. Specification Section 01110, Safety and Health
- C. Specification Section 01500, Temporary Facilities and Site Controls
- D. Specifications Section 017419 Construction Waste Management and Disposal

#### **1.2 ATTACHMENTS**

- A. Attachment 1, Project-Specific Storm Water Pollution Prevention Plan
- B. Attachment 2, Site Wide Storm Water Pollution Prevention Plan
- C. Attachment 3, Storm Water Pollution Prevention Site Inspection Form
- D. Attachment 4, Environmental Awareness Training

#### **1.3 REFERENCES**

- A. EPA 40 CFR 260 – 280 and TN Rule 1200-1-11-.01
- B. EPA, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions, 40 CFR 761
- C. EPA, National Emission Standards, Hazardous Air Pollutants, 40 CFR 61 and TN Rules 1200-2-8-.01, Fugitive Dust, and 1200-3-11-.02, Asbestos
- D. Tennessee General Permit No. TNR10-0000, Storm water Discharges from Construction Activities.
- E. Tennessee Erosion and Sediment Control Handbook.
- F. Solid Waste Processing and Disposal, TN Rule 1200-1-7
- G. EPA, Standards for Universal Waste Management, 40 CFR 273 and TN Rule, 1200-1-11 & -.12, Standards for Universal Waste Management
- H. 29 CFR 1926.1101

#### 1.4 DEFINITIONS

- A. Environmental Protection: The prevention/control of pollution and habitat disruption that may occur to the environment during construction. The control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise, solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.
- B. Resource Conservation and Recovery Act (RCRA) Hazardous Wastes: Any discarded material that is not excluded by 40 CFR Part 261.4 (a) and that is listed in 40 CFR Subpart D or exhibits any of the characteristics identified in 40 CFR 261 Subpart C.
- C. Sanitary Waste: Waste generated by offices, cafeteria, medical facilities and laboratories, and includes textile products (PPE, coveralls, cotton items, carpet, etc.).
- D. Special Waste: Wastes that are either difficult or dangerous to manage such as friable or non-friable asbestos, empty aerosol or paint containers, petroleum contaminated soil, bulk product PCB waste, PCB remediation wastes, etc.

#### 1.5 TRAINING

- A. All personnel entering the site shall be provided with environmental awareness training, Attachment 4, in accordance with the requirements of the ORNL Environmental Management System. The training may be provided as part of the initial employee site orientation and ES&H briefing.
- B. Sellers, their subcontractors and all employees who use hazardous materials and may generate or handle a hazardous waste, must provide evidence of having received RCRA Hazardous Waste Awareness Training and annual refresher training as required by 40 CFR 265.16 and 262.34 prior to starting any work involving these items.

#### 1.6 SUBMITTALS

- A. Submit copies of completed Construction Site Inspection Forms (attachment 3) each month.
- B. Submit the original signed Storm Water Pollution Prevention Site Inspection Forms at project completion.
- C. Submit the original signed Storm Water Pollution Prevention Plan at project completion.

## 1.7 REQUIREMENTS TO COMPLY WITH APPLICABLE LAWS AND REGULATIONS

- A. The Seller shall provide written proof of registration, licensing, insurance, or other requirements upon request. It is the seller's responsibility to ascertain and comply with all applicable Federal, State, Local and multi-jurisdictional laws, ordinances, and regulations pertaining to the registration, licensing, handling, transportation, packaging, management, processing, resale and disposal of these materials under this contract. These federal, state, and local laws include but are not limited to the Clean Air Act; the Toxic Substances Control Act; the Atomic Energy Act; the Comprehensive Environmental Response, Compensation and Liability Act; the Hazardous Materials Transportation Regulations; the Federal Motor Carrier Safety Regulations; the Tennessee Motor Vehicle Laws Annotated; the Emergency Planning and Community Right-to-Know Act, 40 CFR 279 ; and TDEC ( Tennessee Department of Environment and Conservation) Rule Chapter 1200-1-11-.11.

## PART 2 - ENVIRONMENTAL PROTECTION

### 2.1 PERMITS

- A. Conduct all work in accordance with the Tennessee General Permit No. TNR10-0000, "Stormwater Discharges from Construction Activities" ( hereafter referred to as the General Permit). A copy of the General Permit can be obtained at her following web address by clicking on the link for "NPDES General Permit for Storm Water"

[Http://www.state.tn.us/environment/permits/conststrm.htm](http://www.state.tn.us/environment/permits/conststrm.htm)

- B. **An existing, approved Storm Water Pollution Prevention Plan ( SWPPP) ( in a similar format to and prepared in accordance with the substantive requirements of attachments 1 "Project-Specific Storm Water Pollution Prevention Plan, and 2 "Site wide Storm Water Pollution Plan" ) will be in effect and prepared in advance by the contractor responsible for placing the existing "engineered fill" to finish subgrade. Additionally, the Seller will be responsible for maintaining pre-installed silt fences, straw bales, temporary retention basins, etc. in accordance with the design documents and SWPPP from contract award through project completion. Maintenance of these control measures also includes inspections twice per calendar week AND completion of the "Construction Site Sedimentation and Erosion Control Measures Inspection Form 2006" as included in Attachment 2 in this specification section and "Storm Water Pollution Prevention Site Inspection Form" (Attachment 3) AFTER each inspection is made. The Seller will also be responsible for removing temporary storm water control measures AFTER completion of all project work and AFTER vegetation and permanent drainage measures are in place and functioning in accordance with the design intent. The Company shall make the determination that all permanent measures are functioning correctly and shall release the Seller to remove the temporary storm water controls.**

### 2.2 GENERAL REQUIREMENTS

- A. The Seller shall minimize environmental pollution and damage that may occur as the result of demolition, renovation and/or any other construction operations.

- B. The Seller shall address environmental issues, potential negative impacts, and appropriate control measures in the Hazards Analysis and discuss these topics during site orientation and pre-job briefings.
- C. The Seller's personnel shall be trained in all phases of environmental protection and shall be aware of the applicable waste management requirements of this and related sections.
- D. Pollution prevention and waste minimization principles shall be incorporated in abatement and demolition activities to ensure the greatest environmental benefits and minimize future liability for the waste that is generated.
- E. Comply with all requirements of Section 017419 Construction Waste Management and Disposal, including but not limited to the implementation of work planning and work practices to facilitate, where feasible, the recycle and/or salvage of at least 50% of non-hazardous construction and demolition debris.

### 2.3 SPILL PREVENTION,

- A. Prior to mobilization to the site, perform an inspection of equipment containing liquid systems including, but not limited to; bulldozers, backhoes, bobcats, drill rigs, trucks, hoists, and cranes, to ensure no leaks exist. Verify hoses, tubing, and hydraulic lines are in good operating condition. Make all necessary repairs before delivery of equipment or vehicles to the construction site.
- B. Perform daily inspections to ensure continued good operating condition of equipment and promptly repair all deficiencies.
- C. Use due caution when operating oil-bearing equipment near aquatic resources. Where necessary, implement appropriate control measures, including but not limited to the use of physical barriers (plastic or tarps, berms, etc.) and/or absorbent materials to prevent leaks or spills from entering waterways.
- D. Use due caution when refueling vehicles or equipment, transferring fuels or other liquids to or from containers; have spill kit on hand for immediate cleanup as necessary. Avoid performing such transfer of fuels near streams or storm water inlets.

### 2.4 SPILL CONTROL, AND CLEAN-UP

- A. When on-site, all personnel are required to report spills of any hazardous substance and chemical/radiological releases. The Laboratory Shift Superintendent's (LSS) Office should be called for any spill or other emergency at: 574-6606. Specially trained spill response teams clean up all types of spills at ORNL, including oil, hazardous substances, and hazardous waste and are available on shift 24 hours per day, 365 days per year. All spill response personnel have had, at a minimum the initial 24-hour Hazardous Waste Operations (HAZWOPER) Training.

- B. The person discovering a spill should give the following information to the LSS: 1) type of spill if known (oil, gasoline, acid, base, etc.); 2) estimated volume of the spilled material; 3) location of the spill; 4) extent of the spill; and 5) observer's location and telephone number.
- C. For outside work, provide a spill kit, inspect equipment for leaks, and repair leaking equipment in a timely manner.
- D. For inside work, provide a spill kit, prevent spills to floor drains and do not discharge waste into any ORNL systems without approval.

## 2.5 STORM WATER POLLUTION PREVENTION AND CONTROL

- A. Prior to mobilization to the site, perform an inspection of equipment containing liquid systems including, but not limited to, bulldozers, backhoes, bobcats, drill rigs, trucks, hoists, and cranes, to ensure no leaks exist. Verify hoses, tubing, and hydraulic lines are in good operating condition. Make all necessary repairs before delivery of equipment or vehicles to the construction site.
- B. Perform daily inspections to ensure continued good operating condition of equipment and promptly repair all deficiencies.
- C. Store all materials indoors or otherwise protected from weather.
- D. For outdoor painting operations, minimize overspray, and use tarps/vacuums/enclosures to contain sandblasting waste and paint chips from paint removal operations.
- E. Petroleum products stored in quantities greater than or equal to 50 gallons shall be appropriately labeled and have secondary containment capable of preventing any release to a drainage system or the environment. Secondary containment shall be configured so as to capture leaks and spills from both dispensing equipment and/or container(s).
- F. Tanks, drums, other containers, pumps and other dispensing units, and any secondary containment structures shall be located indoors, or under a canopy, or otherwise sheltered from contact with storm water in an appropriate and effective manner.
- G. Do not allow liquids, including but not limited to, gasoline, diesel fuel, lubricating oil, or antifreeze to enter the storm sewer systems, waterways, drainage ditches, or the ground.
- H. Flushing empty concrete trucks or dumping excess concrete is prohibited. Transport excess concrete back to the batch plant. The truck chute may be washed at the work site. Flush the truck chute at designated on site location. The Company will designate the location. Solidified cement waste from truck chute cleaning is solid waste and shall be cleaned up, transported to ORR Landfill.
- I. Water used to suppress dust during concrete cutting, demolition, or other activities shall not be discharged directly to storm drains, sanitary sewer, etc. Positive controls shall be used to protect drains from unfiltered discharges of this type.

- J. Storm water accumulated in excavated areas, chlorinated rinse water, and chlorinated water used to sterilize/flush pipelines shall not be directly discharged, or otherwise allowed to enter the storm systems, waterways, or drainage ditches without written approval from the Company.
- K. Prevent contamination of storm water by covering stockpiled soil or spoil material and debris piles from demolition or other activities, and otherwise diverting storm water from contact with same. Implement other effective controls to detain and filter or collect and treat waste waters generated by storm water contact with radiological or chemical contaminants.

## 2.6 MANAGING WASTE WATER

- A. Water used to suppress dust during concrete cutting, demolition, or other activities shall not be discharged directly into storm drains, sanitary sewer, etc. Positive controls shall be used to protect drains from unfiltered discharges of this type.
- B. Conduct all pipeline sterilization, flushing, hydro-testing, etc. in a manner protective of the environment. The Company will designate the approved discharge location(s).
- C. Water used to sterilize or flush pipelines cannot be released directly to the environment due to possible high concentration of chlorine. The Company will determine the appropriate storage/treatment and will designate the approved discharge location.
- D. Unless otherwise directed by the Company, all chlorinated or treated water shall be discharged through a treatment/detention basin and monitored for chlorine level, other contaminants when applicable, and standard water quality indicators. The treatment/detention basin may consist of a field-constructed structure or portable tank.
- E. Storm water accumulated in excavated areas, chlorinated rinse water, and chlorinated water used to sterilize/flush pipelines shall not be directly discharged, or otherwise allowed to enter the storm systems, waterways, or draining ditches without written approval from the Company.
- F. Notify the Company at least one week prior to any work activities that will generate any waste water, and submit a plan identifying the source and composition of the waste water, and describing the control methods to be used for management and disposal. Notify the Company prior to any discharge of water, waste water or other liquid material at least 24 hours in advance, ten again immediately prior to initiating discharge.

## 2.7 EROSION AND SEDIMENT CONTROL

- A. Clearing and grubbing: **(All Clearing and Grubbing will be completed in advance of site mobilization by the Seller. If additional clearing and grubbing is required, the Seller will be directed in writing by the Company in advance of the work. Erosion and Sediment Control maintenance and routine inspections as determined by Attachment 3 "Storm Water Pollution Prevention Site Inspection Form", will be the responsibility of the Seller).**

1. Appropriate temporary sediment controls will be in place and/or materials ready to hand prior to initiation of site clearing activities so as to ensure completion of placement as feasible and prior to inclement weather.
  2. Appropriate effort will be made to avoid and/or mitigate damage to trees and shrubs adjacent to work activities. When it is deemed necessary to prune or remove branches from a tree or shrub (or when other damage occurs), the limb shall be cut off clean with chainsaw or other suitable device, and the wound dressed with an appropriate coating to mitigate future damage from insects or fungi.
- B. Manage excavated soil and spoil material in a manner protective of the environment. Cover stockpiled material to prevent erosion and/or install appropriate sediment controls. Use due caution during excavation or any other soil management in the vicinity of sanitary or storm systems, waterways, or drainage ditches.
- C. All erosion prevention measures and sediment controls (silt fence, straw bales, catch basins, etc.) shall be in place and approved by the company prior to beginning excavations, road building, etc. Sediment barriers such as silt fence and straw bales shall be entrenched and of sturdy construction.
- D. Seller shall conduct operations in accordance with the General Permit, the Project SWPPP, and best management practices noted in the Tennessee Erosion and Sediment Control Handbook. Seller shall abide by all requirements including, but not limited to:
1. Perform inspection of erosion and sediment controls on a twice weekly schedule, prior to expected storm events and after each heavy rainfall event. Document each inspection using the checklist provided in Attachment # 3.
  2. Where appropriate, provide temporary or permanent modifications to surface terrain gradient (run-on diversion trenches, soil or crushed stone berms, sediment retention basins, etc.) in order to minimize the flow of storm water into or out of excavated or otherwise disturbed areas.
  3. All erosion and sediment control measures shall be maintained throughout the course of the project and removed at completion of project and appropriate measures taken to return the area to its previous state. Maintenance shall include but not be limited to removal of accumulated sediment, repairs and or replacement of storm damaged or other wise deteriorated structures.
  4. Prevent erosion of steep slopes by diverting storm water to prevent run-on, and stabilizing slopes in an expedited manner. Cut slopes shall be taken to final grade and stabilized prior to or concurrently with any subsequent site work. Fill material shall be compacted (if compaction is required), and constructed slopes taken to final grade and stabilized prior to or concurrently with any subsequent site work.

5. During construction of underground pipelines, trenches shall be backfilled and stabilized as soon as practicable, with every reasonable effort taken to minimize the linear quantity of open trench at any point in time. The Company shall have the sole authority to determine what is to be considered a reasonable effort.
6. Completion of partially finished grading activities shall not be delayed in order to initiate other work activities. Backfill excavations, dispose of or stabilize stockpiled soils, restore disturbed areas to final grade and stabilize in a timely manner.
7. All disturbed areas shall be stabilized as soon as practicable by appropriate means, including but not limited to the use of mulch or other temporary cover, seeding with vegetative ground cover, etc. Each portion of disturbed area shall be temporarily or permanently stabilized in an appropriate manner within 7 days of any work stoppage within that area, unless work will resume within 14 days.

## 2.8 FUGITIVE DUST AND AIR EMISSION CONTROL

- A. Equipment operation, activities, or processes performed by the Seller shall be in accordance with all Federal, State, and local air pollution standards.
- B. Asbestos debris shall be kept adequately wet in accordance with 40 CFR 61.
- C. Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt.
- D. Burning will not be allowed on the project.
- E. Manage all equipment containing ozone-depleting substances (e.g. refrigerants) in accordance with the requirements of 40 CFR 82.

## PART 3 - WASTE MANAGEMENT

### 3.1 WASTE MANAGEMENT REQUIREMENTS

- A. Seller shall comply with all waste management instructions provided by the Company, including but not limited to written specifications, drawing notes, waste management plans, policy or procedures, verbal instructions and waste accumulation area postings.
- B. Substantive requirements for waste management planning and execution, landfill requirements, salvage and recycling goals and methods are provided within Section 017419, "Construction Waste Management and Disposal"

**END OF SECTION**

# Project-Specific Addendum Template

## Storm Water Pollution Prevention Plan Addendum Requirements for Compliance with the TN General Construction Permit # TNR100000 dated June 17, 2005

### Reference: Storm Water Pollution Prevention Plan for Selected UT-Battelle Managed Construction Activities at ORNL: Section 5.0

#### Introduction

Construction activities near streams, rivers, and lakes have the potential to cause water pollution and stream degradation if erosion and sediment controls are not properly installed and maintained. In order to effectively reduce erosion and sedimentation impacts, appropriate, project-specific Best Management Practices (BMPs) must be designed, installed, and maintained on construction sites. In addition, coverage under the *Tennessee General NPDES Permit for Discharges of Storm Water Associated with Construction Activities* (herein referred to as the CGP) must be obtained for all ORNL construction sites that meet permitting criteria (primarily, those sites greater than or equal to 1 acre in size). One of the requirements for obtaining this permit coverage is the preparation and submittal of a Storm Water Pollution Prevention Plan (SWPPP) that details the erosion prevention and sediment control BMPs to be installed and maintained at the site.

The Tennessee Department of Environment and Conservation, Division of Water Pollution Control (TDEC-WPC) has determined that siltation is the leading cause of impairment of streams, rivers, and lakes in Tennessee. While not the only source of sediment discharge, construction and development activities continue throughout Tennessee, and have been shown to contribute large quantities of sediment to water bodies during precipitation events, if BMPs are not properly used. Pollution due to siltation can have physical, chemical, biological, and economic impacts to waters. Siltation causes changes in flow patterns, increased water treatment costs, hindrances to navigation, and the increased possibility of flooding. Sediment can also restrict sunlight penetration, transport other pollutants into the water body, smother eggs and nests of fish, and cover stream substrates that provide habitat for fish and aquatic life.

The proper use of BMPs can be effective in preventing erosion and controlling sediment on construction sites. The *Tennessee Erosion and Sediment Control Handbook* is designed to provide information to planners, developers, engineers, and contractors on the proper selection, installation, and maintenance of BMPs. The handbook is intended for use during the design and construction of projects that require erosion prevention and sediment controls to protect waters of the state. It also aids in the development of SWPPPs and other reports, plans, or specifications required by Tennessee's water quality regulations.

The entire handbook is available by attending one of the ***Fundamentals of Erosion Prevention and Sediment Control*** or ***Design of Vegetative and Structural Measures for Erosion and Sediment Control*** courses offered by the State of Tennessee. It is also available for download from the Department's web page located at: [www.state.tn.us/environment](http://www.state.tn.us/environment)

In accordance with the CGP, any construction project performed on the ORNL reservation that is subject to coverage under the CGP must have a SWPPP prepared **and submitted** along with the Notice of Intent (NOI) form and appropriate fee to TDEC-WPC **for approval** prior to initiation of the construction activity. The complete application package has to be submitted at least 30 days prior to the construction start date. Land disturbing activities cannot begin until a Notice of Coverage (NOC) letter is received from the TDEC-WPC staff. A legible copy of the NOC form must be posted near the main entrance of the construction site accessible to the public along with contact information (name, phone number, email address, address) for the Department of Energy project contact, a brief description of the project, and the location of the SWPPP.

**Storm Water Pollution Prevention Plan Requirements**

A comprehensive SWPPP must be prepared for submission to address erosion and sedimentation control on all phases of a construction project, from the time the project commences to the time when the project site has been stabilized and is appropriate for termination of CGP coverage. A site-wide general SWPPP for ORNL has been developed which includes the requirement of project-specific addendum to be completed for a proposed construction project. The project-specific SWPPP is intended to be a "living" document that will be revised as necessary according to results of required inspection findings, changes in work scope, etc. The narrative portion of the SWPPP may be prepared by an individual that has a working knowledge of erosion prevention and sediment controls, such as a Certified Professional in Erosion and Sediment Control. For SWPPPs that include preparation of plans and specifications for any building or structure, including the design of sediment basins or other sediment controls involving structural, hydraulic, hydrologic or other engineering calculations, those SWPPPs shall be prepared by a Tennessee licensed professional engineer or landscape architect. Engineering design of sediment basins and other sediment controls must be included in SWPPPs for construction sites involving disturbance of 10 or more acres. Please note that the information provided here is only intended for projects that do not discharge into impaired or high quality waters as identified by TDEC. Currently, streams on the ORR are not listed.

Following is a summary for components that need to be included in any project-specific SWPPP. This template is not intended to be copied as is. Instead, it is offered as a guide of items that are required to be addressed and conditions that should be considered for your particular project. Major sections in bold font should be included in your final SWPPP addendum product, and should be tailored to describe your project-specific conditions.

**Project Name:**

**Existing CGP Tracking No. (if applicable):**

**Project Location:**

**Owner/Developer:** Department of Energy

**Primary Contractor:** UT-Battelle, LLC

**Construction Site Operator** (enter "To Be Determined" if contract has not been awarded):

**Description of Project:**

**Soil Disturbing Activities:**

**Name of Receiving Waters:**

**Site Description:** This narrative must include:

- a) a description of all construction activities at the site;
- b) the intended sequence of major activities which disturb soils for major portions of the site;
- c) estimates of the total area of the site and the total area that is expected to be disturbed by construction activities;
- d) a description of the topography of the site including an *estimation of the percent slope and the variation in percent slope found on the site within each receiving outfall drainage area*;
- e) any data describing the soil and how the soil type will dictate the needed control measures/expected quality of any discharge from the site;
- f) an estimate of the runoff coefficient and how the runoff will be handled to prevent erosion at the outfall and receiving stream;

g) a description of any discharge associated with industrial activity other than construction, the location of that activity and its permit number; h) an identification of any stream or wetland on or adjacent to the project, a description of any anticipated alteration of these waters, and any Aquatic Resources Alteration Permit (ARAP) or Section 401 Certification issued for the alteration; i) for projects over 50 acres, the construction phases must be described, and j) if only a portion of the total acreage of the construction site is to be disturbed, then the protections employed to limit the disturbance must be discussed, i.e. caution fence, stream side buffer zones, etc.

**Description of Storm Water Runoff Controls:** This narrative must include a description of appropriate erosion prevention and sediment controls and other BMPs that will be implemented at the construction site, along with the **general timing** for the measures to be implemented. The description and implementation of controls shall address at a minimum:

### 1. Erosion prevention and sediment controls

This section should describe the construction-phase erosion prevention controls that will be designed to minimize the dislodging and suspension of soil in water and the sediment controls that will be designed to retain mobilized sediment on site. Include information to explain how control measures will be selected to slow runoff so that rill and gully formation is prevented. When steep slopes and/or fine particle soils are present at the site, additional physical or chemical treatment of storm water runoff may be required, and must be fully described. Describe how clearing and grubbing will be held to the minimum necessary for grading and equipment operation and how construction will be sequenced to minimize the exposure time of graded or denuded areas.

Construction must be phased for projects in which over 50 acres of soil will be disturbed. Areas of the completed phase must be stabilized within 15 days (see "Stabilization Practices" below). No more than 50 acres of active soil disturbance is allowed at any time during the construction project.

#### **Stabilization Practices**

Include a description of interim and permanent stabilization practices, including project-specific scheduling of the implementation of the practices. Your designs should ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Use of impervious surfaces for final stabilization in lieu of a permanent vegetative cover should be avoided where practicable. No stabilization, erosion control, or sediment treatment measures are to be installed in a stream without obtaining an ARAP.

#### **Temporary Stabilization**

Describe what, and where temporary measures will be used. Also include planning considerations, soil preparations, installation and maintenance.

#### **Permanent Stabilization**

Describe what, where, and when permanent measures will be used. Also include planning considerations, soil preparations, installation and maintenance.

Permanent stabilization with perennial vegetation (using native herbaceous and woody plants where practicable) or other permanently stable, non-eroding surface shall replace any temporary measures as soon as practicable. Unpacked gravel containing fines (silt and clay-sized particles) or crusher runs will not be considered a non-eroding surface.

**Structural Practices**

Under this heading, include a description of structural practices to divert flows from exposed soils, store flows, or otherwise limit runoff and discharge of pollutants from exposed areas of the site. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, stone-stabilized pad a construction exits, and temporary or permanent sediment basins. Do not design structural controls to be placed in streams or wetlands except as authorized by a Section 404 permit and/or an ARAP.

Design erosion prevention and sediment control measures according to the size and slope of disturbed drainage areas with the goal of detaining runoff and trapping sediment. In addition, design erosion prevention and sediment controls to control the rainfall and runoff from a 2-year, 24-hour storm, as a minimum. When clay and other fine particle soils are present at the construction site, chemical treatment may be used to minimize amount of sediment being discharged.

For an outfall in a drainage area of a total of 10 or more acres, design a temporary (or permanent) sediment basin that provides storage for a calculated volume of runoff from a 2-year, 24-hour storm and runoff from each acre drained, or equivalent control measures, to be utilized until final stabilization of the site. Where an equivalent control measure is substituted for a sediment retention basin, justify the equivalency. Divert runoff from any undisturbed acreage around the disturbed area and the sediment basin. Diverted runoff can be omitted from the volume calculation. Sediment storage expected from the disturbed areas must be included. Design a marker signifying the need for cleanout of the basin.

**All calculations of drainage areas, runoff coefficients and basin volumes must be provided in the SWPPP.** The discharge structure from a sediment basin must be designed to retain sediment during the lower flows. Water must be discharged through a pipe, well-grassed or lined channel or other equivalent means so that the discharge does not cause erosion and sedimentation.

**For each practice used, describe what it is, when and where it will be installed, any design criteria, construction specifications, inspections of the practice, and maintenance.**

**2. Storm Water Management**

Describe measures that will be installed during the construction process to control pollutants in storm water discharges that will occur **after** construction operations have been completed. Only the installation and maintenance of these measures needs to be addressed, not the ultimate operation and maintenance of such structures after permit coverage has been terminated. Post-construction runoff should be limited in order to minimize in-stream channel erosion in the receiving stream. These measures may include: storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff onsite; and sequential systems (which combine several practices). Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (no significant changes in the hydrological regime of the receiving water). The SWPPP should include an explanation of the technical basis used to select the practices to control pollution where flows exceed pre-development levels.

**3. Other items needing control**

Off-site vehicle tracking of sediments and the generation of dust shall be minimized. Design and describe a stabilized construction access to reduce the tracking of mud and dirt onto paved roads by construction vehicles.

For installation of any waste disposal systems on site, or sanitary sewer or septic systems, provide for the necessary sediment controls.

Include a description of the construction and waste materials expected to be stored on-site with updates as appropriate, and a description of controls used to reduce pollutants from these materials. Include project-specific storage practices used to minimize exposure of materials to storm water and project-specific spill prevention and response, if applicable.

Describe storm water sources from areas other than construction and describe controls and measures that will be implemented at those sites.

If applicable, describe measures necessary to prevent "taking" of legally protected state or federal listed threatened or endangered aquatic fauna and/or critical habitat. Include a description of the implementation of such measures.

**4. Pollution prevention measures for non-storm water discharges** Sources of non-storm water discharges associated with construction activity must be identified. These include water from water line flushings, pavement wash waters, uncontaminated groundwater from excavation dewatering, etc. Identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge. Any non-storm water must be discharged through stable discharge structures.

**5. Documentation of permit eligibility related to Total Maximum Daily Loads (TMDLs)**

The SWPPP must include documentation supporting a determination of permit eligibility with regard to waters that have an approved TMDL for a pollutant of concern. There is currently a proposed TMDL for siltation and habitat alteration in the lower Clinch River watershed which may affect some projects conducted at ORNL. The reader is advised to check with the ORNL Water Pollution Control group (241-3730 or 574-8775) to find out the status of this TMDL.

**6. Maps and Drawings** Include an erosion prevention and sediment control map of the site with the proposed construction area clearly outlined. The map should indicate the boundaries of the permitted area, drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance, and outline of areas which are not to be disturbed, the location of major structural and nonstructural controls identified in the SWPPP, and location of areas where stabilization practices are expected to occur, surface waters including wetlands, sinkholes, and ***careful identification on the site map of outfall points intended for coverage under the general permit for storm water discharges from the site.*** The map(s) shall also include the name of the receiving water(s), and approximate size of affected wetland acreage at the site, and if applicable, show the buffer zones established to protect waters of the state located within the boundaries of the project.

Include erosion control drawings showing the approximate location of each control measure along with a description of the ***timing*** during the construction process for implementing each measure. This description may be summarized on the drawing or reference the appropriate section in the SWPPP.

**7. Signatory Page**

For all ORNL UT-Battelle projects, UT-Battelle (as construction contractor/secondary permittee), **and** the construction subcontractor must sign an approval statement for this portion (project-specific) of the SWPPP.

UT-Battelle must sign and date the following certification:

*"I certify under penalty of law that I have reviewed this document, any attachments, and the SWPPP referenced above. Based on my inquiry of the construction site owner/developer identified above and/or my inquiry of the person directly responsible for assembling this NOI and SWPPP, I believe the information submitted is accurate. I am aware that this NOI, if approved, makes the above-described construction activity subject to NPDES Permit number TNR100000, and that certain of my activities on-site area thereby regulated. I am aware that there are significant penalties, including the*

*possibility of fine and imprisonment for knowing violations, and for failure to comply with these permit requirements.”*

Subcontractors must sign and date the following certification:

*“I certify under penalty of law that I have reviewed this document, any attachments, and the SWPPP referenced above. Based on my inquiry of the construction site owner/developer identified above and/or my inquiry of the person directly responsible for assembling this NOI and SWPPP, I believe the information submitted is accurate. I am aware that this NOI, if approved, makes the above-described construction activity subject to NPDES Permit number TNR100000, and that certain of my activities on-site area thereby regulated. I am aware that there are significant penalties, including the possibility of fine and imprisonment for knowing violations, and for failure to comply with these permit requirements.”*

**END OF TEMPLATE**

Storm Water Pollution Prevention Plan  
For Selected UT-Battelle Managed Construction Activities at  
Oak Ridge National Laboratory

For NPDES Regulated Construction Activities  
(Individual Projects With One or More Acres of Total Disturbed Area)  
Which are Managed by UT-Battelle, LLC

Revision 1, March 2006

Prepared for the U.S. Department of Energy by UT-Battelle, LLC

Under Contract No. DE-AC05-00OR22725

**TABLE OF CONTENTS**

**1 INTRODUCTION ..... 1**

**2 SCOPE..... 1**

**3 GENERAL DESCRIPTION OF AREAS COVERED BY THIS SWPPP ..... 2**

**4 GENERAL REQUIREMENTS..... 2**

    4.1 STORM WATER POLLUTION CONTROL MEASURES ..... 3

        4.1.1 STRUCTURAL CONTROLS..... 3

        4.1.2 VEGETATIVE CONTROLS..... 5

        4.1.3 CONSTRUCTION MANAGEMENT TECHNIQUES..... 6

        4.1.4 TIMBER HARVESTING OPERATIONS PRECEEDING CONSTRUCTION..... 6

        4.1.5 BMPs AND CONTROLS FOR EQUIPMENT AND MATERIAL STAGING/STORAGE AREAS . 7

        4.1.6 TEMPORARY AND PERMANENT STABILIZATION..... 7

        4.1.7 OTHER ITEMS NEEDING CONTROL..... 8

    4.2 STORM WATER MANAGEMENT ..... 8

    4.3 SELECTION, USE AND STORAGE OF FILL AND SPOIL MATERIAL ..... 9

    4.4 NON-STORM WATER DISCHARGES ..... 9

    4.5 PROTECTION OF WATER QUALITY, THREATENED AND ENDANGERED SPECIES, AND HISTORIC RESOURCES ..... 10

    4.6 INSPECTIONS..... 11

    4.7 DISCHARGES INTO 303(d)-LISTED IMPAIRED WATERS..... 11

    4.8 MAINTENANCE..... 12

    4.9 SPILL PREVENTION, RESPONSE AND REPORTING..... 13

    4.10 RECORD KEEPING AND REPORTING..... 13

    4.11 REVISIONS TO THIS PLAN..... 14

**5 REQUIREMENTS FOR THE DEVELOPMENT OF ADDITIONAL PROJECT SPECIFIC INFORMATION ..... 15**

**6 APPROVALS AND SIGNATURES ..... 15**

**ATTACHMENTS ..... 17**

General  
Permit  
Section  
References

## 1 INTRODUCTION

State and federal law requires that point-source discharges of storm water associated with construction activities be permitted through the National Pollutant Discharge Elimination System if the total amount of land surface disturbed by the construction project is equal to or greater than one acre. In most cases, such discharges may be permitted through Tennessee's General Permit No. TNR100000, Storm Water Discharges Associated with Construction Activities (Hereafter referred to as the "General Permit").

The General Permit defines "discharge of storm water associated with construction activity" as "storm water point source discharges from areas where soil disturbing activities (e.g., clearing, grading, excavation, etc.), or construction materials or equipment storage or maintenance (e.g., earth fill piles, fueling, waste material etc.) are located." It also defines "point source" as "..... any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged."

A Storm Water Pollution Prevention Plan (SWPPP) must be developed for construction activities that seek coverage under the General Permit and submitted with the request for coverage (i.e., the Notice of Intent). This document is the SWPPP for certain construction activities at Oak Ridge National Laboratory (ORNL) (See Section 2). This document specifies the general requirements that are applicable to all projects which it covers, and it lays out the requirements for additional project-specific information. A complete SWPPP for a construction project at ORNL includes this base document plus the project specific information.

All parties performing activities on the sites that are covered by the General Permit and this SWPPP should note that the General Permit states that it shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. UT-Battelle and the Department of Energy expect subcontractors to pay constant attention to the prevention of water pollution, and to promptly respond to water pollution concerns.

## 2 SCOPE

This SWPPP is applicable to construction activities at ORNL that meet the following requirements:

- The project in its entirety will result, or is expected to result, in the disturbance of one or more acres of land surface,
- The project is conducted at ORNL or on other parts of the Oak Ridge Reservation which are the responsibility of ORNL,
- The project is managed by UT-Battelle,
- The project is permitted under the Tennessee General Permit No. TNR 100000, Storm

8.

1.4.  
1.4.2.  
3.1.

6.3.

Water Discharges Associated with Construction Activities (i.e., projects covered under an individual NPDES permit are not covered by this SWPPP),

- The project is not covered under another SWPPP, and
- A Project-specific addendum is prepared for the construction activity per Section 5 of this SWPPP.

Discharges of pollutants of concern to waters for which there is an EPA-approved TMDL are not covered by the CGP and therefore this SWPPP unless measures or controls that are consistent with the assumptions and requirements of such TMDLs are incorporated into the project-specific portion of the SWPPP. See Section 4.7 for further information.

1.3.(k).

Construction activities that are not expected to disturb an acre or more may elect to follow this SWPPP even though NPDES permit coverage and a formal SWPPP is not strictly required for these activities. It should be noted that although NPDES permit coverage is not required for these projects, law requires that controls be implemented to protect waters of the US/waters of the State.

This SWPPP is not applicable to any projects that will, or will have the potential to discharge storm water to any municipality such as the City of Oak Ridge.

### 3 GENERAL DESCRIPTION OF AREAS COVERED BY THIS SWPPP

It is expected that most construction activities to be covered under this SWPPP will occur on the ORNL campus. However, large parts of the Oak Ridge Reservation outside of ORNL proper are managed by ORNL, and construction activities in these areas can be covered by this SWPPP as long as the activities fall within the scope of this SWPPP (see Section 2).

ORNL is located in Bethel Valley and Melton Valley between 84° 16' and 84° 20' W longitude and 35° 53' and 35° 58' N latitude. Primary access to the site is from Bethel Valley Road. The site may also be accessed by properly authorized personnel from Highway 95 and from Bear Creek Road. ORNL can be found on the USGS Bethel Valley Quadrangle (7.5 minute series). ORNL is owned by the U.S. Department of Energy and operated by UT-Battelle. ORNL is engaged in energy-related research.

Most of the ORNL site is drained by White Oak Creek which enters the Clinch River approximately 3.6 kilometers (2.2 miles) downstream of Melton Hill Dam. The named tributaries to White Oak Creek are Melton Branch, Northwest Tributary, First Creek, and Fifth Creek. Part of the ORNL 7000 area drains to Bearden Creek which enters Melton Hill Lake upstream of Melton Hill Dam. A small portion of the Spallation Neutron Source Facility drains to Bear Creek. The ORNL Tower Shielding Facility drains to an unnamed tributary to the Clinch River downstream of Melton Hill Dam. Portions of White Oak Creek and all of its largest tributaries are impacted to some degree by ongoing industrial activity, waste migration from inactive waste storage areas, and habitat alterations.

Other large portions of the Oak Ridge Reservation (approximately 17,900 acres including ORNL proper) are managed by ORNL. Many different named and unnamed tributaries to the Clinch River drain these areas. The uses of these areas vary, with large portions managed for silviculture, environmental research, and wildlife management. ORNL managed areas also include areas impacted by active weapons training facilities and active and inactive waste disposal areas.

### 4 GENERAL REQUIREMENTS

This section contains guidelines and requirements for storm water pollution prevention activities for all construction activities at ORNL that elect to be covered under this site-wide

SWPPP (instead of developing an independent SWPPP).

There may be instances where there is more than one contractor working on a construction activity or where there are multiple construction activities in progress in the same general area. In these instances, the contractors must ensure the storm water discharge controls and other measures are compatible with one another and do not prevent another contractor from complying with conditions of this SWPPP or the General Permit.

2.3.2 (d).  
3.1.

#### 4.1 STORM WATER POLLUTION CONTROL MEASURES

All erosion and sedimentation control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the control must be replaced or modified for site situations.

3.5.3.1(b)

If sediment escapes the construction site, off-site accumulations of sediment that have not reached a stream must be removed at a frequency sufficient to minimize offsite impacts (e.g., fugitive sediment that has escaped the construction site and has collected in street must be removed so that it is not subsequently washed into storm sewers and streams by the next rain and/or so that it does not pose a safety hazard to users of public streets). Remediation/restoration of a stream or wetland shall not be initiated without consulting the proper regulatory authorities.

3.5.3.1.(d)

##### 4.1.1 STRUCTURAL CONTROLS

Erosion controls are controls designed to prevent erosion from occurring, or more precisely, to keep soils and sediments in their original positions. Sedimentation controls are controls designed to catch and retain sediment on the construction site after erosion has taken place. Erosion controls (structural and non-structural) are typically much more effective at retaining soils on site than are sedimentation controls, and should be chosen over sedimentation controls when practicable.

Erosion and sediment control measures must be in place and functional before earth moving operations begin on the portion of the project that they are designed to protect, except for those activities necessary to install the control measures. They must be maintained throughout the construction period. Temporary measures may be removed at the beginning of the work day, but must be replaced at the end of the work day.

3.5.3.1.(l)

Sediment should be removed from sediment traps, silt fences, sedimentation ponds, and other sediment controls as necessary, and at a minimum, must be removed when design capacity has been reduced by 50%.

3.5.3.1.(e)

Structural controls shall not be placed in streams, including intermittent streams, or wetlands except as authorized by a Section 404 Permit and/or Tennessee Aquatic Resource Alteration Permit.

3.5.3.3.

Erosion and sediment control measures shall be designed according to the size and slope of the upslope disturbed area, and shall be designed to be effective in the location they are installed, taking into account the runoff from the undisturbed portion of the watershed draining to the location. The controls shall be designed to control the rainfall and runoff from a design storm of 3.35 inches in 24 hours, as a minimum. This is the approximate value of the 2 year, 24-hour storm for this area.

3.5.3.3

For common drainage locations that serve an area with 10 or more acres disturbed at

3.5.3.3

one time, a temporary (or permanent) sediment basin that provides storage for a calculated volume of runoff from a 3.35 inch/24 hour design storm (2 year, 24 hour storm) and runoff from each acre drained, or equivalent control measures, shall be provided until final stabilization of the site. Where an equivalent control measure is substituted for a sediment retention basin, the equivalency must be justified in the project-specific portion of this plan. Runoff from any undisturbed acreage should be diverted around the disturbed area and the sediment basin. Diverted runoff can be omitted from the volume calculation. Sediment storage expected from the disturbed areas must be included and a marker installed signifying the need for cleanout of the basin.

All calculations of drainage areas, runoff coefficients, and basin volumes must be provided in the project-specific portion of the SWPPP. The discharge structure from a sediment basin must be designed to retain sediment during the lower flows.

3.5.3.3

Muddy water to be pumped from excavation and work areas must be held in settling basins or filtered or treated prior to its discharge into surface waters or catch basins. Water must be discharged through a pipe, well-grassed or lined channel or other equivalent means so that the discharge does not cause erosion and sedimentation. Discharged water must not cause an objectionable color contrast with the receiving stream.

All types of structural controls shall be designed, installed and maintained following good engineering practice and generally accepted guidelines, such as those found in the Tennessee Erosion and Sediment Control Handbook. The complete handbook can be found on the World Wide Web at:

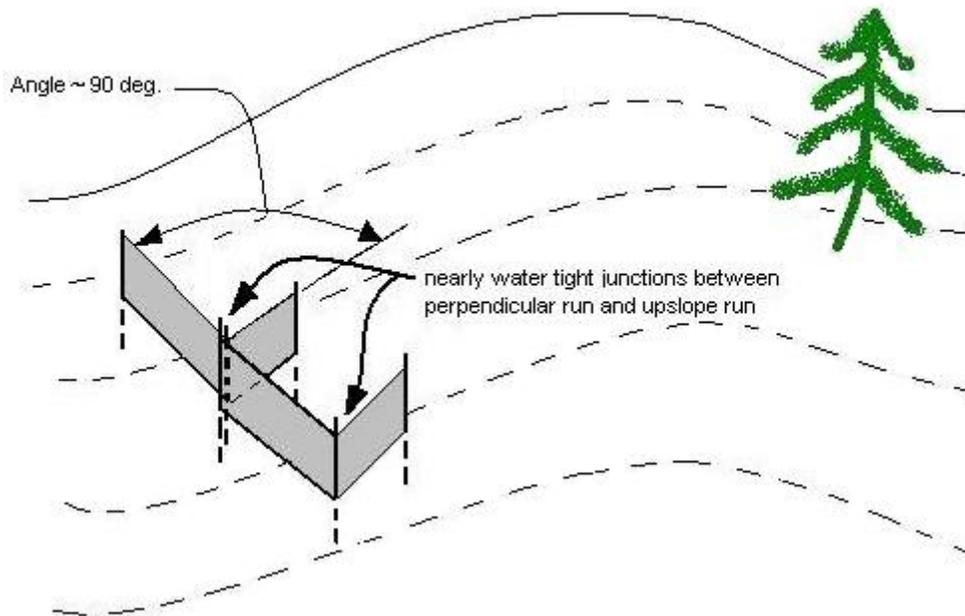
3.1

[http://www.state.tn.us/environment/wpc/sed\\_ero\\_controlhandbook/index.html](http://www.state.tn.us/environment/wpc/sed_ero_controlhandbook/index.html)

Because silt fence and straw bale barriers are arguably the most common structural controls used on construction sites, some important and often overlooked guidelines for their installation and use are covered in the paragraphs below. Many of the guidelines for silt fence installations are also applicable to the installation of straw bale barriers.

Silt fences and straw bales shall be properly entrenched. Straw bales shall be double staked and oriented properly (with the strands of straw oriented vertically and the binding strings horizontal to the ground). Loose straw shall be packed between straw bales by hand. When straw bales and silt fences are used together, where the sole purpose of the staked straw bales is to provide support for the silt fence, as long as the silt fence is properly installed (especially entrenched), the straw bales need not be entrenched and loose straw need not be packed between bales.

Silt fence and straw bales should be installed along contour where possible. If these controls are used where it is not possible or it is impractical to install them along contour (because of heavy equipment operation, etc.), measures shall be taken to prevent undercutting caused by the flow of storm water concentrating along the length of the fence/bales. For example, at appropriate intervals, additional straw bales or lengths of silt fence can be installed at approximately 90 degree angles to the length of silt fence/straw bales (see Figure 4.1). This will help slow the velocity of water flow and to redirect water away from the toe of the fence/bales. The interval of placement, and the number of bales or the length of silt fence to be installed at 90 degrees are dependent on the amount of water expected to concentrate along the fence/bales and the flow velocity that is expected (i.e., dependent on the amount of disturbed area upslope of the installation, slope of terrain, ground cover, soil type, etc.).



**Figure 4.1**

**Example of installation designed to prevent undercutting of a silt fence or straw bale barrier where it cannot be installed on contour**

The ends of straw bale and silt fence barriers shall be turned upslope so that water will be ponded behind the barriers. For an illustration, see Figure 4 of the silt fence section of the Tennessee Erosion & Sediment Control Handbook. When possible, the ends of the barriers shall be turned upslope enough that water will flow over the top of the fence/bales at the topographically low point somewhere in the middle of the line before water will flow around either end of the line. This is necessary because silt fence and straw bales achieve most of their effectiveness by ponding water, effectively reducing flow velocity and allowing sediments to settle, not by filtering sediment from runoff. The silt fence/straw bale installation should pond water to at least a depth of 1 foot. Because ponding is required for silt fences/straw bales to be effective, they should be installed at locations where they will pond the most water. For example, instead of placing them immediately at the base of a steep slope, they should be placed on flatter ground at least 5 to 7 feet beyond the toe of the slope.

After use, silt fences and straw bales (including bindings) should be removed or otherwise prevented from becoming a pollutant source for storm water discharges. Accumulated sediment should be removed and the area stabilized with vegetation or other suitable ground cover.

3.5.3.1.(f)

**4.1.2 VEGETATIVE CONTROLS**

Pre-construction vegetative ground cover shall not be destroyed, removed or disturbed more than 10 calendar days prior to grading or earth moving unless the area is seeded and/or mulched or other temporary cover is installed.

3.5.3.1.(h)

Clearing and grubbing must be held to the minimum necessary for grading and equipment operation.

3.5.3.1.(i)

Construction must be sequenced to minimize the exposure time of graded or denuded areas. 3.5.3.1.(j)

Site plans should ensure that existing vegetation is preserved where attainable, especially the preservation of vegetative buffer strips along waterways. When temporary disturbances of vegetative buffer strips are necessary, they should be restored as soon as practicable. 3.5.3.2.

Permanent stabilization with perennial vegetation (using native herbaceous and woody plants where practicable) or other permanently stable, non-eroding surface shall replace any temporary measures as soon as practicable. When grass is to be utilized to achieve permanent soil stabilization, native grass mixtures shall be utilized where practicable. 3.5.3.2

If permanent or temporary vegetation is to be used as a control measure, then the timing of the planting of the vegetation cover must be discussed in the project-specific portion of the SWPPP. Delay in planting cover vegetation until winter months or dry months should be avoided, if possible. 3.5.3.1.(c)

#### 4.1.3 CONSTRUCTION MANAGEMENT TECHNIQUES

Consideration shall be given to minimizing erosion and controlling sediment and storm water runoff during the planning and construction phases of each project. Project sequencing and phasing shall be utilized to the extent practicable to minimize storm water pollution. To qualify for General Permit coverage and for coverage under this SWPPP, construction must be phased for individual projects in which over 50 acres of soil will be disturbed, and areas of the completed phase must be stabilized within 15 days after the construction activity in that portion of the site has ceased. Projects in excess of 50 acres that cannot be phased in this manner must seek an individual NPDES permit and cannot be covered under this SWPPP. 3.5.3.1.(j)  
3.5.3.1.(k)

#### 4.1.4 TIMBER HARVESTING OPERATIONS PRECEEDING CONSTRUCTION

The General Permit contains the following definition:

“ ‘Clearing’ in the definition of discharges associated with construction activity, typically refers to removal of vegetation and disturbance of soil prior to grading or excavation in anticipation of construction activities. Clearing may also refer to wide area land disturbance in anticipation of non-construction activities; for instance, clearing forested land in order to convert forest land to pasture for wildlife management purposes. Clearing, grading and excavation do not refer to clearing of vegetation along existing or new roadways, highways, dams or power lines for sight distance or other maintenance and/or safety concerns, or cold planing, milling, and/or removal of concrete and/or bituminous asphalt roadway pavement surfaces. The clearing of land for agricultural purposes is exempt from federal storm water NPDES permitting in accordance with Section 401(1)(1) of the 1987 Water Quality Act and state storm water NPDES permitting in accordance with the Tennessee Water Quality Control Act of 1977 (T.C.A. 69-3-101 et seq.). ” 8.

Timber harvesting activities preceding a construction activity, including but not limited to the conversion of land formerly engaged in silviculture to a non-silvicultural 1.2.1.  
8.

use, shall be considered part of the construction activity and is therefore governed by the General Permit and by this plan. In many instances, typical forestry Best Management Practices (BMPs) may not be adequate to control erosion/sedimentation and to manage the storm water runoff from the cleared area. For instance, forestry BMPs require that rather large buffer strips be preserved along streams and wetlands. For construction projects, it is often necessary to encroach on those buffer strips. Also, the General Permit requires that a sediment retention basin be used where 10 or more disturbed acres drain to a single point. The project management process for construction projects must include controlling erosion and sedimentation and must manage the storm water runoff for the timber harvesting portion of the project. This may involve hiring a separate subcontractor to complete the installation of selected erosion control measures prior to the initiation of timber harvesting on the construction site.

3.5.3.3

#### 4.1.5 BMPs AND CONTROLS FOR EQUIPMENT AND MATERIAL STAGING/STORAGE AREAS

The General Permit authorizes storm water discharges from support activities (e.g., equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) provided:

3.5.3.1.(g)  
1.2.2.

- The support activity is primarily related to a construction site that is covered under the General Permit;
- The owner/operator of the support activity is the same as the owner/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 the completion of the construction activity at the last construction project it supports; and
- Support activities are identified in a notice of intent (NOI) and appropriate controls and measures are described in a comprehensive storm water pollution prevention plan (SWPPP) covering the discharges from the support activity areas.

1.2.2.a.  
1.2.2.b.  
1.2.2.c.  
1.2.2.d.  
1.2.2.e.

Appropriate best management practices shall be implemented at equipment staging/storage areas and project-specific control measures shall be documented in the appropriate parts of the site-specific portion of this plan. For equipment storage areas, particular attention should be given to preventing spills when refueling. Inspections of these areas should pay particular attention to identifying and mitigating leaks from equipment.

4.2.

An SWPPP for construction activities is often focused on sediment as a pollutant, but for material storage areas, particular attention should be given to potential storm water pollutants that may be unique to these areas. Controls may be necessary for building materials and supplies that would pollute storm water if used, spilled or stored improperly.

#### 4.1.6 TEMPORARY AND PERMANENT STABILIZATION

The site-specific portions of this plan shall include a description of interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans should ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized. Site plans should give consideration to using waterway buffer areas in which construction

3.5.3.2.

and material staging activities, and borrow and/or fill are prohibited. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Use of impervious surfaces for stabilization should be avoided.

Stabilization measures shall be initiated as soon as practicable 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 not later than 15 days after the construction activity in that portion of the site has temporarily or permanently ceased, except in the following two situations: (1) where the initiation of stabilization measures by the seventh day is precluded by snow cover or frozen 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 15 days.

Permanent stabilization with perennial vegetation (using native herbaceous and woody plants where practicable) or other permanently stable, non-eroding surface shall replace any temporary measures as soon as practicable. Unpacked gravel containing fines (silt and clay sized particles) or crusher runs will not be considered a non-eroding surface.

#### 4.1.7 OTHER ITEMS NEEDING CONTROL

No solid materials, including building materials, shall be discharged to waters of the United States, except as authorized by a section 404 permit and/or Tennessee Aquatic Resource Alteration Permit.

Off-site vehicle tracking of sediments and the generation of dust shall be minimized. Materials tracked onto roadways shall be removed at a frequency sufficient to prevent sediments from being washed into storm drains and into waterways.

For installation of any waste disposal systems on site, or sanitary sewer or septic system, the necessary sediment controls shall be implemented. The construction activity shall be in compliance with applicable State waste disposal, sanitary sewer or septic system regulations for such systems to the extent these are located within the project area.

#### 4.2 STORM WATER MANAGEMENT

All storm water control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. All control measures selected must be able to slow runoff so that rill and gully formation is prevented. When steep slopes and/or fine particle soils are present at the site, additional physical or chemical treatment of storm water runoff may be required, and must be fully described. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the control must be replaced or modified for site situations.

Measures designed to manage storm water (e.g., detention ponds) for a particular area shall be installed before the area is cleared or otherwise disturbed, except for the disturbances necessary to install such measures.

Sediment should be removed from storm water detention ponds as necessary, and must be removed when design capacity has been reduced by 50%. 3.5.3.1.(e)

Consideration shall be given to the control of pollutants in storm water discharges that will occur after construction operations have been completed. Such practices may include: storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff onsite; and sequential systems (which combine several practices). Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., no significant changes in the hydrological regime of the receiving water). The project-specific portion of the SWPPP shall include an explanation of the technical basis used to select the practices to control pollution where flows exceed pre-development levels. 3.5.4.

#### 4.3 SELECTION, USE AND STORAGE OF FILL AND SPOIL MATERIAL

Fill material borrow sites, spoil disposal sites and temporary storage sites for these materials are covered under the General Permit, and controls must be used to prevent pollution caused by storm water runoff from these areas. Sites used for these purposes shall be chosen with a goal of minimizing potential impacts to water quality. For example, sites on steep slopes and sites adjacent to water courses and wetlands should be avoided if possible. 3.5.3.1.(g)

The relative degree of effectiveness of the erosion/sedimentation control measures that would be employed on a fill/spoil site shall be considered when selecting a site. For example, sites with ingress/egress points on the topographic high end of the site would be preferable to sites with the only practical ingress/egress points on the topographic low end of the site, because the latter situation would likely require the daily removal and reinstallation of erosion control measures to ensure that sediments are retained on site.

Where possible, these borrow, disposal, and storage sites should be chosen so that large buffer strips of vegetation exist between them and nearby water courses (for guidance on determining adequate sizes of buffer strips, refer to the Tennessee Erosion and Sediment Control Handbook). When possible, sites in or adjacent to wet-weather conveyances should be avoided due to the difficulty of preventing erosion and sedimentation in these areas from impacting downstream waters. 3.5.3.2.

#### 4.4 NON-STORM WATER DISCHARGES

The General Permit authorizes some specific non-storm water discharges from active construction sites provided that those non-storm water discharges are identified in the SWPPP and that the SWPPP identifies and ensures the implementation of appropriate pollution prevention measures (BMPs) for the non-storm water components of the discharges. The non-storm water discharges that are permitted include: 1.2.3.  
3.5.9.

- Dewatering of work areas of collected storm water and ground water; 1.2.3.(a).
- Waters used to wash vehicles (of dust and soil, not process materials such as concrete) where detergents are not used and detention and/or filtering is provided before the water leaves site; 1.2.3.(b).
- Water used to minimize the generation of dust; 1.2.3.(c).
- Potable water sources including waterline flushings (any waters containing residual chlorine, including residual chlorine at normal drinking water 1.2.3.(d)

- concentrations must be dechlorinated before they reach a receiving stream);
- Routine external building washdown which does not use detergents; 1.2.3.(e)
- Uncontaminated ground water or spring water; and 1.2.3.(f)
- Foundation or footing drains where flows are not contaminated with process materials such as solvents. 1.2.3.(g)

Non-storm water discharges other than those specifically listed above are not allowable under the General Permit. Certain types of non-storm water discharges might be permitted under ORNL's industrial NPDES permit if discharged through a permitted outfall and if the appropriate BMPs are implemented. Waters to be discharged in this manner must be evaluated and approved on a case by case basis by contacting the ORNL Water Quality Program (Contact Charlie Valentine; 574 8775). Note that non-storm waters other than those types listed in this section and which cannot be discharged through an NPDES permitted outfall cannot be approved.

Muddy water to be pumped from excavation and work areas must be held in settling basins or filtered prior to its discharge into surface waters. Non-storm water must be discharged through stable discharge structures, for example, a pipe, well grassed or lined channel or other equivalent means so that the discharge does not cause erosion and sedimentation (this includes waters discharged from sediment basins and traps). 3.5.3.3.

#### 4.5 PROTECTION OF WATER QUALITY, THREATENED AND ENDANGERED SPECIES, AND HISTORIC RESOURCES

The General Permit does not authorize storm water or other discharges that would result in a violation of a State water quality standard (Rule Chapters 1200-4-3, 1200-4-4). Such discharges are a violation of the General Permit. 4.3.1.

The construction activity shall be carried out in such a manner as will prevent violations of water quality criteria as stated in Rule 1200-4-3-.03 of the Rules of the Tennessee Department of Environment and Conservation. This includes but is not limited to the prevention of any discharge that causes a condition in which visible solids, bottom deposits, or turbidity impairs the usefulness of waters of the state for any of the uses designated for that water body by Rule 1200-4-4. Use classifications for surface waters include fish and aquatic life, livestock watering and wildlife, recreation, irrigation, navigation, industrial water supply, and domestic water supply. 4.3.2.(a).

There shall be no distinctly visible floating scum, oil or other matter contained in the storm water discharge. 4.3.2.(b).

Discharges must not cause an objectionable color contrast in the receiving stream. 4.3.2.(c).

The storm water discharge must result in no materials in concentrations sufficient to be hazardous or otherwise detrimental to humans, livestock, wildlife, plant life, or fish and aquatic life in the receiving stream. 4.3.2.(d).

Storm water discharges and storm water discharge-related activities that are not protective of legally protected listed or proposed threatened or endangered aquatic fauna in the receiving stream(s) or discharges or activities that would result in a "take" of a federally listed endangered or threatened fish or wildlife species are not allowed. 1.3.(h).

Storm water discharges that would negatively affect a property that is listed or is eligible for listing in the National Historic Register maintained by the Secretary of Interior are not allowed. 1.3.(j).

Discharges into receiving waters with an approved Total Maximum Daily Load (TMDL) Analysis are not allowed unless controls that are consistent with the requirements of such TMDL are incorporated into the SWPPP. Currently there are no relevant TMDL's for any of the streams within the immediate ORNL vicinity. However, there is a proposed TMDL for certain areas on the Oak Ridge Reservation that may impact construction activity performed by UT-Battelle. The project-specific portion of the SWPPP will address these conditions, if applicable.

1.3.(k).

#### 4.6 INSPECTIONS

Inspections shall be conducted at 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 receiving construction site runoff.

3.5.8.2.(b).

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 drainage system. Erosion and sediment control measures identified in the project-specific portion of this plan shall be observed to ensure that they are adequate and operating correctly.

3.5.8.2.(c).

Outfall points (where point source discharges from the site enter streams or wet weather conveyances) shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Where discharge locations are inaccessible, nearby downstream locations shall be inspected.

3.5.8.2.(d).

Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

3.5.8.2.(d).

Inspections shall be performed at least twice every calendar week. These 2 weekly inspections shall be performed at least 72 hours apart. Where sites or portions(s) of construction sites have been temporarily stabilized, or runoff is unlikely due to winter conditions, such inspection only has to be conducted once per month until thawing results in runoff or construction activity resumes. Inspections requirements do not apply to definable areas that have been finally stabilized. Written notification of the intent to conduct only monthly inspections and the justification for such request must be submitted to the Knoxville Field Office of TDEC.

3.5.8.2.(a)

Inspectors must have completed the "Fundamentals of Erosion Prevention and Sediment Control" workshop or equivalent training, for individuals involved in land-disturbing activities which provides a working knowledge of erosion/sedimentation control measures used on the construction project. An engineer or landscape architect that prepared the drainage and structure design portion of the SWPPP may also conduct the required inspections. A copy of the certification or training record for inspector certification should be kept on site.

3.5.8.1.

Inspections shall be documented and at a minimum shall include:

3.5.8.2.(g).

- The scope of the inspection;
- The name(s) of personnel making the inspection;
- The title or qualifications of personnel making the inspection;
- The date(s) of the inspection;
- Major observations relating to the implementation of the storm water pollution prevention plan (including the location(s) of discharges of sediment or other pollutants from the site and of any control device that failed to operate as designed or proved inadequate for a particular location); and

- Actions taken to replace or repair inadequate control measures or the control measures in disrepair.

A standard inspection checklist has been prepared and is attached to this SWPPP. The use of this checklist is recommended, but project-specific checklists may be developed and utilized for individual projects. Project specific checklists should contain the same level of detail as the standard checklist, but may omit items irrelevant to the project, and should include additional items covering pollution prevention concerns unique to the project.

#### 4.7 DISCHARGES INTO 303(d)-LISTED IMPAIRED WATERS

At the time this SWPPP was written, neither White Oak Creek, its tributaries, nor the Clinch River tributaries in the vicinity of the ORNL are listed on the 303(d) list as being impaired by siltation. The Melton Hill Reservoir is on the 303(d) list for PCBs and Chlordane contamination. Additionally, White Oak Creek is listed for biological integrity loss due to undetermined cause. Any construction project discharging to Melton Hill Reservoir that might involve PCBs or chlordanes, or projects discharging to White Oak Creek that have a reasonable potential to contribute to biological integrity loss, might not be eligible for coverage under the General Permit (see sections 1.3 and 4.4 or the General Permit and consult with UT-Battelle Water Quality Protection). Any changes to the 303(d) list that would result in a construction project having a reasonable potential to impact newly-listed waters, if eligible for coverage under the General Permit, would be addressed in the project-specific portion of the SWPPP; an update to this site-wide portion of the plan would not be required.

1.3  
4.4.

#### 4.8 MAINTENANCE

Vegetation, erosion and sediment control measures, and other protective measures identified in the project-specific portion of the SWPPP will be kept in good and effective operating condition. This will be accomplished for the projects covered under this SWPPP through the required site inspections and appropriate response to inspection findings. Maintenance needs identified in inspections or by other means shall be accomplished before the next storm event, but not more than 7 days after the need is identified.

3.5.7.  
3.5.8.2.(e).

Litter, construction debris, and construction chemicals exposed to storm water shall be picked up or covered prior to anticipated storm events (e.g. forecasted by local weather reports), or before being carried off of the site by wind, or otherwise prevented from becoming a pollutant source for storm water discharges (e.g., screening outfalls, daily pick-up, etc.).

3.5.3.1.(f).

If inspections reveal that more than a negligible amount of sediment is escaping the boundaries of the construction site during routine storms (less than the 2-yr, 24-hour design storm) or that sediments are reaching receiving streams, measures will be taken to enhance control measures (e.g., install additional controls, increase maintenance of existing controls, etc.). However, observations that sediment or other pollutants have migrated beyond the construction site boundary shall not be the only trigger for additional control measures. If site inspections reveal that even small storm events are resulting in significant reduction of capacity of the control measures, making it apparent that storms with magnitudes smaller than the design storm would exceed the capacity of the control measures, prompt action will be taken to enhance the control measures on the effected portions of the site.

Based on the results of the inspections, any inadequate control measures or control measures in disrepair shall be replaced or modified, or repaired as necessary, before the

3.5.8.2.(e)

next rain event if possible, but in no case more than 7 days after the need is identified. In addition, the site description identified in the project-specific portion of the plan and pollution prevention measures identified there 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.

3.5.8.2.(f)

All facilities and systems of treatment and control (and related appurtenances) which are installed or used to achieve compliance with the conditions of the General Permit and with the requirements of this SWPPP shall at all times be properly operated and maintained. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the General Permit.

6.14.

#### 4.9 SPILL PREVENTION, RESPONSE AND REPORTING

The General Permit does not authorize discharges of hazardous substances or oil; such a discharge would be a violation of the General Permit. Construction activities shall be managed to prevent or reduce the impact of spills, including but not limited to: minimizing the amount of hazardous materials stored on site, storing hazardous materials so that if spilled they will not come into contact with storm water, utilizing secondary containment where appropriate, and keeping spill response kits where hazardous materials are stored or used.

4.2.

All spills shall be reported to the ORNL Laboratory Shift Superintendent (LSS) at 574-6606. The LSS will determine if reporting to an outside regulatory authority is required and will make the required notifications [e.g., the National Response Center at 800-424-8802, and the Tennessee Emergency Management Agency at 800-262-3300 (emergencies) or at 800-262-3400 (non-emergencies)].

4.1.

If it is safe to do so, parties responsible for spills shall take immediate action to contain spills and prevent impacts to waters of the State/US (including surface waters, groundwaters and wetlands). Spills shall be cleaned up as quickly as possible and actions shall be taken to prevent similar occurrences.

All parties involved in spills shall provide all relevant information to those reporting and responding to spills (e.g., the type and estimate of the amount of material released, the date that such release occurred, the circumstances leading to the release, what actions were taken to mitigate effects of the release, and steps to be taken to minimize the chance of future occurrences).

4.1.(b).

ORNL has a Spill Prevention Control and Countermeasures Plan. Further details on appropriate spill response can be obtained from that document.

#### 4.10 RECORD KEEPING AND REPORTING

The General Permit requires that the following records be maintained on site:

3.5.3.1.(m).

- The dates when major grading activities occur;
- The dates when construction activities temporarily or permanently cease on a portion of the site;
- The dates when stabilization measures are initiated; and
- Inspection records and rainfall records.

For purposes of complying with the above requirement, ORNL interprets “on site” for projects on or near the ORNL main campus to be somewhere on the ORNL campus at a location where the records can be rapidly retrieved (a few minutes) if requested by an inspector. For projects on ORNL managed properties that are distant enough from the ORNL main campus to preclude rapid retrieval of these documents if requested by an inspector, they shall be kept at the location of the construction activity while people are working on the site. The location of these materials should be known to all appropriate project managers and project foremen so that they may be produced without delay if requested.

The General Permit requires that a rain gauge be maintained on construction sites, or a nearby reference site can be used. A rain gauge is maintained on the ORNL site just west of the 7000 Area (Tower C). For construction activities on ORNL managed areas of the Oak Ridge Reservation (outside of the ORNL campus), it should be considered whether this gauge is in close enough proximity to the construction site to adequately approximate the precipitation falling on the site. If significant variability between the ORNL Tower C gauge and the construction site is likely, it may be necessary to establish a gauge on the construction site.

3.5.3.1.(n).

Copies of the following shall be posted near the main entrance of the construction site:

3.3.2.

- A copy of the Notice of Coverage (NOC) issued by the TDEC which includes a permit tracking number,
- The name, company name, E-mail address (if available), telephone number and address of the project site owner or a local contact person,
- A brief description of the project, and
- The location of the SWPPP if the site is inactive or does not have an onsite location to store the plan.

The notice must be maintained in a legible condition. If posting this information near a main entrance is infeasible due to safety concerns, the notice shall be posted in a local public building. If the construction project is a linear construction project (e.g., pipeline, highway, etc.), the notice must be placed in a publicly accessible location near where construction is actively underway and moved as necessary. Because most if not all construction sites are ORNL limit access to the construction area with engineering controls (fences, flagging, etc.) the notice must be oriented so that a member of the public can read them from the site boundary. For example, if a two sided bulletin board is posted at the site, this notice must be on the side of the bulletin board facing away from the site.

3.3.2.

A copy of this SWPPP (this part and the project specific part) and a copy of the General Permit shall be retained at the construction site (or other local location accessible to the TDEC Director of Water Pollution Control and the public) from the date construction commences to the date of termination of permit coverage. The operators with day-to-day operational control over SWPPP implementation shall have a copy of the plan available at a central location onsite for the use of all operators and those identified as having responsibilities under the plan whenever they are on the construction site. Subcontractors will transfer all project SWPPP documentation to UT-Battelle upon completion of their project. Once coverage is terminated, the permittee shall maintain a copy of all records including storm water pollution prevention plans and all reports required by the General Permit, and records of all data used to complete the Notice of Intent and the Notice of Termination (NOT) to be covered by the General Permit for a period of three years.

5.1

5.2.

#### 4.11 REVISIONS TO THIS PLAN

This SWPPP must be modified within 14 calendar days of knowledge of the release of a reportable quantity of hazardous material (40 CFR 117 and 40 CFR 302). The project-specific portion of the SWPPP must be modified to provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

4.1.(c).

The SWPPP (typically the project specific portion) must be amended:

3.4.1.

- Whenever there is a change in the scope of the project, which would be expected to have a significant affect on the discharge of pollutants to the waters of the State and which has not otherwise been addressed in the plan;
- Whenever inspections or investigations by site operators; or local, state or federal officials indicate the SWPPP is proving ineffective in eliminating or significantly minimizing pollutants from sources identified under section 3.5.2. of the General Permit, or is otherwise not achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity;
- To identify any new contractor and/or subcontractor that will implement a measure of SWPPP; and
- To include measures necessary to prevent a negative impact to legally protected state or federally listed or proposed threatened or endangered aquatic fauna.

## 5 REQUIREMENTS FOR THE DEVELOPMENT OF ADDITIONAL PROJECT SPECIFIC INFORMATION

To obtain permit coverage under the General Permit, a complete NOI, SWPPP and appropriate fee must be submitted at least 30 days prior to commencement of the construction activities. The land disturbing activities shall not start until a Notice of Coverage (NOC) is issued **and** received by the permittee.

2.4.2  
1.5.1.

Project specifications must meet the minimum requirements of this SWPPP, the General Permit and all other applicable requirements. Project-specific portions of the SWPPP shall be prepared in accordance with good engineering practices and the latest edition of the *Tennessee Erosion and Sediment Control Handbook*.

3.1.

A template has been prepared to assist in the development of the project-specific portion of the SWPPP (latest revision available from UT-Battelle Water Quality Protection).

## 6 APPROVALS AND SIGNATURES

The general portions of the SWPPP (this part) will be signed by authorized (see section 6.7. of the General Permit) representatives of the DOE, UT-Battelle, and all other operators signing a Notice of Intent to be co-permittees under the General Permit. The DOE and UT-Battelle need only sign this (site-wide) portion of the plan once and their approvals will apply to all construction projects covered under this SWPPP. UT-Battelle and construction subcontractors must sign the project-specific portion of the SWPPP. If there are changes to this site-wide portion of the SWPPP, it must be re-signed by DOE, and UT-Battelle.

3.3.1.  
6.7.

DEPARTMENT OF ENERGY APPROVAL:

*"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted 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 for knowing violations."*

*Michelle S. Blanton*  
for George J. Malosh  
U. S. Department of Energy; Assistant Manager for Science

*June 5, 2006*  
Date

UT-BATTELLE APPROVAL:

*"I certify under penalty of law that I have reviewed this document, any attachments, and the SWPPP referenced above. Based on my inquiry of the construction site owner/developer identified above and/or my inquiry of the person directly responsible for assembling this NOI and SWPPP, I believe the information submitted is accurate. I am aware that this NOI, if approved, makes the above-described construction activity subject to NPDES permit number TNR100000, and that certain of my activities on-site are thereby regulated. I am aware that there are significant penalties, including the possibility of fine and imprisonment for knowing violations, and for failure to comply with these permit requirements."*

*Karen M. Downer*  
Karen M. Downer  
UT Battelle; Director, Environment, Safety, Health & Quality

*4/4/06*  
Date

All other operators working on a project shall sign a certification for their project if: (1) they submitted or are required to submit a Notice of Intent to be co-permittees under the General Permit, or (2) if requested to sign by UT-Battelle. An SWPPP is intended to be a working document and frequent changes to the project-specific addendum are expected. Therefore minor changes to the project-specific addendum do not require new signatures. If major revisions are made to the project-specific addendum, the revised addendum must be signed by UT-Battelle and all other operators affected by the change. What constitutes a "major" revision will be determined by UT-Battelle. Examples of major revisions are those that are required to address deficiencies identified by a regulatory authority, revisions that are required to respond to significant threats to water quality, revisions to address significant expansions in project scope, etc.

**Attachment 'A'**

**Construction Site Sedimentation and Erosion Control Measures Inspection Form (2006)**

Inspections must be performed at least twice every calendar week and at least 72 hours apart. Where 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. However, written notification of the intent to conduct only monthly inspections and the justification for such a request must be submitted to TDEC. Repairs to control measures must be completed before the next rainfall, but no later than **7 days** after the need is identified. Also, based upon the results of this inspection, the site description and pollution prevention measures identified in the SWPPP shall be revised no later than **7 days** following this inspection.

PROJECT: \_\_\_\_\_  
INSPECTED BY: \_\_\_\_\_ INSPECTION DATE: \_\_\_\_\_

TITLE OF INSPECTOR: \_\_\_\_\_  
SCOPE OF INSPECTION: \_\_\_\_\_

QUESTIONS	YES	NO	N/A	COMMENTS
Are <b>silt fencing and hay bales</b> in good condition (remaining sediment trapping capacity; no signs of undercutting or bypassing; materials in good shape)?				
Do <b>check dams or temporary sediment traps</b> have greater than 50% sediment trapping capacity?				
Are <b>previously planted and mulched areas</b> in good condition (i.e., no replanting or re-mulching is necessary)?				
Are <b>material storage areas</b> that are exposed to precipitation adequately secured to prevent pollutants from entering nearby storm drains or waterways?				
Are <b>streams and wetlands</b> free of significant deposits of construction-derived sediment and debris?				
Are <b>outfalls</b> draining the construction site discharging clean storm water free from sediment, discoloration, or sheens?				
Are <b>wet-weather conveyances</b> free of heavy sediment accumulation and accelerated erosion?				
Are <b>construction site run-on controls</b> (berms, channels, sediment traps, etc.) in good condition and effective?				
Are <b>sediment basins and traps</b> in good condition (adequate remaining capacity, inlets and discharges are free of debris, no erosion of dams or at points of discharge, etc.)?				
Are <b>culverts and storm water inlets</b> free of debris?				
Are areas that have been or will be <b>unfinished for more than 15 days</b> stabilized with vegetative cover, mulch, etc.?				



ORNL Environmental Management System  
Awareness Training for Construction and Service Subcontractors

I. POLLUTION

Water Pollution:

**Release of pollutants directly into surface waters, or indirectly via storm water runoff, fuels, oil, chlorine, & other chemical products, uncured cement, erosion & sedimentation, etc.**

**Fish kills, impairment of water quality and aquatic habitat**

Land pollution:

**Windblown litter from job sites and/or moving open bed trucks, improper management of chemical products and hazardous wastes**

Air pollution:

**Fugitive dust from site grading, sandblasting, demolition, etc.**

Many construction activities have potential to pollute the environment:

**Refueling operations**

**Site clearing, grading and excavation**

**Spills & leaking equipment**

**Demolition & other dust-producing activities**

**Material handling & storage**

**Concrete finishing, cutting, concrete pumper and/or delivery chute flush out**

**Paint & coatings applications**

**Water line disinfection and flushing**

II. CONSEQUENCES

**Fines and penalties, suspension of permits**

**Cost and schedule impacts, work stoppage, abatement measures, corrective actions**

**Loss of eligibility to participate in future projects**

**Potential negative impacts to funding for future projects**

### III. PREVENTION

#### The ORNL Environmental Management System:

**Applies to everyone whose work has the potential to impact the environment**

**Requires that all workers be made aware of potential environmental consequences associated with their work activities, and use appropriate control measures**

**Requires notification of construction field representative (CFR) and LSS in response to spills and other environmental incidents or unusual conditions**

Environmental Requirements are communicated to Subcontractors:

**To managers and supervisors through technical specifications, plans & drawings, electronic postings, correspondence, etc.**

**To individual workers, during site orientations and Hazards Analysis (HA) review, at ES&H briefings, and whenever assigning specific tasks that could result in a negative environmental impact**

#### Environmental Expectations

**Construction and Service Subcontractors are expected to:**

**Plan, bid, and conduct work in accordance with specifications**

**Communicate & enforce requirements with employees and with lower tier subcontractors**

**Workers are expected to:**

**Understand and comply with environmental requirements,**

**Report unusual conditions and/or environmental incidents, and**

**Consult supervision with any environmental concerns, questions, or observations**

“All on-site personnel performing work activities with potential to negatively impact the environment shall be provided with environmental awareness training in accordance with requirements of the ORNL Environmental Management System. This document represents the minimum level of EMS Awareness Training to be provided to construction and subcontract

workers. The training shall be provided by the Seller as part of the initial employee site orientation & ESH briefing.”

**SECTION 017419**

**DEMOLITION WASTE MANAGEMENT AND DISPOSAL**

PART 1 - GENERAL

1.1 RELATED SECTIONS

- A. Specification Section 010100, General Work Requirements
- B. Specification Section 011100, Safety and Health
- C. Specification Section 01550, Environmental Protection

1.2 ATTACHMENTS

- A. Attachment 1, Oak Ridge Reservation Master Profile S-050, Rev 2, Spoil Materials, Effective 02/07/05
- B. Attachment 2, Landfill Prohibited Waste Items

1.3 REFERENCES

- A. EPA 40 CFR 260 – 280 and TN Rule 1200-1-11-.01
- B. EPA, National Emission Standards, Hazardous Air Pollutants, 40 CFR 61 and TN Rules 1200-2-8-.01, Fugitive Dust, and 1200-3-11-.02, Asbestos
- C. Solid Waste Processing and Disposal, TN Rule 1200-1-7
- D. 29 CFR 1926.1101

1.4 SUBMITTALS

- A. Submit the Hazard Analysis (HA) in accordance with Section 011100. The HA shall include language identifying potential environmental & waste management hazards associated with tasks within the project scope of work and appropriate controls for mitigation of those hazards. Whenever additional tasks and/or hazards are identified within the scope of work, the HA shall be updated to address the new tasks and/or changed conditions.

## 1.5 DEFINITIONS

- A. Resource Conservation and Recovery Act (RCRA) Hazardous Waste: Any discarded material that is not excluded by 40 CFR Part 261.4(a) and that is listed in 40 CFR Subpart D or exhibits any of the characteristics identified in 40 CFR 261 Subpart C.
- B. Sanitary Waste: Waste generated by offices, cafeteria, medical facilities and laboratories, and includes textile products (PPE, coveralls, cotton items, carpet, etc.).
- C. Special Waste: Wastes that are either difficult or dangerous to manage such as friable or non-friable asbestos, empty aerosol or paint containers, petroleum contaminated soil, bulk product PCB waste, PCB remediation wastes, etc.

## 1.6 TRAINING

- A. Sellers, their subcontractors and all employees who use hazardous materials and may generate or handle a hazardous waste, must provide evidence of having received RCRA Hazardous Waste Awareness Training and an annual refresher training as required by 40 CFR 265.16 and 262.34 prior to starting any work involving these items.
- B. Prior to the transport of friable asbestos, truck drivers shall provide evidence of a valid medical card and Class A Commercial Driver's License (CDL) with HazMat endorsement.

## 1.7 REQUIREMENTS TO COMPLY WITH APPLICABLE LAWS AND REGULATIONS

- A. The Seller shall provide written proof of registration, licensing, insurance, or other requirements upon request. It is the seller's responsibility to ascertain and comply with all applicable Federal, State, Local and multi-jurisdictional laws, ordinances, and regulations pertaining to the registration, licensing, handling, transportation, packaging, management, processing, resale and disposal of these materials under this contract. These federal, state, and local laws include but are not limited to the Clean Air Act; the Toxic Substances Control Act; the Atomic Energy Act; the Comprehensive Environmental Response, Compensation and Liability Act; the Hazardous Materials Transportation Regulations; the Federal Motor Carrier Safety Regulations; the Tennessee Motor Vehicle Laws Annotated; the Emergency Planning and Community Right-to-Know Act, 40 CFR 279; and TDEC (Tennessee Department of Environment and Conservation) Rule Chapter 1200-1-11-.11.

## PART 2 - WASTE MANAGEMENT

## 2.1 WASTE MANAGEMENT REQUIREMENTS

- A. Seller removal of ORR Landfill prohibited wastes must precede all excavation/demolition work.
- B. The following items are prohibited from disposal at the ORR Landfill and must be removed from the buildings and affected areas prior to excavation/demolition. Instructions for managing the ORR Landfill Prohibited Wastes are provided in part 2.2 of this section.
  - 1. Radioactive waste
  - 2. Universal waste
  - 3. RCRA hazardous wastes (including but not limited to mercury, lead, lead based paint chips, dust and debris)
  - 4. PCB ballasts
  - 5. Free liquids
- C. The Seller is responsible for gross segregation of all waste items into the following potential categories as shown in Figure 1 (Note that the Seller is not expected to encounter asbestos-containing, respiratory hazard material, radiological material or universal wastes during the project activities included in this Statement of Work). If these wastes are encountered during excavation/demolition they shall be disposed per the requirements of this section at the direction of the Company.

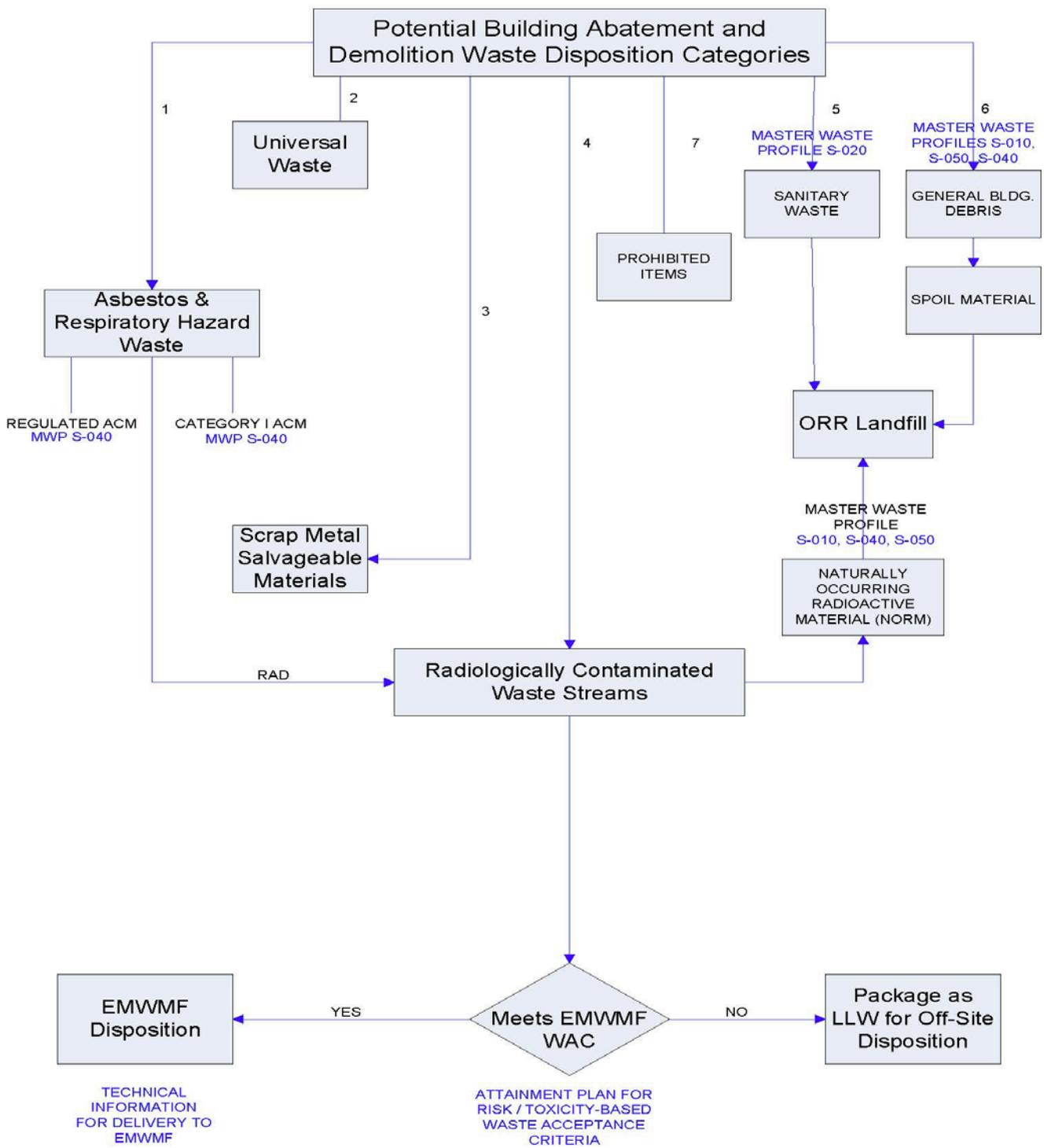


FIGURE 1  
Waste Segregation & Disposition

1. **Special (asbestos & respiratory hazard) waste** – Special wastes are wastes that are either difficult or dangerous to manage such as friable or non-friable asbestos, respiratory hazards (includes fiberglass with loose fibers), empty aerosol or paint containers, petroleum contaminated soil, etc. Care must be taken to avoid mixing waste type, as some disposal requirements vary from one waste type to another. Coordinate the removal of these materials with the CFR.
2. **Universal wastes** – Mercury thermostats, batteries, and lamps/bulbs will be recycled by the Company's approved vendor. The Company will provide containers and instructions for Seller accumulation of these items.
3. **Scrap metal for recycle** – All scrap metal must be collected for the Company's approved metal recycle vendor. Both ferrous and nonferrous metals can be collected in the same secure container. Brass, bronze, and lead should be collected separately. Printed circuit boards should be collected in cardboard boxes. Copper wire should be collected separately. The Company will provide scrap metal accumulation containers. **INSULATED PIPING CANNOT BE RECYCLED** and should be sent to the landfill.

**Note:** The Seller should not add items with free-flowing oil to the Company's scrap metal containers. Coordinate the disposal of oily items with the Company.

4. **Salvageable materials** – All excess property and salvaged materials must be processed by the Company's Excess Property Group before leaving the site, and the Company will provide assistance with this process. It is the Seller's responsibility to protect the property from pilferage and damage until it has been transported to the excess property/salvage area.
5. **Radiologically-contaminated wastes streams** – All radiologically-contaminated materials excluding Naturally Occurring Radioactive Materials ( NORM). Respiratory hazard materials (i.e. fiberglass) that can not be segregated from radiological items are eligible for disposition at Envirocare of Utah. If Envirocare of Utah is the selected disposition pathway for rad waste, all waste packaging will be done in Company-provided containers and packaging by the Seller will be supervised by the Company.
6. **Sanitary waste** – Sanitary wastes are wastes generated by offices, cafeteria, medical facilities and laboratories, and include textile products (PPE, coveralls, cotton items, carpet, etc.), and Green Tagged metals from RMMAs. The Seller shall bag garbage and deposit daily in the Company's dumpster.

**Note:** Where feasible, collect ALUMINUM CANS, PAPER, and CARDBOARD for RECYCLE. The Company will provide collection containers.

7. **Construction / Demolition debris** – These are wastes that result from construction, remodeling, repair and demolition of structures, and from road building or repair. These wastes include lumber, plastic, siding, paneling, flooring, windows, doors, and miscellaneous building demolition materials, brick, concrete, masonry materials, PVC material, sheetrock/gypsum board, roofing materials, siding, paneling, flooring, and miscellaneous metals associated with demolition, windows, doors, and miscellaneous building demolition materials.
  8. **Spoil materials** – Uncontaminated excavated earth not used for fill, rock, gravel, road spoils, rebar (embedded in concrete), paving material, clay material. Spoil materials will be sent to the ORR Landfill of Clear Spring Road. Attachment 1 provides the ORR Landfill waste acceptance criteria for spoil materials. The general requirements for loading and transportation of spoil materials at the ORNL project site are outlined in part 2.4 of this section.
  9. **Prohibited items** – Special handling requirements for managing prohibited items is provided in part 2.2 of this section and a complete list of these items for the ORR Landfill is provided in Attachment 2 of this section. The Company will ensure the proper management and disposal of these wastes and should be notified whenever items on the list are generated.
- D. The Seller is responsible for ensuring that waste is sized so that it does not get stuck in transportation vehicles. Bulky items, i.e. pipe, concrete foundations, large storage tanks, structural steel, etc., must be less than 8 feet in length in order to permit safe handling with ORR landfill equipment.
  - E. If radiological materials are encountered during demolition, the Company will be responsible for the overall management and direction of Seller's packaging operations on radioactive waste. The Company will manifest radioactive wastes, RCRA Hazardous, and/or PCB waste. Waste from cleanup of spills may require being managed as a special or a hazardous waste. The Company will make this determination.
  - F. Waste oils will be recycled through the Company's off-site contractor unless a condition exists that prevents recycling and/or the used oil must be disposed of as a hazardous waste. The Company will make this determination and will manage the oil appropriately.
  - G. Instructions for managing ORR Landfill eligible waste and the special handling requirements associated with each category of eligible wastes are provided in part 2.3 of this section.
  - H. The Company will perform the duties of the generator on behalf of the Seller. The Company's EPA ID number will be listed on all manifests and records for any hazardous waste being sent off-site for disposal.
  - I. Any materials (solvents, paint, etc.) brought on-site by the Seller will be removed by the Seller at the completion of the project INCLUDING EMPTY CONTAINERS, AND PARTIALLY FULL CONTAINERS.
  - J. The Company will prepare Special Waste Evaluation Applications; will pay the associated fees; and coordinate the reviews with TDEC, if applicable.

- K. The Company will assign and manage an area for interim storage of RCRA/TSCA waste-containing drums, universal waste, and recyclable materials.
- L. Seller shall provide containers and/or transport vehicles for ORR Landfill eligible waste.
- M. The Seller shall provide containers and transport vehicles for solid waste generated by activities other than demolition (e.g. trash and garbage). The Seller shall transport waste off Government property and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal.
- N. The Seller shall ensure the provision of respirators and PPE for personnel transporting waste to the ORR Landfill.
- O. The Seller shall provide all of the materials (including bulk and non-bulk containers) required for the packaging, labeling, marking, and transportation of non-rad / non-hazardous wastes (including special wastes) to the ORR Landfill in conformance with Department of Transportation (DOT) standards.

## 2.2 MANAGING ORR LANDFILL PROHIBITED WASTES

- A. Landfill prohibited wastes are identified in Attachment 2 of this section.
- B. The Seller shall request a radiological survey prior to attaching labels and Green Tags on all containers.
- C. Free liquids.
  - 1. Pumps and motors shall have plugs removed and water and oil drained prior to disposal. Hoses shall be cut and drained. All piping (e.g. fire protection and chilled water systems) shall be drained of free liquids.
  - 2. Collect in containers provided by the Company. Always have three (3) to five (5) inches of empty space above volume of material when using drums for packing.
  - 3. Provide identification of material added to containers (using log sheets) to permit safe opening, storage and handling by the Company.
  - 4. Label each drum to identify the type of waste and the date the drum was filled and request survey of the container before removing it from the building.
  - 5. Deliver Green Tagged containers to the Company designated RCRA Accumulation Area.

## 2.3 CONTROL AND DISPOSAL OF ORR LANDFILL ELIGIBLE WASTE

- A. Spoil Material waste.

1. Remove Spoil Material and segregate from other wastes whenever possible.
2. Spoil Materials are earthen clean/non-contaminated materials, typically other than special wastes, resulting from construction, and demolition of structures, and from road construction and repair including, but not limited to:
  - a. Gravel.
  - b. Soil.
  - c. Rock.
  - d. Concrete.
  - e. Brick.
  - f. Cinder/concrete blocks.
  - g. Clay products (tile, pipe, etc.).
  - h. Asphalt pavement.
6. Bulk handling and transport of Spoil Material wastes:
  - a. Size and load the waste into the waste delivery vehicles in such a manner to prevent the waste from becoming lodged in waste delivery vehicles and containers (i.e., dump truck beds, dump trailers, roll-off containers) during the dumping operations. The Seller shall be responsible for safely removing and clearing lodged materials from the waste delivery vehicles/containers and all associated costs.
  - b. Waste delivery vehicles shall not be leaking fluids.
  - c. It is recommended that wastes be delivered in vehicles that are self-dumping/unloading. If it is absolutely necessary to deliver bulky and containerized wastes on flatbed trucks or trailers, the waste generator shall minimize the generation of such containerized and bulky wastes and shall perform advance coordination with the Landfill Project Manager for the unloading.
  - d. All containers intended for disposal must be greater than 90 percent full (less than 10 percent void) except for 55 gallon or smaller containers, which can be safely compacted with landfill equipment.
  - e. Refer to Master Waste Profiles S-050 (Attachment 1) for disposition of Spoil Material Waste at the ORR Landfill.
  - f. Specific instructions dealing with waste identification, transportation and logistics will be provided to subcontractor's field supervisor and truck drivers in a field briefing prior to start of work.

#### 2.4 ORR LANDFILL INFORMATION

- A. Disposal at the ORR Landfill (formerly known as the Y-12 Landfill) will be free of charge to the Seller between the hours of 7:30 a.m. and 4:15 p.m. Monday through Thursday, for non-hazardous, non-radiological demolition waste and construction debris generated at ORNL facilities.

- B. Provide verbal notification and coordination/concurrence with the ORR Landfill Operations Manager at 865-574-6905 at least one working day prior to the delivery of a newly approved special waste or a special waste that is not routinely delivered to the ORR Landfill.
- C. Provide verbal notification and coordination/concurrence with the ORR Landfill Operations Manager at 865-574-6905 at least one working day prior to the delivery of friable asbestos waste, non-friable asbestos waste or respiratory hazard waste.
- D. Friable asbestos waste is only accepted for disposal at the ORR Landfill on Tuesdays.
- E. Respiratory protection is required when personnel are within 100 ft. of disposal activities of a sbestos, beryllium, and respiratory hazard wastes ( including fiberglass and loose fibers).
- F. This includes activities such as opening and closing the doors on asbestos roll-offs before and after dumping, and all manual handling of potentially respirable waste materials.
- G. Personnel stationed within a closed-cab vehicle with all doors, windows, and openings closed are not required to wear respirators. Respirators must be present in the cab and available for use by trained personnel should the need arise to exit the vehicle.
- H. All personnel on the ground of any active ORR landfill must wear: High visibility apparel (i.e. highly reflective vests); Safety glasses; Safety shoes; and hat hats. Also, cell phone use is prohibited on the ORR Landfill property.
- I. Bulky items, i.e. pipe, concrete foundations, large storage tanks, structural steel, etc., must be less than 8 feet in length in order to permit safe handling with ORR landfill equipment.
- J. UCN-2109 forms approved by the ORR Landfill Operations Office are the primary "ticket" to gain access to the ORR Landfill. The Company will complete the required UCN-2109 forms for each waste stream intended for ORR Landfill disposal, and initiate the review cycle required by the ORR Landfill Acceptance Manager.
- K. The approved UCN-2109 forms will be available at ORNL Building 7013 ( The Inspection Site), and each load of waste intended for ORR Landfill disposal must stop at Building 7013 for inspection, monitoring, and collection of forms before leaving ORNL.
- L. Building 7013 inspection site is open Monday – Thursday between the hours of 7:30 a.m. and 3:30 (closed for lunch from 11:00 to 12:00).
- M. Each load of waste delivered to the ORR Landfill must be accompanied by a RADCON Green Tag. The Seller field supervision will be responsible for writing the correct 2109 number on each Green Tag prior to the load leaving the project site. Copies of the approved 2109's will be provided to the Seller at the field briefing prior to the start of work.
- N. All waste material must pass through the Vehicle Portal Monitor ( 7013) and will be subject to random inspection and RADCON survey.

- O. Any waste delivered to the ORR Landfill that does not meet the Waste Acceptance Criteria, is not packaged properly, is not labeled properly, or where required notification has not been given, is subject to rejection by the ORR Landfill operator. If the delivery is rejected, the Seller shall immediately notify the Company and remain at the ORR Landfill for further instructions.

**END OF SECTION**



**Keywords:** Concrete, Soil, Rock, Gravel, Brick

**PROFILE NAME:** Spoil Materials

**Profile No.:** S-050

**Rev. No.:** 2, 12/10/04

**Effective Date:** 02/05/05

The waste generator shall manage and dispose of waste intended for disposal in the ORR Landfills, in accordance with the requirements presented in this profile and following documents:

- Generator Requirements for Transferring Waste, BJC-WM-2001
- Oak Ridge Reservation Waste Certification Program Plan, BJC/OR-57
- Technical Specification for Waste Management; SPD-000000-0006, Attachment C

Proper characterization of waste is the responsibility of the generator. Signature of the UCN-2109 form is certification by the Waste Generator that sufficient controls are in place to mitigate the potential for non-conformances against this profile. This certification includes future generated waste where a blanket UCN-2109 is utilized.

#### **A. Material Description**

NOTE: The intention of this waste profile is to identify certain earthen clean/non-contaminated materials that do not have to be deposited in a landfill. Placing this type material in a "spoil area" will save valuable landfill space.

Acceptable Spoil Materials are listed below:

- Gravel
- Soil
- Rock
- Concrete
- Brick
- Cinder/concrete blocks
- Clay products (tile, pipe, etc.)
- Asphalt pavement

#### **B. Chemical Constituent Limitations:**

Spoil materials shall be clean, non-contaminated materials. If any chemical contamination is suspected see the other profiles.

#### **C. Radiological Constituent Limitations:**

Spoil materials shall be clean, non-contaminated materials. If any radioactive contamination is suspected see the other profiles.

#### **D. Physical Parameter Limitations:**

- 1) No free liquids<sup>1</sup>
- 2) Spoil materials should be sized to permit safe handling with landfill equipment. For guidance consult with the Landfill Operations Manager.

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<sup>1</sup> Any **spoil** material that is determined to contain "free liquids" as defined by Method 9095 (Paint and Filter Liquids Test), as described in "Test Methods for Evaluating Solids Wastes, Physical/Chemical Methods" (Environmental Protection Agency [EPA] pub. No. SW-846).

### **E. Characterization Parameters and Methodology:**

Process knowledge and/or sampling and analysis may be used for categorizing and characterizing spoil material. Knowledge of the areas and buildings from which the spoil material was generated, historical use of the materials and where the material was located and stored may be used for process knowledge.

Sampling and analysis must identify and quantify the contaminants that may be present in the spoil material. Analyses may be conducted for TCLP constituents, ignitability, corrosivity, reactivity, PCB's, radiological contaminants, and free liquids. If there are other suspected contaminants in the spoil material, the generator must analyze for these as well. Sampling and analysis of spoil materials shall conform to the requirements of EPA document SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods". Sampling, analysis and subsequent data review should appropriately characterize/represent the spoil materials.

In reference to volumetric contamination, total uranium and other radionuclides must be reported in picocuries per gram of material. Radioactivity must not be greater than background. Verification that radioactive isotopes are not greater than background must be performed by process knowledge, analysis of representative samples, or scan at a TDEC-reviewed NDA facility.

In regard to the disposal of waste in the on-site spoil area, use of TDEC reviewed NDA facilities for surveying spoil material is only intended for providing verification that spoil material believed to be non-contaminated is suitable for disposal in the on-site spoil area. Materials that are known to be low level radioactive waste or radioactive material through process knowledge, radiological survey, or analytical data must not be sent directly or indirectly (i.e. through a TDEC reviewed NDA facility) to the spoil area for disposal.

### **F. Prohibited Items**

All waste material that is not in complete agreement with the intent of this profile.

All materials delivered to the spoil area, including NDA surveyed materials, will be subject to random inspection and RADCON survey.

The generator will be responsible for the cost of retrieval, management, and proper disposition of all prohibited materials delivered to the spoil area.

### **G. Requirements Packaging**

Packaging and labeling should comply with the applicable Department of Transportation (49CFR) requirements. Every delivery to the Landfill must be accompanied by a UCN-2109 which has been reviewed and approved by the Landfill Operations Project Waste Acceptance Manager or their designee. . If Generators have questions regarding delivery of materials, contact the Landfill Waste Acceptance Manager or Landfill Project Manager.

### **H. Additional Requirements**

Acceptance of waste is subject to approval of landfill operator. If waste is rejected, the reason for rejection will be furnished to the waste generator.

Notification is required at least one working day prior to delivery of a new spoil material stream with a new UCN-2109 form. Notification must include a draft of the UCN-2109 form and associated

documentation and address projected materials, volume, and delivery schedules prior to shipping to the landfills.

UCN-2109 forms:

- Information on UCN-2109 forms and Process Knowledge Documentation Form BJCF-398 (or equivalent) must represent the waste and must be current, complete, and correct.
- UCN-2109 forms and blanket UCN-2109 forms that were originated under a specific contractor or subcontractor that undergoes a contractor/subcontractor change are not valid for the new contractor/subcontractor. The new subcontractor shall prepare and submit new UCN-2109 forms for disposal of waste/spoil material (unless otherwise approved by DFS).
- Each UCN-2109 form for each waste intended for spoil area disposal shall have a RADCON “green tag”, or Process Knowledge Documentation Form BJCF-398 (or equivalent), or analytical data to clearly show the waste/spoil material is not a radiological waste.
- If a RADCON “green tag” is used to support the disposition of waste/spoil material, the green tag number shall be inserted in Block I16 of the UCN-2109 form when the green tag number becomes available.

**I. Required Documentation (as applies)**

- Completed and signed form UCN-2109, “Waste Item Description”.
- Completed form BJCF-398 (or equivalent), “Process Knowledge Documentation” or supporting analytical data.
- Radiological green tags.
- Sample analysis and/or NDA documentation, if used by the waste generator in determining the waste disposition.

## ATTACHMENT 2

### Landfill Prohibited Items

#### **Prohibited Items (DO NOT SEND TO ORR LANDFILL)**

- Commercial products manufactured with radioactive materials, i.e., smoke detectors, thoriated welding rods, etc.
- Containerized liquids
- Electronic equipment with capacitors, mercury switches, ballasts, etc.
- Fluid filled mechanical equipment (heating, ventilation, and a/c systems, refrigerators, pumps, motors, appliances, etc.)
- Landscaping or land clearing wastes (straw bales, trees, brush, etc.)
- Liquid wastes or wastes containing free liquids
- Metal that can be recycled
- PCB wastes, except those PCB wastes allowable under 40 CFR 761 and approved by TDEC as special waste
- Petroleum product contaminated soil
- Pressurized gas cylinders
- Radioactive wastes (wastes known or expected to exceed radiological surface release criteria)
- RCRA Hazardous Wastes
- Refrigeration equipment not complying with 40 CFR 82.156
- Unapproved special wastes (**listed below**)
- Universal waste (bulbs, batteries, thermostats)
- Tires
- Wastes not generated by DOE activities in the Oak Ridge area

#### **Construction/Demolition Debris Prohibited Items**

- Bulk quantities of clean fill (gravel, soil, rock, concrete, cinder/concrete blocks, clay pipe/tile, asphalt pavement)
- General garbage (food waste, packing material)
- Loose trash or office waste
- Metals from Radiological Materials Management Areas (RMMAs)

#### **Special Wastes (These Waste Are Subject to Review Prior to Disposal)**

- Aerosol cans
- Asbestos debris (friable and non-friable)
- Beryllium Oxide
- Bulk quantities of non-PCB light ballasts
- C/D Debris with PCB Conc. in paint less than 50 ppm
- Dead animals
- Empty hazardous materials containers and drums
- Fiberglass with loose fibers
- Filters from industrial or treatment processes
- Industrial process waste
- Mercury contaminated soils and materials

**ATTACHMENT 2 (Continued)****Landfill Prohibited Items**

- Metal turnings, shavings, and dust from industrial processes and machining operations
- PCB bulk product waste (PCB concentration greater than 50 ppm)
- PCB items (ballasts, capacitors, or items with detectable PCBs)
- Paint chips (when not firmly adhered to surfaces)
- Paint wastes (buckets, cans, brushes, rollers, etc.)
- Potential respiratory hazards (refractory ceramic fibers, mineral wools, etc.)
- Sand/grit blast waste
- Soils and materials contaminated with industrial chemicals
- Solid laboratory chemicals
- Treatment media from industrial or treatment processes
- Wastes that are bulky or difficult to manage (greater than 8' long)