Health and Safety
ACCIDENT PREVENTION PLAN

Emory River Dredging, Tennessee Valley Authority
Kingston Fossil Plant

Prepared for:

Tennessee Valley Authority

Prepared By:

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Accident Prevention Plan Disclaimer

This Health and Safety Accident Prevention Plan (APP) has been designed for the methods presently contemplated by Tennessee Valley Authority (TVA) for execution of proposed work. Therefore, the APP may not be appropriate if the work is not performed by or using the methods presently contemplated by TVA. In addition, as the work is performed, conditions different from those anticipated may be encountered and the APP may have to be modified. Therefore, TVA only makes representations or warranties as to the adequacy of the APP for currently anticipated activities and conditions.

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Acronyms and Abbreviations

AHA	Activity Hazard Analysis
APP	Accident Prevention Plan
ASA	Activity Safety Analysis
CPR	cardiopulmonary resuscitation
EM	Engineering Manual
EMS	emergency medical services
MSDS	Material Safety Data Sheet
OSHA	Occupational Safety and Health Administration
OSM/S	On-Site Manager/Superintendent
PM	Project Manager
PPE	personal protective equipment
PHSM	Program Health and Safety Manager
SHSM	Program Health and Safety Manager
SSHO	Site Safety and Health Officer
TOSHA	Tennessee Occupational Safety and Health Administration
TVA	Tennessee Valley Authority
USCG	United States Coast Guard

1.0 Signature Sheet

Prepared by: _____ Date: January 29, 2009
For TVA representative

Approved by: _____ Date: January 29, 2009
For TVA representative

2.0 Background Information

This Health and Safety Accident Prevention Plan (APP) describes the guidelines developed to protect TVA contract personnel involved in dredging activities that will be performed at Tennessee Valley Authority (TVA) Kingston plant ash release site in the Emory River, located in Roane County, Tennessee. This APP is intended to encompass the general scope of authority, responsibilities for accident and incident prevention and provide basic guidelines for TVA contractor personnel involved with the dredging operations to implement, enforce, and monitor safe work practices and procedures.

This APP is prepared in accordance with OSHA 29 CFR 1926 and the TVA safety program policies and procedures. The safety and health measures presented are in effect for the duration of the project. This document is intended for use as a general safety plan for TVA personnel and contractors. All project personnel are required to abide by these measures. Where not specifically mentioned, all project personnel are required to comply with the applicable United States Coast Guard marine regulations, Tennessee Department of Natural Resources requirements, OSHA regulations, and TVA safety program. The procedures and guidelines contained herein are based upon the best available information at the time of the plan's preparation. Any revisions to this plan will be made with the knowledge and concurrence of TVA. This APP, used in conjunction with the Activity Hazard Analyses (Attachment 4, "Activity Hazard Analyses") will also serve as guidance for the Emory River dredging project's:

- Accident Prevention Plan
- Emergency Response Plan
- Emergency Action Plan
- Fire Prevention Plan

2.1 Scope of Work

Because this project will be completed in phases, this APP addresses the following initial field activities:

- Dredging (Hydraulic and Mechanical)

Activity Hazard Analyses for the above field tasks are included in Attachment 4 of this plan.

An addendum will be prepared for each subsequent activity that is necessary to complete the project. The APP Addenda will be specific to the work to be accomplished and will provide the following:

- Scope of work
- Potential chemical hazards, if any, specific to the scope of work

- Activity Hazard Analyses (AHA), which identify the specific hazards associated with the scope of work and the measures required to control those hazards
- Personal protective equipment (PPE) requirements for the specific activities

Prior to initiation of subsequent phases of field work, this plan will be amended utilizing the form in Attachment 5: Site-Specific Accident Prevention Plan Amendment Form.

3.0 Statement of Safety and Health Policy

TVA is firmly committed to operating all of our facilities and projects in a safe, efficient manner and in compliance with all applicable environmental health and safety (EHS) laws, rules and regulations to which we subscribe. Through the adoption of these sustainable practices we are committed to securing a high quality of life for current and future generations, restoring and sustaining a healthy environment and increasing value for our customers, shareholders, and business partners.

We expect all of our employees, clients and partners to uphold the highest EHS standards, to promote a positive and proactive safety attitude and to exhibit a heightened awareness of their surroundings both on and off the job. We must identify risks and hazards and implement appropriate controls in order to provide an injury-free work environment where people, equipment, and the environment are not placed at unreasonable threat of injury or damage. We will continually strive to be good citizens in our own community, as well as in every community in which we operate.

The TVA Safety Program and the components of our safety systems have been developed to guide us in our daily activities. We also commit ourselves to continual improvement in environmental health & safety management. Further, we ask that you include our environmental health & safety process in all aspects of your work, assist in the maintenance of our process, and communicate this policy to all persons working for or on behalf of TVA with the intent that they are made aware of their individual EHS obligations.

Through compliance with our safety programs, we will all actively participate in this process and advocate this philosophy. Together, we can accomplish our goals and exceed the minimum requirements provided by applicable laws and regulations, thus resulting in all stakeholders being proud to be a part of a team that truly values the importance of health, safety, and respect for the environment. Accordingly, we will maintain the position as a recognized leader in all of our business endeavors through a stewardship based approach for our fellow employees, the environment and the communities in which we live and work.

We are committed to the spirit and intent of our safety programs and the laws, rules and regulations to which we subscribe at its foundation.

4.0 Responsibilities and Lines of Authorities

The Project Manager (PM), Deputy PM, On-site Manager/Superintendent (OSM/S), Site Safety and Health Officer (SSHO), and Program Health and Safety Manager (PHSM) are responsible for formulating and enforcing health and safety requirements and implementing this Accident Prevention Plan (APP). A SSHO will be present on site during all operations and will possess proof of current, within 3 years, 10-hour OSHA Construction Safety training or higher OSHA outreach training institute course completion. The OSM/S may be assigned SSHO responsibilities during this scope of work.

The PM has the overall responsibility for this project and will assure that the requirements of the contract are performed in a manner consistent with this APP and other contract-specific requirements. The PM will coordinate with the OSM/S, PHSM, and SSHO to assure that the work is completed in a manner consistent with the APP. The OSM/S is responsible for field implementation of the APP.

Table 4-1 presents the individuals that share responsibility for health and safety at the site:

Table 4-1
TVA and Contractor Individuals Responsible for Site Health and Safety

Position	Individual
TVA Incident Response Commander	Tim Hope 865-206-6776 (mobile)
TVA Deputy Incident Response Commander	Mike Scott 423-240-5025
TVA Task Manager	Jamie Dotson 423-718-6421 (direct) 423-718-8808 (mobile)
TVA Kingston Fossil Plant Safety Representative	Mike Gahgan 865-717-2023 (direct) 865-755-4058 (mobile)
TVA Unit 5 Operator	865-717-2575 (in-house dial x2575)
TVA Shift Operations Supervisor	865-717-2119 (in-house dial x2119 or 2120)
TVA Police	865-632-3631 (TVA Police are not EMTs)
Plant Nurse *Mon.-Thurs. from 06:00-16:00*	865-717-2089 (in-house dial x2589)
Advatech Paramedic *Seven days a week; 24-hours a day*	865-717-1510 (in house dial x1510)
Fire/Rescue/Ambulance	911

Position	Individual
Kingston Fire Department	865-376-2936
Rockwood Fire Department	865-354-3121
Harriman Fire Department	865-882-3734
Roane County Rescue Squad	865-882-0297
Roane County Ambulance	865-882-0297
TransAsh	Joe Kaldmo 513-733-4770 (direct) 513-604-3694 (mobile)

5.0 Subcontractors and Suppliers

5.1 Subcontractor/Supplier Coordination and Control

TVA will perform oversight and engineering support for activities specified in contractor contract documents. This may include technical direction to TVA contractors working under TVA direct supervision. The PHSM will screen all TVA contractors for safety performance. A list of TVA Safety Program Procedures are presented in Attachment 1, Copies (electronic or paper) of all Safety Program Procedures will be present or readily available at the project site at all times.

The TVA PM and OSM/S will be responsible for the safety performance of their contractors under TVA technical direction. TVA's PHSM will review for acceptance any subcontractor safety plans, submittals, procedures, and programs.

5.2 Subcontractor/Supplier Safety Responsibilities

Both TVA and contractors share the responsibility for the safety and health of their employees. Subcontractors are also responsible for complying with the standards established in this APP, the guidelines established in TVA Procedure 101 TVA-SSP-18.0, "TVA Safety Program" (Current Revision), and all other TVA safety requirements. The following are some of the requirements that apply to subcontractors:

- All contractors under the direction of TVA will report to the OSM/S and PM.
- An assigned safety representative for each contractor shall be present on any day that work is being performed. The name of the assigned safety representative shall be conveyed to the PHSM.
- Contractors shall submit all applicable training documents to TVA prior to mobilization.
- Planned operations for the day shall be verbally conveyed to the OSM/S at the beginning of each day.
- All contractor employees working on-site shall sign the KIF Ash Recovery Operation Employee Log or equivalent at the beginning and end of each workday.
- All contractor personnel working under TVA's direct supervision shall attend a project safety orientation prior to beginning work on-site.
- All contractor personnel working under TVA's direct supervision shall hold a daily or shift pre-job briefing and prepare Job Safety Analyses. If scheduling precludes attendance, then contractors shall hold and document their own safety meeting. Safety meeting documentation shall be submitted to the OSM/S upon request.

- All accidents, fires, injuries, illnesses, and spills shall be immediately reported to the OSM/S.
- Heavy equipment is to be inspected prior to use at the project site by a competent mechanic. Heavy equipment shall be inspected daily by the equipment operator using applicable Heavy Equipment Safety Inspection Checklist forms. Inspection documentation is to be submitted to the OSM/S upon request.
- Vehicles, such as trucks, vans, and automobiles are to be inspected once per week by the individual driving applicable Vehicle Inspection forms. Inspection documentation is to be turned into the OSM/S upon request.
- Contractors are required to frequently inspect work sites for safety deficiencies and correct all deficiencies. Documentation of these inspections, as well as the corrective actions implemented, is to be submitted to the PHSM every Monday morning. The Project Safety Inspection Report, Daily Safety Inspection Report, or equivalent shall be used.

All subcontractors, visitors, and other on-site personnel shall check in with the OSM/S in order to verify that all appropriate entry requirements are met. All visitors will be briefed by the PHSM, OSM/S or other competent designee, on the hazards to be expected on the site and the safety and health controls required (such as, hard hat, foot protection, etc.). The OSM/S will verify that all visitors entering TVA work-areas are properly protected and are wearing the appropriate PPE. A stock of common PPE (such as hard hats, eye protection, ear plugs, reflective vests, personal floatation devices, etc.) shall be maintained at the work-area for use by visitors. The PHSM, OSM/S, or other competent designee will provide an escort for all visitors while on site. Each visitor must enter his or her name, arrival time at the site, and departure time from the work-area on the sign-in log (Site Entry Log).

6.0 Training

This section describes general training, safety meetings, site-specific training, hazard communication, first aid and CPR, and other additional training, certification, and licenses needed to work on the site.

6.1 General Training

The PHSM, OSM/S or other competent designee is responsible for informing all site personnel and all visitors of the contents of this APP and ensuring that each person signs the APP and Training Acknowledgment Forms prior to working on the site. Documentation of certification of training requirements will be reviewed by the PHSM or SHM/S and filed on-site as required.

6.1.1 Visitor Training

Site access by personnel making deliveries or performing repairs to utilities, public or government officials, visitors, or local residents will be limited to support areas only. These persons will not be required to comply with training requirements as previously defined. Weather conditions or other site activities may restrict access to these areas. Authorization for limited site access will be determined on a case-by-case basis by the PHSM in consultation with the OSM/S, PM, and the TVA representative.

6.2 Safety Meetings

Employees shall be provided continuing safety and health training as appropriate to enable them to perform their work in a safe manner.

6.2.1 Morning Safety Meetings

The OSM/S and/or PHSM (or competent designee) shall conduct a pre-job safety meeting at the beginning of each shift. The topics discussed at this daily “tailgate” safety meeting shall include safety and health considerations for the day’s activities, pertinent aspects of AHAs, necessary PPE, problems encountered, and new operations. The Job Safety Analysis (JSA) will be prepared as a component of the morning safety meeting. Attendance records and meeting notes shall be documented on the Safety Meeting Log and be maintained with the project files and submitted to the PHSM and TVA if requested. At the conclusion of each shift, a debriefing for site employees will be held, if necessary.

6.2.2 Supervisor Safety Meetings

A supervisor safety meeting shall be held each month. This meeting will be held by the PM, Deputy PM, OSM/S, PHSM, or other appropriate person. The topics to be covered are as follows:

- Past activities
- Plans for new or changed operations
- Review of pertinent aspects of appropriate AHAs
- Establishment of safe working procedures for anticipated hazards
- Pertinent safety and health training and motivation
- Worker input and contributions.

Additionally, a safety meeting for the OSM/S and foremen shall be held each week, when project staffing permits.

6.3 Site-Specific Training

Both TVA and contractor personnel are required to attend a safety orientation meeting prior to working on site. The safety orientation training will be documented on the "Accident Prevention Plan Acknowledgement" (Attachment 2). The indoctrination training will include the following topics

- Purpose of the APP and review of pertinent sections including emergency response procedures as outlined in the Emergency Response Plan and Contingency Procedures (Section 12.2)
- Review of applicable AHAs
- Requirements for Job Safety Analyses
- Names of personnel responsible for site safety
- The provisions for medical care and facilities and the names of CPR and first aid trained personnel assigned to the project
- Morning safety and preparatory meeting procedures
- Safety and health hazards in the work-area and the means to control/eliminate those hazards
- Responsibilities for accident prevention and maintaining safe and healthful work environments
- Procedures for reporting and correcting unsafe conditions or practices

- Responsibilities for reporting all accidents and illnesses
- PPE use and care, including requirements of USCG approved Personal Floatation Devices (PFD)
- Location of safety equipment (such as, fire extinguishers, first aid kits, eyewash stations, etc.)
- Standard operating procedures, safety rules, and safe work practices for the project
- Work zones and site control measures
- Hazard Communication Program
- Confined space entry procedures (when applicable)
- Marine activities
- Hot work procedures (when applicable)
- Lockout/tagout procedures
- Fall protection
- Fire prevention
- Housekeeping

The content of the training will be derived from information contained within this APP.

6.4 Hazard Communication

All personnel performing field activities will receive basic hazard communication training, which involves a review of the TVA written hazard communication program, MSDSs, container labeling, and chemical health hazards. Personnel shall be trained on the hazards of chemicals on-site by reviewing the MSDSs. Material Safety Data Sheets for additional materials brought on-site will be reviewed with personnel prior to the use. Subcontractors shall provide MSDS to the PHSM in advance of storing or using hazardous chemicals onsite.

6.5 First Aid and Cardiopulmonary Resuscitation

There shall be at least one person trained and certified in both American Red Cross first aid techniques and CPR on-site whenever there are two or more employees working at the project. These employees shall have current training in universal precautions and blood borne pathogens.

6.6 Mandatory Training and Certifications

In addition to the training, certification, and licensing previously detailed, the following shall also be required:

- The OSM/S and or SSHO will have completed the 10-Hour OSHA Construction Safety class within the last 3 years. Certifications of training will be provided to TVA as individuals are identified, prior to mobilization for specific tasks.
- All personnel operating motor vehicles shall hold a valid operator's license from the state in which they reside. License renewal is subject to individual state laws.
- All crane and derrick operators shall have a certificate designating them as a qualified operator for the type and capacity of crane or derrick they are operating. Qualification is to be renewed every three years. Proof of qualifications shall be submitted to TVA prior to conducting operations.
- All commercial divers shall have a certificate designating them as a qualified commercial diver as per the assigned task as specified in 29 CFR 1910.410. Proof of qualifications shall be submitted to TVA prior to conducting operations.
- All Barge and Boat operators shall have a certificate designating them as a qualified operator for the tonnage they are operating. Qualification is to be renewed every five (5) years. Proof of qualifications shall be submitted to TVA prior to conducting operations.
- Any employee operating a powder-actuated tool shall be qualified as an operator of that tool as specified by the manufacturer. Recertification, if any, shall be obtained as specified by the manufacturer.
- Confined space entry, attendant, and supervisory personnel shall be trained as previously specified. Confined space rescue personnel shall be trained and certified as specified in 29 CFR 1910.146 and shall practice rescues (from similar types of confined spaces) on an annual basis. Proof of qualifications shall be submitted to TVA prior to conducting operations.
- The certification and recertification requirements for first aid and CPR are applicable. First aid and CPR training/certification must be made by a reputable provider, such as the American Red Cross or American Heart Association. Proof of qualifications shall be maintained on site.
- Personnel working from ladders shall be initially trained as specified in TVA Procedure 437 Ladder Safety Course Standard (Current Revision) or equivalent contractor procedure.
- Personnel inspecting cranes shall have a certificate designating them as a competent person.
- Personnel operating arc-welding equipment shall have a certificate designating them as a qualified operator.

- Personnel operating gas welding and cutting equipment shall have a certificate designating them as a qualified operator.
- Personnel may only use portable fire extinguishers to extinguish small fires, if the employee has been trained and the employee is confident that the small fire can be safely extinguished.

6.7 Emergency Response Training

Both TVA and contractor personnel are required to be trained on pertinent sections of the emergency response procedures as outlined in the Emergency Response Plan and Contingency Procedures, Section 12.2 of this plan. Additionally contractors shall be familiar with TVA Environmental Emergency Notification FPG.SPP.05.016.

7.0 Safety and Health Inspections

7.1 Safety Inspections

TVA's OSM/S and PHSM will conduct periodic inspections of the project site in accordance with 114 TVA-SPP-18.013 "Conduct Safety Program Assessments." Additionally, TVA senior management will conduct periodic assessments of safety processes in use at the site. The OSM/S will conduct daily safety inspections of work processes, site conditions, and equipment conditions. Input from TVA and contractor line employees will also be sought through a Safety Observer program. The OSM/S will discuss any necessary corrective actions with the PHSM. The PHSM will document all safety deficiencies and corrective actions in a Safety Improvement Log which will be posted at the project safety and health bulletin board. The log will include the following:

- Date deficiency is identified
- Description of deficiency
- Name of person responsible for correcting deficiency
- Projected resolution date
- Date corrective action taken
- Verification that corrective action has been taken
- Validation that the corrective action is effective in preventing recurrences

7.2 Mechanical Equipment Inspections

Before any machinery or mechanized equipment is placed in use, it shall be inspected and tested in accordance with the manufacturer's recommendations and shall be certified in writing by a competent person to meet the manufacturer's recommendations and requirements of the manual. Subsequent re-inspections will be conducted at least annually thereafter. All safety deficiencies noted during the inspection shall be corrected prior to the equipment being placed in service at the project. If at anytime the machinery or mechanized equipment is removed and subsequently returned to the project (other than equipment removed for routine off-site operations as part of the project), it shall be re-inspected and re-certified prior to use. All heavy equipment shall be inspected by each operator prior to use on the project and shall then be inspected on a daily basis. Daily inspections shall be documented on the applicable Daily Equipment Inspection form. Deficiencies in the equipment shall be noted on the form. All inspection documentation shall be

submitted to the OSM/S prior to using the equipment if safety deficiencies are observed and at the end of the day if no safety deficiencies are observed.

The OSM/S shall immediately evaluate the inspection forms and determine if the equipment is in need of immediate repairs and if it should be “red tagged” and taken out of service. If the equipment is taken out of service, then the equipment shall not be used until the OSM/S and PHSM is satisfied that the necessary repairs have been made. For minor deficiencies that do not compromise the safe operation of the equipment, repairs shall be made at the discretion of the equipment owner. All inspection records are to be kept on file in the contractors field office.

8.0 Safety and Health Expectations, Incentive Programs, and Compliance

8.1 Company Safety Program Goals

At TVA, safety is a core value. TVA, as well as all project personnel, will establish a goal of zero accidents for the project. Planning for all project work will be done in order to identify and evaluate the site hazards, implement the appropriate controls, and help realize the goal of zero accidents. All activities are to be conducted in a manner that minimizes the probability of incidents, accidents, injuries, or illnesses.

TVA will use safety observation programs to identify and correct unsafe acts and conditions. Employees engaged in work activities are often the most knowledgeable about the hazards of their work and can provide valuable feedback on unsafe conditions and unsafe practices that require corrective action.

The Safety Observation Program is a tool for employees to provide information on actual or potential safety hazards that they observe in their workplace, which if left unreported might result in an accident or injury to a TVA employee, subcontractor, client or public and to provide recommendations to correct the hazards.

Each employee is responsible for personal safety as well as the safety of others in the area and is expected to participate fully in the ***Safety Improvement Process***. The employee will use all equipment provided in a safe and responsible manner as directed by the OSM/S. All TVA personnel will follow the policies set forth in TVA *General Safety Rules and Employee Conduct*. Site personnel concerned with any aspect of health and safety shall bring it to the attention of the OSM/S. If not satisfied, they should contact the PHSM or SSHO. All project personnel have the authority to stop work if in their judgment serious injury could result from continued activity. The OSM/S and the PHSM shall be notified immediately if this becomes necessary. To protect the health and safety of all personnel, employees that knowingly disregard safety policies/procedures may be subject to disciplinary actions up to and including termination.

8.2 TVA Safety Incentive Programs:

Contractors in conjunction with the TVA OSM/S and PHSM should develop a site-specific incentive program based on TVA's "Recognise and Reward Safety Performance Program." Project personnel are eligible for monthly safety awards contingent upon successful achievement of pre-determined goals and no Occupational Safety and Health Administration (OSHA) recordable accidents during the project. The safety incentive award program is designed to recognize and reward exemplary team safety performance.

Other health and safety related goals, such as timely completion of Safety Inspection Reports, safety meeting participation, etc., may be established at the discretion of the project/location manager, based on challenges faced by the site work force.

8.3 TVA Employee Safety Responsibility Requirements

A successful safety program is achieved by the following:

- Assigning qualified personnel
- Providing the necessary training and orientation
- Adequately planning for the work and following the plans
- Adhering to the policies and procedures
- Reinforcing positive behavior
- Rewarding safe performance

A mechanism is also necessary to apply disciplinary action consistently to employees who jeopardize the safety of themselves and their coworkers by not following the established plans, policies, and procedures.

8.4 Managers and Supervisors Safety Accountability

It is the duty of the first-line supervisor to motivate employees to adhere to TVA safety policy in each work situation. For this purpose, a first-line supervisor is defined as the person designated to give immediate on-site supervision to personnel involved in a task.

All supervisors shall have complete knowledge of the safety procedures for all jobs and tasks under their supervision or when in doubt, shall seek assistance prior to initiating a task. This is the only acceptable manner in which to perform the task. If the task cannot be accomplished safely, it will not be attempted.

Supervisors will perform the following tasks:

- Explain the safety procedure involved with a task to each employee, and check frequently to see that the employee understands and works as instructed.
- Allocate sufficient time for the training and coaching of all employees to ensure that everyone knows the correct procedure for safely accomplishing required tasks.
- Prevent new employees from performing any tasks until required training is completed.
- Immediately correct unsafe conditions, which involve TVA's employees or subcontractors.

- Ensure that the employees are outfitted with and wear PPE as specified by this APP and other TVA procedures or as directed by the PHSM or SSHO.
- Set a good safety example.
- Obtain the cooperation of employees and subcontractors.
- Provide a safe work environment for employees and subcontractors.
- Confirm subcontractor safety performance records have been verified prior to contract award and monitor subcontractor performance during operations.
- Report all accidents, near misses, and property damage in accordance with TVA Procedure No. 113 "Report and Investigate Injuries and Illness"
- Establish a safety culture, using the elements of the TVA Safety Improvement process, which promotes awareness, encourages participation, and recognizes excellence.

8.5 Safety and Health Bulletin Board

A safety and health bulletin board shall be maintained in an area commonly accessed by workers at the project site. The bulletin board shall be maintained current, in clear view of on-site workers, and protected against the elements and unauthorized removal. The PHSM shall evaluate the content of the bulletin board, at a minimum, and update if necessary. It shall contain at least the following safety and health information:

- Map denoting the route to the nearest emergency care facility.
- Emergency telephone numbers.
- A copy of the most up-to-date APP shall be mounted on or adjacent to the bulletin board or state the location, which will be accessible on the site by all workers.
- A copy of current AHAs shall be mounted on or adjacent to the bulletin board or state the location, which will be accessible on the site by all workers.
- OSHA Form 300A shall be posted in accordance with OSHA requirements and mounted on or adjacent to the bulletin board or state the location, which will be accessible on the site by all workers.
- Copy of Safety and Occupational Health Deficiency Tracking Log shall be mounted on or adjacent to the bulletin board or state the location where it will be accessible by all workers upon request.
- Safety and health promotional posters.
- Date of last lost workday injury.

9.0 Accident Reporting

9.1 Exposure Data (Man-Hours Worked)

Contractors shall track occupational injury and illness exposure data on a monthly basis for submittal to TVA upon request.

9.2 Accident Investigations, Reports, and Logs

Project personnel are required to report all near misses, injuries, illnesses, and accidents to their immediate supervisor. The OSM/S or SSHO will immediately arrange appropriate medical care as required. Once immediate medical care for the injured personnel has been accomplished, the OSM/S will complete and submit the appropriate report form(s) within 24 hours. The appropriate form(s) to be completed will be provided by TVA.

All incidents will be immediately reported by the OSM/S to the PM and PHSM. Contractor PM will notify TVA and provide an initial report of the incident. Except for rescue and emergency measures, the accident scene will not be disturbed until it has been released by the investigating official.

On-site management personnel will immediately investigate all near misses, injuries, illnesses, and accidents. The OSM/S, PM, and PHSM will investigate the conditions which led to the accident. They will document how the accident occurred and identify unsafe acts or conditions that occurred or existed at the time of the accident. Corrective actions will be determined and implemented to prevent the recurrence of the accident, and responsibility for implementation of corrective actions will be assigned. The final report and required forms will be submitted to the PHSM within five days of the incident.

In the event that an accident results in an employee being sent to a doctor, a Return-to-Work Examination Form will be completed by the attending physician on the date of treatment and will state one of the following conditions:

- Employee may return to full duty work.
- Employee may return to limited duty (with type of limitations).
- Employee is unable to return to work.

A copy of this release will accompany the accident report. A log of OSHA-recordable injuries/illnesses will be maintained by contractors.

9.3 Immediate Notification of Major Incidents

The OSM/S or PM will report all lost time injuries and property damage accidents (excluding on-the-road accidents) in which the property damage exceeds $2,000 to the client within 24 hours of the accident/incident. An accident with the consequences of a fatal injury, three or more persons admitted to a hospital, a permanent totally disabling injury, a permanent partial disabling injury, lost time injury, or property damage greater than $100,000 will be reported immediately to TVA.

10.0 Medical Support

In the event of an incident or medical emergency, follow the notification chain below until you reach a contact to initiate emergency response:

1. Unit 5 Operator — 717-2575 (in-house dial x2575)
2. Shift Operations Supervisor — 717-2119/2120 (in house dial 2119 or 2120)
3. TVA Police — 632-3631 (TVA Police are not EMTs)

Reference Information

- Plant Nurse — 717-2089 (in-house dial x2589)
  Mon.-Thurs. from 06:00-16:00
- Advatech Paramedic — 717-1510 (in house dial x1510)
  Seven days a week; 24-hours a day
- Site Safety — 755-4058 (Nextel 148*34*4268)
- Fire/Rescue/Ambulance — 911
- Kingston Fire Department — 376-2936
- Rockwood — 354-3121
- Harriman — 882-3734
- Roane County Rescue Squad — 882-0297
- Roane County Ambulance — 882-0297

Key Contact Numbers

Tim Hope, Project Manager	423-326-9240
Mike Gahagan, TVA Safety Manager	865-755-4058

10.1 On-Site Medical Support

The following addresses first aid and medical facilities:

- Effective emergency communication devices must always be available while personnel are present at the site.
- Employees working alone in a remote location or away from other workers will be provided an effective means of emergency communications (*i.e.*, cellular phone, two-way radios, hard-line telephones, or other acceptable means). The selected communication must be readily available (easily within the immediate reach) of the employee and must be tested prior to the start of work to verify that it effectively operates in the area/environment. An employee check-in/check-out communication procedure will be developed to assure employee safety.
- Emergency telephone numbers will be posted at all contractor controlled telephones.

- A large first-aid kit shall be provided by each contractor and maintained at the project. The first-aid kit will be inspected weekly by the SSHO. A seal may be placed on first-aid kits to allow for less frequent inspections (*i.e.*, if the seal is not broken, then an inspection is not required). There will be a small first-aid kit available in all project vehicles. First-aid kits located in project vehicles do not need to be inspected if the factory plastic wrapping is intact.
- The nearest hospital and occupational clinic to the project is identified in Table 10-1. Maps to the hospital and occupational health clinic are located in Attachment 6. 'Maps to Hospital and Clinic', and will be posted at the project site.

At a minimum, two on-site employees will be certified in CPR and first aid during site activities. First-aid and CPR training/certification must be performed by a reputable provider, such as the American Red Cross or American Heart Association.

10.2 Off-Site Medical Support

In the case of a medical emergency, the emergency response team shall determine the nearest facility. Attachment 6 includes a map with the route to the hospital. Contractor employees who require non-emergency treatment for work-related injuries should be treated at the occupational clinic. At the time of project mobilization, the contractor SSHO shall confirm the closest routes to the nearest hospital and clinic. A list of emergency contacts and the hospital information is provided in Table 10-1, "Emergency Information."

Table 10-1
Emergency Information

Primary Facility for medical emergencies (*e.g.*, uncontrolled bleeding, trouble breathing)	
Directions	Location included in Attachment 6.
Occupational Clinic for non-emergency first-aid treatment	Park Med Health Services
Directions	Location included in Attachment 6.
Medical Treatment Beyond First Aid, Medical Emergency	Roane Medical Center
Directions	Location included in Attachment 6.
National Poison Control Information Center	(800) 222-1212
Center for Disease Control National Response Center	(404) 639-3311 (800) 424-8802

TVA Contacts	
TVA Incident Response Commander	Tim Hope 865-206-6776 (mobile)
TVA Deputy Incident Response Commander	Mike Scott 423-240-5025
TVA Task Manager	Jamie Dotson 423-718-6421 (direct) 423-718-8808 (mobile)
TVA Kingston Fossil Plant Safety Representative	Mike Gahgan 865-717-2023 (direct) 865-755-4058 (mobile)
TVA Unit 5 Operator	865-717-2575 (in-house dial x2575)
TVA Shift Operations Supervisor	865-717-2119 (in-house dial x2119 or 2120)
TVA Police	865-632-3631 (TVA Police are not EMTs)
Plant Nurse *Mon.-Thurs. from 06:00-16:00*	865-717-2089 (in-house dial x2589)
Advatech Paramedic *Seven days a week; 24-hours a day*	865-717-1510 (in house dial x1510)
Fire/Rescue/Ambulance	911
Kingston Fire Department	865-376-2936
Rockwood Fire Department	865-354-3121
Harriman Fire Department	865-882-3734
Roane County Rescue Squad	865-882-0297
Roane County Ambulance	865-882-0297

11.0 Personal Protective Equipment

11.1 Project Personal Protective Equipment

This section specifies the levels of personal protective equipment (PPE), which is required for each principal activity performed at this site. All site personnel must be trained in the use of all PPE utilized. The PPE procedures outlined in Section 3.0, Personal Protective Equipment of the TVA Safety Program will be applied to project activities where applicable.

Standard minimum PPE for all projects will be Level D protection. Minimum Level D PPE shall consist of the following:

- Hardhat
- Safety glasses
- Short- or long-sleeved shirt
- Long pants
- Steel-toed safety boots (6-inch minimum ankle height)
- Hearing protection as needed
- Class III High Visibility Work Vest
- Personnel and visitors shall wear **TYPE III, TYPE V**, or better U.S. Coast Guard (USCG) approved personal flotation device **(PFD)**. For projects conducting work outside of daylight hours, approved PFDs shall be equipped with a USCG-approved automatically activated light and retro reflective tape. **Inflatable PFDs are not permitted to be worn by workers on this site.** Vests shall be worn under the following circumstances:
  - On floating pipelines;
  - Working alone at night where there are drowning hazards, regardless of other safeguards provided;
  - When working adjacent (within 6 feet) of the shore line;
  - In skiffs, small boats, or launches, unless in an enclosed cabin or cockpit; or
  - Wherever there is a drowning hazard.
- Hard Hats shall be worn by all operators at all times while operating machinery.

A stock of common PPE required for this site will be provided for use by visitors where appropriate.

11.1.1 Anticipated Protection Levels

The following protection levels have been established for the site work activities.

Task	Initial PPE Level	Upgrade PPE Level	Skin Protection	Respiratory Protection	Other PPE
Dredge Operation	Level 'D'	Not Anticipated	Leather Gloves	Not Anticipated	Hard-hat, steel-toe work boots, hearing protection >85 dBA. PFD

Additional PPE may be specified in the AHAs generated for each project activity.

11.2 Hazard Assessment Procedures

Pre-planning is necessary to eliminate hazards by work-design and engineering controls. Hazards such as excessive noise, heat, ingress, egress, heavy equipment, environmental, etc. shall be given due consideration for safety and health and minimized or eliminated when feasible. The PHSM or OSM/S will assess the work hazards during daily and weekly safety inspections and in consultation with the PM, the PHSM or OSM/S will adjust PPE requirements.

There are numerous physical and environmental hazards potentially presented at each work-site. These hazards, if not properly controlled, can cause harm to project personnel, visitors, and the public. The anticipated hazards and the recommended control measures are presented in Section 12, 'Health Hazard Control Plan'.

11.3 Written Certifications for Personal Protective Equipment

During the site safety orientation training, the SHSM or OSM/S will address the PPE requirements, including:

- When PPE is required
- The proper PPE for the job tasks
- How to properly don, doff, adjust, and wear PPE
- The limitations of the PPE
- The care, inspection, testing, maintenance, useful life, and disposal of PPE

The OSM/S or SSHO will discuss PPE in the daily safety meeting. The PPE use and selection will be documented on the daily JSA Form and Checklist. The OSM/S, SSHO or PHSM will perform PPE re-training of project personnel, as necessary.

This section applies to visitors as well as all site employees. All visitors will be provided an escort who will assure visitors adhere to PPE requirements for the site.

12.0 Plans Required by the Safety Manual

12.1 Layout Plans

The OSM/S will establish a Layout Plan at the time of project mobilization.

12.2 Emergency Response Plan and Contingency Procedures

An emergency is defined as a sudden, generally unexpected occurrence demanding immediate action. Emergencies at the project site include accidents, injuries requiring medical care, fires, explosions, spills and extreme weather events. Upon mobilization to the project, the OSM/S shall provide a means for effective emergency communications (landline telephone, cellular phone, satellite phone, or two-way radio) prior to commencing site activities.

In the event that an emergency arises, the appropriate immediate response must be taken by the first person to recognize the situation. The field crew shall immediately notify the site management of the incident, and the appropriate emergency service organization shall be contacted. A list of emergency contacts is provided in Table 10-1. A copy of the emergency telephone numbers and directions to the nearest selected urgent care facility – emergency medical services (EMS) shall transport injured personnel to the hospital – shall be posted at the project site.

The TVA PM, PHSM shall be notified of any accident, injury, or illness.

In the case of injury or illness, a trained person will render the proper emergency first-aid care. First-aid equipment shall be available at the area of fieldwork. Personnel will be notified as to the locations of first-aid equipment during the initial safety briefing session.

Unless the emergency event is extreme and obvious, the decision to cease all field activities and evacuate the site shall be made by the TVA OSM/S and PHSM. Field personnel will report to the pre-designated area, if possible. Local authorities (i.e., police, fire department, and civil defense) will decide if the emergency requires evacuation of the surrounding community. Responsibility for community evacuations will be with the local authority in charge of the emergency.

12.2.1 Personnel Roles/Lines of Authority

The roles and responsibilities of contractor personnel for response to emergencies at the project site will be clearly defined and coordinated with TVA, contractors and emergency service personnel. The responsibilities of specific project individuals and the coordination of emergency service personnel are defined in the following subsections.

12.2.2 On-Site Manager/Superintendent

At all times during scheduled work activities, the contractor OSM/S, or designee, will be present on site. This individual will be responsible for implementing these procedures and determining appropriate response actions. Specific responsibilities for the OSM/S include the following:

- Evaluating and assessing emergency incidents or situations
- Assigning personnel and coordinating response activities on site
- Informing field personnel of the potential hazards associated with the site
- Summoning emergency response personnel
- Notifying the TVA PM and PHSM of an emergency situation
- Verifying that all emergency equipment is routinely inspected and functional
- Working with the PHSM regarding the correction of any work practices or conditions that may result in injury to personnel or exposure to hazardous substances
- Informing the appropriate emergency response agencies of the provisions made herein
- Evaluating the safety of site personnel in the event of an emergency and providing evacuation coordination if necessary

The contractor OSM/S will direct all emergency response activities conducted or managed by TVA and is ultimately responsible for field implementation and enforcement of the APP. If there is no OSM/S or designee on site, then the contractor PHSM shall assume the responsibilities of the OSM/S.

12.2.3 Project Health and Safety Manager

The contractor PHSM is responsible for assisting the OSM/S in implementing, communicating, and enforcing safety and health policies and procedures during the course of the project. The PHSM will also assist in evaluating safety and health concerns with respect to environmental releases and emergency response actions. The PSHM may delegate these responsibilities to a qualified SSHO.

12.2.4 Project Manager

The PM will provide support to emergency responders and dedicate appropriate project resources to the response effort. If required, the PM will mobilize additional personnel and equipment to the site. The PM will notify and provide the client with recommendations concerning any additional action(s) to be taken.

12.2.5 List of Emergency Contacts and Notification

The local fire department shall be contacted prior to initiating any new activities. They shall be frequently advised and notified about upcoming site activities and potential emergencies. This shall be done to ascertain response capabilities and to obtain a response commitment.

The PM, OSM/S, and PHSM will be notified immediately in the event of an emergency. The OSM/S will immediately evaluate the incident and, if necessary, notify emergency response personnel. If not previously notified, the client will be advised of the situation. Telephone numbers for emergency contact personnel are listed in Table 10-1. The list will be maintained with current contacts and telephone numbers, and shall be posted at all contractor controlled telephones.

The information provided to the emergency contact should include the nature of the incident and the exact location. Specifically, the information should include the following:

- Name and telephone number of the individual reporting the incident
- Location and type of incident
- Nature of the incident (*i.e.*, fire, explosion, spill, or release) and substances involved (if any)
- Number and nature of medical injuries
- Potential for additional risks or dangers
- Potential off-site risks or dangers
- Movement or direction of spill/vapor/smoke
- Response actions currently in progress
- Estimate of quantity of any released materials
- Status of incident
- Other pertinent information

12.2.6 Medical Emergency Response

Minor injuries will be treated on site by qualified first-aid/CPR providers or the TVA Plant Nurse and or Advatech Paramedics. Injuries and illnesses that do not require immediate medical care can be treated at the facility identified in Table 10-1. The EMS shall be summoned in the event of moderate to severe physical injury, which requires immediate emergency care. In all cases, it is recommended the contractor OSM/S or the PHSM shall accompany the injured

worker to the hospital. Figure 10-1 contains a map from the project site area to the hospital, which will be posted at the project site.

12.2.7 Personal Exposure or Injury

The following procedures will be implemented in the event of a personal injury (other than first aid only).

12.2.7.1 Serious Exposures or Injuries Requiring Transport by Ambulance

The contractor OSM/S will provide support to emergency responders and dedicate appropriate project resources to the response effort. If required, the PM will mobilize additional personnel and equipment to the project site.

Upon the realization that an individual(s) needs medical care with transport by ambulance, the following procedure will be used when applicable:

- Administer first aid and contact the OSM/S or SSHO to arrange for dispatch of the EMS.
- Notify the Program Health and Safety Manager.
- Move the person to a support area if there is no risk of further injury.
- Assign an individual to meet the EMS at the project site entrance to minimize time in locating the injured worker(s).
- Wait for emergency care, document the event, and maintain communication with the OSM/S or PHSM.
- The OSM/S or PHSM shall determine where the injured person is being transported and will then go to that medical facility.

In the event of a chemical exposure, the following procedures shall be followed after summoning the EMS:

- Skin Contact:
  - Flush with water
  - Remove clothing, flush skin
  - Obtain prompt medical attention, as necessary
- Inhalation:
  - Remove the person from the area
  - Administer first aid/CPR, as needed
  - Obtain immediate medical attention
- Ingestion:

  - Contact the Poison Control Center for immediate treatment, then obtain immediate medical attention
  - Inducing vomiting may cause further injury to the victim; follow instructions from the MSDS and/or Poison Control Center

- Eye Contact:
  - Flush eyes immediately with water for a minimum of 15 minutes
  - Obtain immediate medical attention

12.2.8 Fire Control

A 2-A:10-B:C fire extinguisher will be kept at each active work area, at a minimum. A 5-B:C fire extinguisher shall be mounted on all heavy equipment. In the event of a fire or explosion at the site, the following actions shall be implemented:

- Evacuate all personnel to a safe location upwind or crosswind of the incident. Contact the OSM/S or PHSM.
- Concurrently with the above, contact the local fire department as appropriate.
- If personnel who have had training in the use of fire extinguishers are present, use available fire extinguishers to extinguish small fires if the fire can be safely extinguished.
- Alert the local hospital about the possibility of fire victims, as appropriate.
- Document the incident in the field logbook and follow the procedures for incident reporting in Section 9.0, "Accident Reporting."

Fire Control Equipment Maintenance Responsibilities:

The contractor SSHO is responsible for the monthly inspections and annual service of all fire extinguishers provided at the site and remote site facilities. Vehicle and heavy equipment operators are responsible for the inspection and service of vehicle/equipment-equipped fire extinguishers.

12.2.9 Munitions and Explosives of Concern Discovery

Not anticipated to be of concern at this project.

12.2.10 Spill Prevention and Control

This spill prevention and control section sets forth the procedures for the coordination of and response to potential spills/discharges of materials or wastes.

12.2.10.1 Pre-emptive Measures

The following measures shall be taken to minimize the possibility of spills/discharges:

- Site controls are to be maintained so that only authorized personnel have access to work areas.
- Site personnel will be advised of appropriate spill/discharge control measures.
- Appropriate secondary containment structures will be used for storage of hazardous materials and wastes on site.
- Storage containment shall be examined daily.

12.2.10.2 Spill Response

If a hazardous material or waste release is observed at the site, the TVA PM will be immediately notified. An assessment will be made of the magnitude and potential impact of the release. TVA may exercise use of their Environmental Emergency Notification procedure provided as Attachment 8. If it is safe to do so, contractor site personnel will attempt to locate the source of the release, prevent further release, and contain the spilled and/or affected materials as follows:

- The spill or release area will be approached from upwind.
- Hazards will be identified based on available information from witnesses or material identification documents (*i.e.*, placards, MSDSs, and logbooks). The potential hazards will be evaluated to determine the proper personal protection levels, methods, and equipment necessary for response.
- If necessary, the release area will be evacuated, isolated, and secured.
- Work zones shall be set up.
- If possible, spill containment will initially be made without entering the immediate hazard area.
- Entry to the release area will be made by personnel with the PPE, training, methods, and equipment necessary to perform the work. Hazardous material and fuel spill containment and collection will be performed as follows:
  - Contain the spill with absorbent socks, booms, granules, or construction of temporary dikes.
  - Control the spill at the source by plugging leaks, up righting containers, over packing containers, or transferring contents of a leaking container.
  - Collect the spilled material with shovels, pumps, absorbent materials, booms and vacuum equipment as necessary.
- Store the spilled material for treatment or disposal. Treatment and/or disposal options of the material will depend on the amount and type of material.

If site personnel cannot safely respond to an environmental release, evacuation of the area may be warranted. The local fire department shall be notified in the event of a significant spill. Upon their arrival at the site, the OSM/S or SSHO will brief emergency responders of the status and any potential hazards.

12.2.11 Site Evacuation Procedures

In the event that site evacuation is required, a continuous, uninterrupted air horn blast shall be sounded. Air horns will be located near each active work area where there is potential for an evacuation to become necessary. Radio or cellular telephone communication may also be used to alert site workers and provide special instructions.

Personnel shall evacuate to a pre-designated safe, upwind location and perform a "head count." The contractor OSM/S and SSHO are to remain in frequent contact for proper execution of the evacuation procedures.

Situations requiring evacuation may include unusually severe weather conditions, fires, or significant chemical spills or releases. In the event of project evacuation, other than weather-related events, the local fire department will be notified immediately. A site emergency map that delineates evacuation routes, emergency air horn locations, first-aid kit locations, rally point(s), etc, will be prepared once the contractor OSM/S or SSHO has physically evaluated the site. Exact locations of contractor emergency equipment may be modified by the contractor SSHO. In the event that changes are made, the site emergency map will be updated by the SSHO in the field and project personnel will be notified.

12.2.12 Emergency Equipment

At a minimum, the following emergency equipment shall be maintained at the project site:

- Fire extinguishers
- First-aid kits
- Blood-borne pathogen control supplies or kit
- Emergency eyewash
- Communication devices

This equipment is to be inspected by the SSHO on a weekly basis to verify that they are in good condition, ready to use, and easily accessible. Note: a seal may be maintained on first-aid kits to indicate if the kit has been accessed within the preceding week. The weekly inspection of the first-aid kit will only be necessary if the seal has been broken.

12.2.13 Critique and Follow-Up of Emergency Procedures

The TVA PM shall be verbally notified immediately and receive a written notification within 24 hours of all accidents or incidents fires, or explosions. The report shall include the following items:

- Name, organization, telephone number, and location of the Contractor
- Name and title of the person(s) reporting
- Date and time of accident/incident
- Location of accident/incident (*i.e.*, site location and facility name)
- Brief summary of accident/incident including pertinent details, such as type of operation ongoing at time of accident
- Cause of accident/incident, if known
- Casualties (*i.e.*, fatalities and disabling injuries)
- Details of any existing chemical hazard or contamination
- Estimated property damage, if applicable
- Nature of damage and effect on contract schedule
- Action taken by the Contractor to maximize safety and security
- Other damage or injuries sustained (public or private)

The contractor OSM/S and PHSM will investigate the cause of the incident to prevent its reoccurrence. The investigation should begin as soon as practical after the incident is under control but not later than the first workday after the incident. Investigations will follow the procedures described below:

- Interview witnesses and participants as soon as possible or practical.
- Determine the chronological sequence of events (opinions as to cause should not be solicited at this time).
- Note any movement, sounds, noises, or other sensory perceptions experienced by the participants or witnesses.
- Obtain weather data.
- Ascertain the location and position of all switches, controls, *etc.*
- Verify the condition of all safeguards.
- Determine if a revision to emergency procedures is warranted.

After the facts have been collected, causal factors should be identified and controlled/eliminated.

12.2.14 Hospital Information

Table 10-1 provides the contact information and directions to the hospital. Attachment 6 “Map to Hospital and Clinic” contains a map indicating the location of a hospital as the non-emergency occupational clinic. A map indicating the route to these facilities will be posted in the site trailer and site vehicles upon mobilization to the site.

For non-emergency treatment of injuries, project personnel can be treated at the clinic listed in Table 10-1.

12.2.15 Wild Land Fire Prevention Plan

Not applicable to this project.

12.2.16 Man Overboard/Abandon Ship

When performing work over water, on floating vessels, docks, or where the danger of drowning exists, each worker must wear a USCG-approved TYPE III, V, or better PFD.

Inflatable PFDs are not permitted on this project. PFDs shall be equipped with USCG-approved automatically activated light and retro reflective tape for all operations conducted outside of daylight hours.

Additionally, a boat with adequate outboard motor should be available to assist the person in the event of an accident.

Safety harnesses with properly attached lifelines must be used when an employee is working or walking on a surface 6 feet or more above a lower level, **including over water,** if protective guardrails are not installed.

Ring Buoys should be provided for each crew working over water, on floating vessels, or docks. This ring buoy should be fitted with 90' for rope, and should be readily accessible within 200' of every worker.

Employees must work in pairs, and they will exercise extraordinary care in performing their work keeping in mind that their safety depends upon strict observance of safe practices. The "buddy system" will be utilized, and at least two men will be in sight of each other at all times.

A distress signal will be identified and in place and means to relay this signal available during all operations conducted in areas where an individual could fall into the water.

12.2.16.1 Emergency Planning

Plans shall be prepared for response to marine emergencies such as fire, sinking, flooding, severe weather, man overboard, hazardous materiel incidents, etc. as follows:

- A station bill, setting forth the special duties and the duty station of each crewmember for various emergencies, shall be prepared and posted in conspicuous locations throughout the vessel.
- Each crewmember shall be given a written description of, and shall become familiar with, his/her emergency duties and shall become familiar with the vessel's emergency signals.
- "Abandon ship/boat" and "person overboard" procedures shall include instructions for mustering personnel.

On all floating plants that have a regular crew or on which people are quartered, the following drills shall be held at least monthly during each shift (unless the vessel is required, under USCG regulations, to be drilled more frequently):

Abandon ship/boat drills, fire drills, and person overboard or rescue drills.

The first set of drills shall be conducted within 24 hours of the vessel's occupancy or commencement of work.

Where crews are employed or quartered at night, every fourth set of drills shall be at night; the first set of night drills shall be conducted within the first 2 weeks of the vessel's occupancy.

Drills shall include, where appropriate, how to handle a pump shell or pipe rupture or failure within the hull (proper shutdown procedures, system containment, etc.) and how to handle leaks or failures of the hull or portions of it (what compartments to secure, how to handle power losses, pulling spuds to move to shallow water, etc.).

Person overboard or rescue drills shall be held at least monthly at boat yards, locks, dams, and other locations where marine rescue equipment is required.

Emergency lighting and power systems shall be operated and inspected at least monthly to ensure proper operation.

- Internal combustion engine driven emergency generators shall be operated under load for at least 2 hours each month.
- Storage batteries for emergency lighting and power systems shall be tested at least once every 2 months.

A record of all drills and emergency system checks, including any deficiencies noted in equipment and corrective action taken, shall be made in the station log.

12.3 Hazard Communication Program

The Hazard Communication Program is outlined in TVA procedure 216 Hazard Communication, The Site Specific Hazard Communication Program will include a chemical inventory and training, and MSDSs for each chemical present at the project. The SSHO shall maintain the chemical inventory and the MSDSs.

12.4 Respiratory Protection Plan-Not anticipated on this Project

12.5 Health Hazard Control Plan

12.5.1 Physical Hazards

To minimize physical hazards, TVA has developed standard safety protocols that will be followed at all times. Activity Hazard Analyses, located in Attachment 4, have been developed for principal activities and for all major hazards to which employees may be exposed.

The contractor OSM/S and SSHO will observe the general work practices of each crew member and equipment operator, and enforce safe procedures. The crew leaders and OSM/S and SSHO will inspect the work areas. All hazards will be corrected in a timely manner. A variety of physical hazards may be encountered during work activities at this site. Hard hats, safety glasses and steel-toe safety boots are required in all areas of the site. Site-specific hazards and all necessary precautions will be discussed at the daily safety meetings. Failure to follow safety protocols will result in removal of an employee from the site and appropriate disciplinary actions.

12.5.1.1 Slips, Trips, and Falls

The following details procedures to prevent slips, trips, and falls:

- Personnel shall keep working areas clean and orderly. Tools, equipment, and materials shall be used and stored in a fashion to minimize tripping hazards.
- Small, loose items, such as, disconnected joints of pipe, wood chips, other small objects, and debris shall not be left lying around in any place, particularly in areas where personnel walk.
- Walkways and grating shall be kept free of obstacles. Openings in walkways and grating shall be repaired immediately, if possible. If not immediately repaired, the section shall be roped off or closed until repairs can be made.
- Access points or holes in gratings shall be covered or surrounded by an adequate guardrail.
- Spills shall be cleaned up immediately.

- Personnel shall take extra precautions, such as establishing firm handholds, wearing suitable footwear, and walking slowly when walking on surfaces during wet, snowy, or icy weather.
- Personnel shall not jump from elevated places or equipment.
- Personnel using hand and mechanical tools shall position themselves properly and consider the events if a tool slips or suddenly moves.
- Personnel shall not walk or climb on piping, valves, fittings, or any other equipment not designed as walking surfaces.
- Stairways, walkovers, or ramps shall be installed where personnel must walk or step over equipment in the course of their normal duties.
- Electrical extension cords and electrical wiring shall be kept clear of walking and working areas and/or covered, buried, or otherwise secured.
- Walking and working surfaces shall be properly maintained during inclement winter weather.
- Personnel shall keep alert for uneven terrain.
- Running is prohibited on job sites unless under emergency conditions. Employees exposed to fall hazards shall be protected by standard guardrail, catch platforms, temporary floors, safety nets, personal fall protection devices, or the equivalent. No employee may be exposed to a fall of over 6 feet without being adequately protected.

12.5.1.2 Fires, Explosions, and Hot Work

Hot work (e.g., welding, burning, and cutting) conducted on-site shall comply with the following requirements:

- The SSHO will establish areas approved for welding, cutting, and other hot work.
- The SSHO is responsible for authorizing welding, cutting, and other hot work in areas not specifically designed or approved for such operations.
- All personnel shall be protected from welding radiation, flashes, sparks, molten metal, and slag.
- All welding, burning, and cutting equipment shall be inspected daily by the operator. Defective equipment shall be tagged and removed from service, replaced or repaired, and re-inspected before again being placed in service.
- All welders, cutters, and their supervisors shall be properly trained in the safe operation of their equipment, safe welding/cutting practices, and welding/cutting respiratory and fire protection.

The handling of compressed gas cylinders shall comply with the requirements established in TVA Procedure 706 Compressed Gas Cylinders (Current Revision).

- Cutting, welding, or other hot work shall be permitted only in areas that are or have been made fire safe.
- Cutting or welding shall NOT be permitted in the following situations:
  - In areas not authorized by the SSHO.
  - In the presence of explosive atmospheres (such as, mixtures of flammable gases, vapors, liquids, or dusts with air), or explosive atmospheres that may develop inside un-cleaned or improperly prepared drums, tanks, or other containers, and equipment that has previously contained such materials.
  - In any area where combustible gas indicator readings are in excess of 10 percent of the lower explosive limit.
  - On storage or process vessels or lines in service that contain flammable or combustible liquids, gases, vapors, or solids.
- Before any welding, cutting, or other hot work is permitted, the area shall be inspected by the SSHO to verify that the following requirements have been met:
  - Cutting and welding equipment to be used shall be in safe operating condition and in good repair.
  - Where practical, all combustible material shall be relocated at least 50 feet away from the hot work site. Where relocation is impractical, combustibles shall be protected with flameproof covers or otherwise shielded.
  - At a minimum, two fully charged and operable fire extinguishers, appropriate for the type of possible fire (2-A:20:B:C), shall be available at the work area.
  - A fire watch shall be required whenever hot work is performed in hazardous locations.
  - Combustible gas indicator readings shall be taken to verify the work area is free of combustible gases and vapors.
  - The work area is free of toxic contaminants at concentrations in excess of established PELs or all personnel who will work in the area have been provided respiratory protection and protective apparel appropriate for the degree of exposure. TLVs shall be used for substances in which no current PEL exists.
  - When hot work is to be performed on tanks or other vessels that contain or have contained flammable or combustible liquids, the vessel shall be properly isolated, purged, cleaned, or inerted as appropriate, to reduce the concentrations of flammable/combustible vapors to safe levels.

- A Hot Work Permit, TVA procedure 1702 Cutting, Welding, Open Flame and Spark Production Permit shall be completed by the contractor SSHO, reviewed with personnel who will perform the hot work, and posted near the job site.
- The Hot Work Permit is good only for the date issued and is valid only for the 8-hour shift for which it is issued. If the work area is completely vacated by personnel, such as, during lunch, a new permit may need to be issued.
- If at any time during the hot work operation a change in conditions at the work site is suspected, such as a release of flammable gases or vapors in the work area, work shall be stopped immediately and the SSHO shall be notified. Such work stoppage invalidates the Hot Work Permit, and a new permit shall be completed after inspections and tests have been performed by the SSHO.
- No erasures or changes of dates on Hot Work Permits shall be permitted.

12.5.1.3 Use of Ladders

Ladders and shall only be used at the work-sites under the following conditions:

- Ladder use shall comply with TVA procedures 712 Ladders (Fixed) 713 Ladders (Portable) (Current Revision).

12.5.1.4 Use of Small Tools

Hand and power tools shall be used, inspected, and maintained in accordance with the manufacturer's instructions and recommendations and will be used only for the purpose for which designed. A copy of the manufacturer's instructions and recommendations will be maintained at the project site. The following requirements shall be adhered to:

- Tools designed to accommodate guards will be equipped with such guards when in use.
- Tools shall be inspected to ascertain safe operating conditions and are to be kept clean and free of accumulated dirt.
- Electric power tools and extension cords shall be used with ground fault circuit interrupter.
- Portable power cords will be designated as hard usage or extra hard usage and shall not be used if damaged, patched, oil-soaked, worn, or frayed.
- Connections on pneumatic lines shall be secured with a safety lashing.
- Explosive-actuated tools will meet the design requirements of ANSI International (ANSI) A10.3 and only be operated by a qualified operator.
- Explosive-actuated tools and charges shall be secured at all times to prevent unauthorized possession or use.

- Explosive-actuated tools shall not be loaded until just prior to the intended firing time; neither loaded nor empty tools are to be pointed at any employees; hands shall be kept clear of the open barrel end.
- Hand tools that may be utilized by field and drill crews, such as hammers and chisels, shall be inspected and dressed if necessary to remove mushroomed heads, which may separate and become projectile hazards.

12.5.1.5 Use of Cutting Tools

Proper cutting tools, such as scissors, snips, side cutters, etc., are to be used when possible in lieu of box cutters. Furthermore, if box cutters are determined to be the appropriate tool for the job, the only type that should be used is the design that has a self-retracting blade capability. Employees must utilize appropriate PPE (leather gloves) to allow for further protection. There are many cutting tool manufacturers that offer a variety of safety knives, which are available for all types of cutting. The contractor OSM/S shall evaluate each cutting task in order to determine that the safest and most appropriate cutting tool is used. The OSM/S shall also provide training in the proper use of the selected cutting tool. The following evaluation shall be made for each cutting task:

- Determine that hand knives are actually the most practical tool for the task. Where possible, use the safest cutting tool for the job (for example, scissors, snips, or wire strippers).
- If the knife happens to be the correct tool, keep the knife sharp and clean. A dull blade can cause accidents because more force is needed to cut an object. However, a knife or any other unprotected blade tool must be the last resort when choosing a cutting tool.
- Maintain a supply of either replacement knives and/or blades and make them readily available.
- Cut away from yourself, ending the knife stroke away from your body. Hold the item you are cutting firmly, and do not cut downwards and towards your body. Cut into the air or onto hard surface.
- Confirm that appropriate PPE (for example, gloves) specific to the task is available to employees and used when the possibility of injury exists.
- Personal knives (for example, pocketknives) shall not be considered as a tool for any type of work-related cutting. Employees are required to ask for a cutting tool from site/project/office supervision, thereby resulting in an additional review of using the right cutting tool for the job.
- The OSM/S or designee are to inspect all material handling activities to verify that leather gloves are being used to protect hands.

12.5.1.6 Use of Heavy and Mechanized Equipment

Cranes, skid-steers, excavators, front-end loaders, and other types of specialized heavy equipment may be used to accomplish the work at each site. The use of all this equipment can be dangerous. Extra care shall be exercised in its use and while working in the vicinity of this equipment.

Operators of equipment, such as hoisting equipment and draglines, mobile construction equipment, electrical power systems, hydropower plants, industrial manufacturing systems, hydraulically operated equipment, powered vessels, and boats **shall not be permitted to exceed 12 hours of duty time in any 24-hour period, including time worked at another occupation. A minimum of 8 consecutive hours will be provided for rest in each 24-hour period.**

Cranes

All requirements for operating cranes on land shall apply to work being performed on docks, barges, etc. **Draglines are considered cranes and therefore must meet all safety requirements.** In addition, cranes or lifting equipment will be properly secured before any lift. Crane operations shall comply with 29 CFR 1926 OSHA Subpart N , TVA procedure 802 Requirements for the Safe Operation of Cranes (Current Revision). All lifts accomplished with a crane shall comply with the requirements of TVA procedure 1607 Rigging / Lifting.

- Personnel qualifications shall be submitted to TVA for approval prior to operating a crane on site.
- Annual inspections for cranes utilized on this project shall be submitted to TVA. A copy of the annual inspection shall be posted in the cab window of the crane.
- At no time shall personnel be permitted to stand, walk, or work under a suspended load.
- A copy of the manufacturer's operation manual shall be onboard.
- Use guide ropes or tag lines to prevent the rotation or uncontrolled motion of the load when necessary
- Loads must be safely landed and properly blocked before being unhooked and unslung. Tag lines shall not be used in situations that jeopardize the safety of the lift.
- Lifting beams should be plainly marked with their weight and designed working load and should only be used in the manner for which they were designed.
- Periodic inspections shall be performed for deformed, cracked or corroded components, and loose bolts or rivets. Defective items shall be taken out of service.

Heavy Construction Equipment

There are various types of heavy construction equipment that will be used during this project. All operators of this equipment shall be familiar with the requirements for inspection and

operation of the equipment that they will be using. Before equipment is placed into use and on a daily basis, the operator is to inspect and verify that it is in safe operating condition, as described in Section 3.5. The following guidelines shall be adhered to while operating heavy construction equipment:

- Equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.
- Getting on or off any equipment while it is in motion is prohibited.
- Equipment will be operated in accordance with the manufacturer's instructions and recommendations.
- Determinations of road conditions and structures will be made in advance to verify that clearances and load capacities are safe for the passage of equipment.
- All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done. Equipment designed to be serviced while running is exempt from this requirement.
- Buckets, blades, dump bodies, and similar equipment will be either fully lowered or blocked when being repaired or when not in use. All controls shall be in a neutral position, with the engines stopped and brakes set, unless work being performed on the machine requires otherwise.
- No guard, safety appliance, or device will be removed from machinery or equipment, or made ineffective except for making immediate repairs, lubrications, or adjustments, and then only after the power has been shut off. All guards and devices will be replaced immediately after completion of repairs and adjustments and before power is turned on.
- Mechanized equipment will be shut down prior to and during fueling operations. Closed systems, with automatic shut-off, which prevent spillage if connections are broken, may be used to fuel diesel powered equipment left running.
- Each piece of heavy equipment and other similar equipment will be equipped with at least one dry chemical or carbon dioxide fire extinguisher with a minimum rating of 10-B:C.
- Personnel will not work, pass under, or ride in the buckets or booms of equipment in operation.
- All self-propelled construction equipment, whether moving alone or in combination, shall be equipped with a reverse signal alarm.
- Seat belt use is required while operating equipment.

Spotters for the operator will be the only personnel allowed in the vicinity of the heavy equipment. Spotters shall stay out of the boom radius area. Personnel needing to approach heavy equipment while operating shall observe the following protocols:

- Make eye contact with the operator (and spotter)
- Signal the operator to cease heavy equipment activity
- Approach the equipment only after the operator has given signal to do so.

Mechanized Equipment – Use of Quick Connect / Disconnect Systems

The manufacturer's specifications and operating manuals for hydraulic equipment and attachments utilizing quick connect / disconnect systems shall be followed. After completing a switch in attachments, the equipment operator shall take the actions necessary to ensure the quick connect / disconnect system is positively engaged.

Hydraulic Excavators, Wheel Loaders, Track Loaders, and Backhoe/Loaders Used To Transport or Hoist Loads With Rigging

When hydraulic excavating equipment is to be used to transport or hoist loads utilizing hooks, eyes, slings, chains, or other rigging the following requirements shall apply:

- Operations involving the use of hydraulic excavating equipment and rigging to transport or hoist loads require different operator skills and considerations than the standard excavating operations routinely performed with hydraulic excavating equipment. An AHA specific to the transporting or hoisting operation shall be prepared. The AHA shall include, but not be limited to:
  - Written proof of qualifications of equipment operators, riggers, and others involved in the transporting and hoisting operations
  - Performance of the operational test.
  - Proper operating procedures in accordance with the equipment manufacturers operating manual
  - Proper use and on site availability of manufacturer's load rating capacities or charts
  - Proper use of rigging, including positive latching devices to secure the load and rigging
  - Inspection of rigging
  - Use of tag lines to control the load
  - Communications
  - Establishment of a sufficient swing radius (equipment, rigging and load) and

  - Stability of surfaces beneath the hydraulic excavating equipment.

- An operational test with the selected hydraulic excavating equipment will be performed in the presence of the TVA OSM/S or SSHO. The operational test shall consist of a demonstration that the test load and selected rigging can be safely lifted, maneuvered, controlled, stopped, and landed. The operational test shall be representative of the complete cycle of the proposed transporting or hoisting operation, including configuration, orientation and positioning of the excavating equipment and the use of identical rigging. The test load shall be equivalent to the maximum anticipated load, but shall not exceed 100% of the manufacturer's load rating capacity for the excavating equipment as configured. Written documentation of the performance of the operational test outlining test procedures and results shall be maintained at the on-site project office.
- All rigging and rigging operations shall comply with the requirements of TVA procedure 1607 Rigging / Lifting. Hooks, eyes, slings, chains or other rigging shall not be attached to or hung from the teeth of a bucket during the transporting or hoisting of a load by hydraulic excavating equipment.
- After the completion and acceptance of an operational test, if repairs, major maintenance or reconfiguration are required to be performed on the hydraulic excavating equipment or attachments, another operational test shall be performed to demonstrate that the completed repairs are satisfactory and that the test load and selected rigging can be safely lifted, maneuvered, controlled, stopped, and landed.
- Loads shall be lifted the minimum height necessary to clear the ground or other obstacles and carried as low as possible when the equipment is traveling.
- Loads shall not be lifted over personnel.
- Adequate clearances shall be maintained from electrical sources.
- Hydraulic excavating equipment shall not be used to hoist personnel. The riding of personnel on loads, hooks, hammers, buckets or any other hydraulic excavating equipment attachment is prohibited.

12.5.1.7 Operation of Motor Vehicles

Contractor vehicles shall be inspected on a weekly basis. Additionally, all contractor vehicles shall be inspected prior to any trip, which is 50 miles or greater. Vehicle inspections shall be documented on the Vehicle Inspection form and follow TVA procedure 610 Motor Vehicle Operations.

Operators of motor vehicles, while on duty, **shall not operate vehicles for a continuous period of more than 10 hours in any 24-hour period; nor shall employees, while on duty operate motor vehicles after being in a duty status for more than 12 hours during any 24-hour period.** A minimum of 8 consecutive hours will be provided for rest in each 24-hour period

Contractors operating motor vehicles shall comply with all federal, state, and local traffic regulations. Subcontractors shall only use vehicles that are in good condition and safe to operate. Subcontractors shall inspect vehicles routinely used on a weekly basis and submit the inspection documentation to the SHSM.

All personnel shall drive defensively and wear seat belts while vehicles are in motion. Contractors are encouraged to have their personnel attend a defensive driving training course.

Operators of vehicles used while working project may only use cellular telephones with hands-free devices while the vehicle is in motion. Prior to using a hand-held cellular phone, drivers shall find a safe place to bring their vehicle to a stop. This requirement does NOT preclude passenger(s) from using cellular phones while the vehicle is in motion. The use of headphones and earphones is prohibited while operating a motor vehicle.

The following generally accepted defensive driving tips should be exercised whenever possible:

- Always maintain a good vision ahead and around your vehicle
- Stay alert and be prepared to react to the unexpected
- Drive at a speed, which is within the legal limit and is appropriate for the conditions
- Always wear safety belts
- Anticipate the mistakes or unsafe maneuvers of other drivers
- Keep your eyes moving
- Pay close attention to crosswalks or when driving in the vicinity of playgrounds, schoolyards, and shopping center parking lots
- Be cautious of bicyclists or children playing
- Do not drive if you are on medication or are very tired
- Keep vehicles in good working order
- Obey the rules of the road and give right of way whenever necessary
- Use headlights in rain, snow, fog, in evening, or early morning
- Allow extra space between heavy-equipment, vehicles, motorcycles or bicycles, and your vehicle
- If a tailgater is following you, move to another lane if possible or pull to the side of the road and let the tailgater pass you
- Do not drive in another driver’s blind spot

- Do not weave in and out of traffic
- Avoid “highway hypnosis” by taking frequent rest-stops
- Slow-down at construction areas
- If you plan to drive a long distance, stop and stretch after every two-hours
- Slow down in unfamiliar areas or when road conditions are unsatisfactory

Driving in winter weather poses other challenges and dangers. The following actions should be implemented when adverse winter weather or road conditions are present:

- Do not move vehicles unless snow, frost, and ice are cleared from windows, mirrors, and lights.
- Allow time for vehicles to warm-up before proceeding.
- Carry extra clothing, including hats and gloves, in vehicles.
- Maintain a supply of salt and/or sand in vehicles for use as extra weight and as a traction aid.
- Equip vehicles with a small shovel.
- Allow extra time for traveling.
- Adjust driving speed, braking, and steering to match road and weather conditions.
- Use four-wheel drive vehicles in areas that are significantly snow covered or are not routinely cleared.
- Drive with lights on when visibility is diminished.
- Make all moves slowly and carefully: starting, stopping, turning, speeding-up, and slowing-down; sudden moves cause trouble when the traction is poor.
- Maintain extra distance when driving behind another vehicle.
- To correct a skid, turn wheel in the direction of the skid. If the vehicle’s rear end starts sliding to the right, turn the wheels to the left. Do not apply brakes while in a skid. When vehicle wheels are locked-up, there is no way to maintain control of the vehicle’s direction.
- Decelerate well in advance of a turn or stopping point. Try to avoid using brakes while turning; slow down in advance of the turn.
- If you are approaching a stop with alternate patches of ice and bare pavement between you and the stop, brake firmly as you cross the bare spot and coast over the ice.

- If the vehicle is equipped with an automatic braking system, read and understand the manufacturer's operating instructions on its use.

Avoid participating in or becoming a victim of "Road Rage" by following these tips from the Automobile Association:

- Exercise extra caution on main roads where the majority of road-rage incidents take place.
- If you are being hassled by a driver, do not react. Avoid making eye contact, which is often interpreted as confrontational.
- Do not retaliate by accelerating, braking, or swerving – not only will this provoke another driver, it may also cause you to lose control of your own vehicle.
- If you are being chased by an enraged driver, head for a well-lit public place with a telephone and call 911. Stop at a fire or police station if you see one, but keep in mind that officers may not be on hand at a police station.
- When stopping for a traffic light, leave enough space between your vehicle and the vehicle in front of you to pull out if you face an emergency. Be alert to other drivers who may leave their vehicles and approach you.
- Learn to control your temper. Even a rude gesture can provoke a dangerous confrontation.
- Leave plenty of time to reach your destination so you are rushed.

Since backing accidents at these types of projects are frequent, the following guidelines shall be observed:

- Backing of vehicles shall be avoided when possible. Extra care shall be taken to back vehicles when unavoidable.
- When parking vehicles, vehicles shall be backed into the space whenever possible.
- Before backing a vehicle, which has been parked, the driver shall physically walk to the back of the vehicle to observe the area before entering the vehicle.
- Spotters shall be used to back vehicles whenever possible or necessary.

12.5.1.8 Material Handling

Various materials and equipment may be handled manually during project operations. Care should be taken when lifting and handling heavy or bulky items to avoid back injuries. The following fundamentals address the proper lifting techniques that are essential in preventing back injuries:

- Size, shape, and weight of the object to be lifted shall first be considered. No individual employee is permitted to lift any object that weighs over 60-pounds. Multiple employees or the use of mechanical lifting devices is required for objects over the 60-pound limit. Each worker should consider his/her own lifting limits.
- Anticipated path to be taken by the lifter should be inspected for the presence of slip, trip, and fall hazards.
- Feet shall be placed far enough apart for good balance and stability (typically shoulder width).
- Worker shall get as close to the load as possible. Legs shall be bent at the knees.
- Back shall be kept as straight as possible and abdominal muscles should be tightened.
- Twisting motions should be avoided when performing manual lifts, such as, auger flights.
- To lift the object, the legs are straightened from their bending position.
- Take small turning steps without twisting the knees or the back if it is necessary to turn with the load.
- A worker shall never carry a load that cannot be seen over or around.
- When placing an object down, the stance and position are identical to that for lifting. The legs are bent at the knees and the object lowered.

When two or more workers are required to handle the same object, coordination is essential to equally divide the weight between the individuals carrying the load and to make a uniform lift. When carrying the object, each worker, if possible, shall face the direction in which the object is being carried. In handling bulky or heavy items, the following guidelines shall be followed to avoid injury to the hands and fingers:

- A firm grip on the object is essential; leather gloves shall be used if necessary.
- Hands and object shall be free of oil, grease, and water, which might prevent a firm grip and the fingers, shall be kept away from any points that could cause them to be pinched or crushed, especially when setting the object down.
- Item shall be inspected for metal slivers, sharp or jagged edges, burrs, and rough or slippery surfaces prior to being lifted.

12.5.1.9 Hazardous Energies (Electrical, Mechanical, and Pressurized Systems)

All portable electrical equipment and extension cords shall be protected with a ground fault circuit interrupter as part of the circuit as applicable under OSHA standards for electrical power, 29 CFR 1926 Subpart "K."

Only qualified electricians may work on electrical circuits. Qualified personnel shall be trained with the proper use of the special precautionary techniques, personal protective equipment, including arc-flash, insulating and shielding materials, and insulated tools and test equipment.

Live parts to which an employee might be exposed shall be put into an electrically safe work condition (de-energized) before an employee works on or near them, unless it can be demonstrated that de-energizing introduces additional or increased hazards or is infeasible due to equipment design or operational limitations. This rule applies to all electrical work, including changing a light bulb.

Where work is performed in locations containing un-insulated energized overhead lines that are not guarded or isolated, precautions shall be taken to prevent employees from contacting such lines directly with any unguarded parts of their body or indirectly through conductive materials, tools, or equipment. Where the work to be performed is such that contact with un-insulated energized overhead lines is possible, the lines shall be de-energized and visibly grounded at the point of work, or suitably guarded.

Employees working in areas where electrical hazards are present shall be provided with, and shall use, protective equipment as required by Section 130.7 of NFPA 70 E (2004) that is designed and constructed for the specific part of the body to be protected and for the work to be performed.

Employees shall use insulated tools and/or handling equipment when working inside the Limited Approach Boundary of exposed live parts where tools or handling equipment might make accidental contact. Insulated tools shall be protected from damage to the insulating material.

Before starting each electrical job, the qualified employee in charge shall conduct a job briefing with the employees involved. The briefing shall cover such subjects as hazards associated with the job, work procedures involved, special precautions, energy source controls, and personal protective equipment requirements.

Only hard or extra-hard usage extension cords shall be used. Extension cords, power tools, and lighting equipment shall be inspected before each use, protected from damage, and kept out of wet areas.

All pressure vessels shall be designed, inspected, and tested in accordance with American Society of Mechanical Engineers standards. All air compressors and hoses shall be inspected

before use, operated, and maintained by designated, qualified personnel. All air compressors shall be equipped with a pressure gauge and relief-valve, and only be operated at design pressures. Chicago fittings shall be secured together with tie-wire or equivalent and secured with safety lashings.

Lockout/tagout procedures are to be implemented during servicing or maintenance of machines and equipment to preclude the unexpected release of stored energy or inadvertent energization. These procedures are contained in TVA procedure 613 Clearance Procedure to Safely Control Hazardous Energy Using Group Tagout and comply with the requirements established in 29 CFR 1926.417.
Subcontractors may implement their own lockout/tagout procedure if the TVA PHSM has approved its use and verifies that it is no less protective than the applicable TVA procedure.

12.5.1.10 Portable Generator Use

Refer to the generator manufacturer's instructions for safe operation. Never use a generator in enclosed or partially enclosed spaces due to the quick build-up of high levels of carbon monoxide (CO). The concentration of CO shall be monitored when using generators in areas of poor ventilation. The concentration of CO shall not be allowed to exceed 25 parts per million (ppm).

Keep the generator dry and do not use in rain or wet conditions. To protect from moisture, operate it on a dry surface under an open, canopy-like structure. Dry your hands, if wet, before touching the generator. Use a heavy duty, outdoor-rated extension cord that is rated (in watts or amps) at least equal to the sum of the connected appliance loads. Check that the entire cord is free of cuts or tears and that the plug has all three prongs, especially a grounding pin. Ground generators by using a hand-inserted ground-rod if recommended by the manufacturer.

Before refueling the generator, turn it off and let it cool down. Gasoline spilled on hot engine parts could ignite. A 20-B: C fire extinguisher shall be readily available in locations where a generator is being used.

Use hearing protection when working near a generator

12.5.2 Environmental Hazards

Environmental factors such as weather, wild animals, insects, and irritant plants may pose a hazard when performing outdoor tasks. The contractor OSM/S and PHSM will take necessary actions to alleviate these hazards should they arise.

12.5.2.1 Heat Stress

The combination of warm ambient temperature and protective clothing increases the potential for heat stress. Heat stress disorders include:

- **Heat Rash:** is caused by a hot, humid environment and plugged sweat glands.
  - **Symptoms:** It is a bumpy red rash which itches severely. It is not life-threatening.
  - **Treatment:** Dry clothes that help sweat evaporate will reduce the chance of heat rash. Washing regularly and keeping the skin clean and dry will help prevent heat rash.

- **Heat Cramps** are caused by a loss of body salt through excessive sweating.
  - **Symptoms:** Painful muscle cramps.
  - **Treatment:** To help prevent heat cramps, drink plenty of non-alcoholic, caffeine-free fluids while working in a hot environment. Check with your doctor about the use of salt tablets. They may be recommended in some cases. Anyone suffering from heat cramps should be watched carefully for signs of more serious heat stress. If the cramps persist or other symptoms develop, seek medical attention immediately.

- **Heat Exhaustion** results from inadequate salt and water intake and signals that the body's cooling system is not working properly.
  - **Symptoms:** The victim will sweat heavily, their skin will be cool and moist, their pulse weak, and they will seem tired, confused, clumsy, irritable or upset, they may breathe rapidly--even pant--and their vision may be blurred. The victim may strongly argue that they are okay even with these obvious symptoms. If you suspect heat exhaustion, don't let the victim talk you out of seeking immediate medical attention. The heat exhaustion will affect their ability to exercise good judgment.
  - **Treatment:** Until medical help arrives, try to cool the victim and offer sips of cool water as long as the victim is conscious. Immediate medical attention is required. Heat exhaustion can quickly lead to heat stroke.

- **Heat Stroke** is the deadliest of all heat stress conditions. It occurs when the body's cooling mechanism has shut down after extreme loss of salt and fluids.
  - **Symptoms:** The body temperature will rise, the victim's skin is hot, red, and dry, their pulse fast, and they may complain of headache or dizziness. They will probably be weak, confused, and upset. Later stages of heat stroke cause a loss of consciousness and may lead to convulsions.
  - **Treatment:** In the event of heat stroke, seek immediate medical attention. Until help arrives, try to cool the victim and offer sips of cool water if the victim is conscious.

Heat stress prevention is outlined in TVA procedure 806 Heat Stress. This procedure will be available on site. This information will be reviewed during safety meetings. Workers are encouraged to increase consumption of water and electrolyte-containing beverages; e.g.,

Gatorade. Heat stress can be prevented by assuring an adequate work/rest schedule. Guidelines are presented in Table 4.2 and should be used in conjunction with TVA procedures.

In addition, workers are encouraged to take rests and report symptoms whenever they feel any adverse effects that may be heat-related. The frequency of breaks may need to be increased based on worker recommendation to the contractor OSM/S and PHSM. Heat stress can be prevented by assuring an adequate work/rest schedule and adequate fluid consumption. A guide for work/rest schedules for various protection levels are given below in Table 12.1. The number of hours before a work/rest period is based on experience with similar work. The time periods should be considered maximum. Individual physical variables and differences in physical work activities may require revisions to site plans. This table should be used as a guide. Professional judgment of the OSM/S and PHSM is necessary to assure a fully protective plan to prevent heat stress disorders.

Table 12.1
Guidelines for Work-Rest Periods
Protection Level
Number of Hours Before Rest Period

Temperature	Level D	Level C
90+ F*	2.0	1.5
87.5 F	2.5	2.0
82.5 F	3.0	2.5
77.5 F	3.5	3.0
72.5	4.0	3.5

*Work above 100º F will be reviewed with the Project HSC to determine specific requirements.

Alternately the work/rest schedule can be calculated based on heat stress monitoring results. Each individual will count his/her radial (wrist) pulse as early as possible during each rest period. If the heart rate exceeds 75 percent of their calculated maximum heart rate (MHR = 200 – age) at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same. An individual is not permitted to return to work until his/her sustained heart rate is below 75 percent of their calculated maximum heart rate.

Body temperature, measured orally or through the ear canal, may also is monitored to assess heat stress. Workers should not be permitted to continue work when their body temperature exceeds 100.4 ^{o}F (degrees Fahrenheit) or 38 ^{o}C (degrees Celsius). Monitoring should be conducted at the beginning of each break period as noted above.

Monitoring for heat stress will begin when the ambient temperature reaches or exceeds 70 ^{o}F when wearing chemical protective clothing (Level C,), or 80 ^{o}F for site activities performed with

no chemical protective clothing (Level D). Monitoring will include pulse rate, weight loss, oral/or ear canal temperature, signs and symptoms of heat stress and fluid intake.

12.5.2.2 Cold Stress

The adverse effects of cold weather are a concern of this project. While hypothermia should be recognized as a potential hazard and guarded against, frostbite is of greater concern. Workplace monitoring shall begin where the environmental temperatures fall below 60.8°F so that the ACGIH Cold Stress Standard (TLV) (2005) can be applied.

Signs and Symptoms

Control measures to prevent adverse physiological affects from cold weather should be implemented prior to the exhibition of any signs or symptoms.

Frostbite occurs when the extremities do not get sufficient heat from the central body stores. The fluids around the cells of the body tissues can freeze from exposure to low temperatures. This freezing can result in damage and loss of tissue. The most vulnerable areas for frostbite are the nose, cheeks, ears, fingers, and toes.

Skin and tissue damage from frostbite can result in scarring, tissue death, permanent loss of movement, or amputation. There are three degrees of frostbite are as follows:

- First Degree—freezing without blistering or peeling
- Second Degree—freezing with blistering or peeling
- Third Degree—freezing with skin tissue death and possible deeper tissue damage

Symptoms of frostbite include the following:

- Skin color changes to white or grayish-yellow, to reddish-violet, and finally black as the tissue dies
- Coldness or numbness of the affected part
- Pain may be felt at first, but subsides

Hypothermia, or a drop in body core temperature, is another dangerous condition resulting from cold stress. Employees should be protected from exposure to cold so that their deep-core body temperature does not fall below 97.6°F. A lower body temperature can result in reduced mental alertness, reduction in rational decision-making, or loss of consciousness with the threat of fatal consequences. The symptoms of hypothermia are as follows:

- First, uncontrollable shivering and the sensation of cold
- Heartbeat slows and may become irregular

- Pulse weakens and the blood pressure changes
- As the body's core temperature drops, other signs may include cool skin, slow irregular breathing, slurred speech, loss of coordination, and apparent exhaustion
- Victim may become listless, confused, exhibit severe shivering, or develop severe pain in the extremities
- Advanced/final signs of hypothermia are a significant drop in blood pressure, fatigue, shallow respiration, coma, and death

Control Measures

When the ambient air temperature falls below 36°F, the following requirements shall apply:

- If wind chill is a factor, the cooling effect of the wind shall be reduced by shielding the work area or providing employees an outer wind-breaking layer of clothing.
- Extremities (such as, fingers, ears, toes, and nose) shall be protected from extreme cold by protective clothing.
- Employees performing light work and whose clothing may become wet shall wear an outer layer of clothing that is impermeable to water.
- Employees performing moderate to heavy work and whose clothing may become wet shall wear an outer layer of clothing that is water repellent.
- Outer garments shall provide for ventilation to prevent wetting of inner clothing by sweat.
- If clothing is wet, the employee shall change into dry clothes before entering a cold environment.
- Workers shall change socks and removable felt insoles at regular daily intervals or use vapor barrier boots.
- Workers who become immersed in water or whose clothing becomes wet shall immediately be provided a change of clothing and be treated for hypothermia if necessary. If the clothing becomes wet from sweating, the employee may finish the task that caused the sweating before changing into dry clothes.
- Metal handles of tools and control bars will be covered by thermal insulating materials when temperatures fall below 30°F.

Cold Stress Treatment

Individuals or coworkers expressing the symptoms of hypothermia or frostbite shall notify their SSHO or OSM/S immediately. At the onset of cold related illness, activities must be halted and treatment initiated. Early detection and treatment of hypothermia or frostbite will prevent further serious illness or injury.

Having the affected body parts gently warmed with room temperature water can alleviate frostbite. Never rub frostbitten skin. Seek medical attention for all but the mildest cases of frostbite. In a hypothermic situation, the body must be warmed immediately to prevent severe injury or death – medical attention must be immediately obtained. To warm up the affected person's body do the following:

- Bring affected person to a warm room
- Remove impermeable PPE and wet clothing
- Wrap person in warm coats
- Have them drink warm liquids, if conscious

Water Temperature and Hypothermia

Operations will be conducted on or near water. The potential for employees to fall into water exists. Cool water temperatures cause hypothermia very quickly.

Cold water removes heat from the body 25 times faster than cold air. About 50% of that heat loss occurs through the head. Physical activity such as swimming, or other struggling in the water increases heat loss. Survival time can be reduced to minutes. Strong swimmers have died before swimming 100 yards in cold water. In water under 40 degrees F, victims have died before swimming 100 feet.

The expected survival times the table below are guidelines for the average adult, showing the rapid onset of hypothermia as water temperatures drop.

Cold Water Temperatures Decrease Time Before Exhaustion and Decrease Survival Time

Water Temperature (F)	Expected Time Before Exhaustion or Unconsciousness	Expected Time of Survival
32.5°	< 15 minutes	45 minutes
32.5° – 40°	15 – 30 minutes	30 – 90 minutes
40° – 50°	30 – 60 minutes	1 – 3 hours
50° – 60°	1 – 2 hours	1 – 6 hours
60° – 70°	2 – 7 hours	2 – 40 hours
70° – 80°	3 – 12 hours	3 hours – indefinite
> 80°	indefinite	indefinite

If you fall into the water, get out quickly. If you are not wearing thermal protection and can not get out of the water, stay as still as possible. Fold arms, cross legs and float quietly on the buoyancy of your PFD until help arrives. If 2 or more people are in the water, put your arms around one another. Stay still and close together (Huddle posture).

12.5.2.3 Noise

Hearing protection is required for workers operating or working near heavy equipment, where the noise level is greater than 85 A-weighted decibels (dBA) (Time Weighted Average [TWA]) as well as personnel working around heavy equipment. The OSM/S and PHSM will determine the need and appropriate testing procedures (i.e., sound level meter and/or dosimeter) for noise measurement in accordance with TVA procedure 310 Hearing Conservation or a contractor equivalent hearing conservation program.

Noise monitoring should be conducted during the beginning of each activity, as well as any time modifications lead to increased noise levels (e.g., adding additional equipment). A sound level meter will be used to measure noise levels at selected locations in the work area and on the site perimeter when equipment is operating normally. When used, noise-monitoring equipment must be calibrated before and after each shift.

If continuous noise levels are found to exceed 85 dBA at any location within the work area, warning signs will be posted. Workers and visitors will be notified that hearing protection is required. Appropriate hearing protection (e.g., ear plugs) will be worn whenever personnel are working or visitors are present in that location. A supply of earplugs will be maintained on site.

Action levels in the following table will trigger the use of appropriate hearing protection (plugs or muffs). Hearing protection must be able to attenuate noise below 90 dBA (8-hour TWA). Each hearing protection or device has a Noise Reduction Rating (NRR) assigned by the EPA. The calculation for a hearing protection device's effectiveness is: noise reading dBA – (NRR – 7dB) < 90 dBA.

Instrument	Measurement	Action
Type I or Type II Sound Level Meter or dosimeter	>80 dBA → 85 dBA	Hearing protection recommended. Limit work duration to 8-hour shifts.
	>85 dBA → 90 dBA	Hearing protection required. Limit work duration to 8-hour shifts.
	>90 dBA → 115 dBA	Hearing protection required. Investigate use of engineering controls. Limit work duration to 8-hour shifts.
	>115 dBA	Stop work. Consult PHSM

12.5.2.4 Biological Hazards

Poison Ivy (RHUS RADICANS). Poison Ivy may be found at the site. It is highly recommended that all personnel entering into an area with poison ivy wear a minimum of a Tyvek® coverall, to avoid skin contact.

The majority of skin reactions following contact with offending plants is allergic in nature and characterized by:

- General symptoms of headache and fever
- Itching
- Redness
- A rash.

Some of the most common and most severe allergic reactions result from contact with plants of the poison ivy group, including poison oak and poison sumac. Such plants produce severe rash characterized by redness, blisters, swelling, and intense burning and itching. The victim may develop a high fever and feel very ill. Ordinarily, the rash begins within a few hours after exposure, but may be delayed 24 to 48 hours.

A barrier cream (e.g., IvyBlock, Stockhousen, Inc., 1-800-334-0242) should be applied to the exposed skin before entering and working in areas with possible poisonous plants.

Distinguishing Features of Poison Ivy Group Plants. The most distinctive features of poison ivy and poison oak are their leaves, which are composed of three leaflets each. Both plants have greenish-white flowers and berries that grow in clusters.

First Aid

- Remove contaminated clothing; wash all exposed areas thoroughly with soap and water, followed by rubbing alcohol. A one percent hydrocortisone cream (over-the-counter) will aid in healing and reducing itch.
- Apply calamine or other soothing lotion if rash is mild.
- Seek medical advice if a severe reaction occurs, or if there is a known history of previous sensitivity.

Contaminated Clothing. The irritating substances emitted by poison ivy group plants will remain on clothing for prolonged periods of time - up to weeks or months, if not washed thoroughly. It may be necessary to wash contaminated clothing separately and more than once before reusing.

Poisonous Plants

COMMON POISON IVY
(RHUS RADICANS)

- Grows as a small plant, vine, and shrub.
- Grows everywhere in the United States except California and parts of adjacent states. Eastern oak leaf poison ivy is one of its varieties.
- Leaves always consist of three glossy leaflets.
- Also know as three-leaf ivy, poison, creeper, climbing sumac, poison oak, markweed, picry, and mercury.


Spring


Summer


Fall


Winter

WESTERN POISON OAK
(RHUS DIVERSILOBA)

- Grows in shrub and sometimes vine form.
- Grows in California and parts of adjacent states.
- Sometimes called poison ivy or years.
- Leaves always consist of three leaflets.

POISON SUMAC
(RHUS VERNIX)

- Grows as woody shrub or small tree from 5 to 25 feet tall.
- Grows in most of eastern third of United States.
- Also known as swamp sumac, poison elder, poison ash, poison dogwood, and thunderwood.

Ticks. Heavily vegetated areas of a site may have ticks. It is highly recommended that all personnel walking through such areas wear a minimum of a Tyvek® and latex boot covers. The ticks will stand out against the light colors. A tick repellent or insect containing DEET is also recommended.

Ticks can transmit several diseases, including Rocky Mountain spotted fever, a disease that occurs in the eastern portion of the United States as well as the western portion, and Lyme disease. Ticks adhere tenaciously to the skin or scalp. There is some evidence that the longer an infected tick remains attached, the greater is the chance that it will transmit disease.

If you have been bitten, place the tick in a jar labeled with the date, location of the bite, and the location acquired. If any symptom appears, such as an expanding red rash, contact a physician immediately.

First Aid

- Carefully (slowly and gently) remove the tick with tweezers, taking care that all parts are removed.
- With soap and water, thoroughly, but gently, scrub the area from which the tick has been removed, because disease germs may be present on the skin; also wipe the bite area with an antiseptic.

Lyme Disease. Lyme disease may cause a number of medical conditions, including arthritis that can be treated if you recognize the symptoms early and see your doctor. Early signs may include a flu-like illness, an expanding skin rash and joint pain. If left untreated, Lyme disease can cause serious nerve and heart problems as well as a disabling type of arthritis.

You are more likely to spot early signs of Lyme disease rather than see the tick or its bite. This is because the tick is so small (about the size of the head of a common pin or a period on this page and a little larger after they fill with blood); you may miss it or signs of a bite. However, it is also easy to miss the early symptoms of Lyme disease.

In its early stage, Lyme disease may be a mild illness with symptoms like the flu. It can include a stiff neck, chills, fever, sore throat, headache, fatigue, and joint pain. But this flu-like illness is usually out of season, commonly happening between May and November when ticks bite.

Most people develop a large, expanding skin rash around the area of the bite. Some people may get more than one rash. The rash may feel hot to the touch and may be painful. Rashes vary in size, shape, and color, but often look like a red ring with a clear center. The outer edges expand in size. It’s easy to miss the rash and the connection between the rash and the tick bite. The rash

develops from three days to as long as a month after the tick bite. Almost one third of those with Lyme disease never get the rash.

Joint or muscle pain may be another early sign of Lyme disease. These aches and pains may be easy to confuse with the pain that comes from other types of arthritis. However, unlike many other types of arthritis, this pain seems to move or travel from joint to joint. In later stages, Lyme disease may be confused with other medical problems. These problems can develop months to years after the first tick bite.

Early treatment of Lyme disease symptoms with antibiotics can prevent the more serious medical problems of later stages. If you suspect that you have symptoms of Lyme disease, report it to your Superintendent and seek medical attention.

Lyme disease can cause problems with the nervous system that look like other diseases. These include symptoms of stiff neck, severe headache, and fatigue usually linked to meningitis. They may also include pain and drooping of the muscles on the face, called Bell's Palsy. Lyme disease can also mimic symptoms of multiple sclerosis or other types of paralysis.

Lyme disease can also cause serious but reversible heart problems, such as irregular heartbeat. Finally, Lyme disease can result in a disabling, chronic type of arthritis that most often affects the knees. Treatment is more difficult and less successful in later stages. Researchers think these more serious problems may be linked to how the body's defense or immune system responds to the infection.

West Nile Virus and West Nile Encephalitis. West Nile Virus/West Nile Encephalitis is rapidly becoming a health concern in the United States. West Nile Virus was first identified in the U.S. in the New York area in 1999 and is closely related to the St. Louis Encephalitis Virus, which is routinely found in the United States.

"Encephalitis" means an inflammation of the brain and it can be caused by viral and bacterial infections. West Nile Encephalitis can be a serious or even fatal illness although this is rare in humans. This illness develops in approximately one out of every 150 infections and is generally confined to older and physically compromised individuals.

West Nile Encephalitis is a viral infection of the brain transmitted through the bite of a mosquito, which has previously fed on birds and/or horses that were infected with West Nile Virus. Dead birds in an area may mean that West Nile Virus is circulating between the birds and the mosquitoes in that area. West Nile Virus is not transmitted from one person to another. Human illness from West Nile Virus is rare, even in areas where the virus has been reported.

Symptoms of Exposure. Most people who become infected with West Nile Virus will have either no symptoms or only mild ones. Symptoms of West Nile Encephalitis include high fever, headache, confusion, muscle aches and weakness, seizures, or paralysis. At its most serious, the infection can result in coma, permanent neurological damage, and death. Symptoms usually occur five to 15 days following the bite of an infected mosquito. Because West Nile Encephalitis is a viral infection, antibiotics are not effective and there is no specific treatment available other than general support therapy.

Protective Measures at Projects. There is no vaccine to protect humans against West Nile Virus. Individuals at project sites can reduce their risk from being infected with West Nile Virus by taking the following actions to protect against mosquito bites:

- Review the hazards of West Nile Virus periodically in morning safety meetings.
- Increase protective measures when working at dawn, dusk, and in the early evening.
- Reduce the area of exposed skin when working outdoors. Long-sleeved shirts with sleeves rolled down are recommended. Understand that mosquitoes may bite through thin clothing, so personnel should evaluate the actual Level D clothing worn, e.g., heavy long sleeve work shirts and heavy jeans may be indicated. Also, the risk or threat of mosquito bites is reduced for those activities that require the use of disposable coveralls.
- For activities where only Level D Personal Protective Equipment (PPE) is specified, consider using disposable coveralls when working in wooded, highly vegetated, or swampy areas.
- Use an insect repellent containing approximately 25% DEET (N, N-diethyl-meta-toluamide). DEET in concentrations greater than 25% provides no additional protection but repel insects longer. However, at some point there is no direct correlation between concentration and repellency. For example, 50% DEET provides about four hours of protection against mosquitoes, but increasing the concentration to 100% provides only one additional hour of protection. Use the repellent according to the manufacturer's directions provided on the container. Use just enough repellent to cover exposed skin and clothing. Do not treat unexposed skin. Frequent re-application is unnecessary for effectiveness. Avoid prolonged and excessive use of DEET.
- After returning from outdoor field activities, wash treated skin with soap and water.
- Personnel should report flu-like symptoms to the OSM/S and PHSM.

DEET is safe for pregnant and lactating women and is generally safe for children. You should avoid applying it to open wounds and irritated skin as it may further irritate the skin or cause discomfort.

Sweating, perspiration and getting wet may wash away the repellent and may require that DEET containing repellent be re-applied.

To remove the breeding places on a project, the following precautions will be followed as practical:

- Cut tall grass and weeds
- Drain accumulated water in such items as drums, buckets, pools and plastic containers
- Repair holes in door and window screens
- Eliminate stagnate water puddles as practical
- Limit outdoor activities at dawn, dusk and early evening, when mosquitoes are most active, as practical

Chiggers. Site workers have reported that chiggers have been a problem while working at project locations. Chiggers, also known as "red-bugs" or "harvest mites," are the immature stages of a tiny red mite. They inhabit areas of tall grass, associated with low, wet spots, ponds and stream banks, wild berry patches, and forest underbrush. The larvae attach themselves to the clothing of people or to the fur of passing animals. Before settling down to feed, chiggers move to a constriction, such as sock tops, waistbands, or armpits. Feeding chiggers inject a salivary fluid, which dissolves the host's cells, and then they suck up the liquefied tissue. Within a few hours, small, reddish, intensely itching welts appear. These bites may continue to itch for several days up to two weeks after the chigger is dislodged. Following are suggestions that should provide some protection from chiggers:

- Stay out of areas where chiggers are likely to be present including wood lots, pastures, roadside ditches, or other areas with tall grasses and weeds. Chiggers are especially common in moist low-lying areas.
- Wear loose-fitting clothing (if possible) when working outdoors. Vehicles should be frequently vacuumed to reduce the number of chiggers that may have been deposited.
- Apply a repellent containing DEET to shoes, socks, and trousers before entering chigger-infested areas. Caution: some individuals may be sensitive to DEET – always read and follow label directions.
- Another repellant of chiggers is flowers of sulfur. Flowers of sulfur is powdered elemental sulfur available at a drug store or pharmacy as an over-the-counter preparation. Areas on the body that have tight clothing up against them such as socks, waistbands, etc. may be dusted with sulfur powder. Surveyors and other field personnel state that they fill a sock with sulfur and are able to dust these areas efficiently. Sulfur may be more benign to use than DEET on some body parts. Avoid breathing dust during application.
- Immediately after possible exposure to chiggers, take a bath, thoroughly scrubbing the body with hot soapy water. This will kill or dislodge many of the chiggers. The clothes that were worn when the bite(s) occurred should be placed in a plastic bag for temporary storage until they can be laundered.

- When bites begin to itch, one course of treatment is to apply rubbing alcohol, followed by one of the nonprescription local anesthetics. A baking soda paste, calamine lotion or product such as "After-Bite" also will help reduce discomfort. Avoid scratching bites since this only increases irritation and may lead to a secondary infection of the bite.

Rodents (Hanta Virus and Bubonic Plague)

Potential exists for exposure to microbiological hazards such as viruses, bacteria, and molds. Personnel shall avoid disturbing small rodent nesting areas, and shall keep eating and work areas free of food supplies that would attract mice. The Hanta virus exposure occurs through inhalation of dusts associated with mice droppings. Personnel who enter buildings that show evidence of rodent droppings shall not stir up the dust without the use of Level C PPE. Buildings that show evidence of rodent droppings shall be disinfected with a 10 percent bleach solution (one and one-half cups of household bleach per gallon of water) prior to performing work in them. To deactivate the virus, all potentially contaminated areas shall be thoroughly wetted with the disinfectant solution.

Rodents have been documented carriers of the Bubonic plague virus. Fleas, which have fed on infected rodents, can be a vector for this disease. Personnel shall avoid contact with wild animals and animal nesting areas. Personnel working in open fields inhabited by Prairie dogs shall spray boots and legs with DEET. Personnel who suspect fleabites shall notify the PHSM.

Snakes

There may be poisonous snakes, with the work-areas. The degree of toxicity resulting from snakebites depends on the potency of the venom, the amount of venom injected, and the size of the person bitten. Poisoning may occur from injection or absorption of venom through cuts or scratches.

The most effective way to prevent snakebites is to avoid snakes in the first place. Personnel should avoid walking at night or in high grass and underbrush. Visual inspection of work areas should be performed prior to activities taking place. The use of leather boots and long pants will be required, since more than half of all bites are on the lower part of the leg. No attempts at killing snakes should be made; many people are bitten in such an attempt. Personnel shall not put their hands in areas where they cannot be seen.

If a potentially poisonous snake bites someone, the following treatment should be initiated:

- Keep patient calm
- Notify emergency medical services (EMS)
- Wash the wound and keep the affected body part still
- Apply direct pressure to site of bite if bleeding is extreme

- Keep the affected area lower than the heart
- Carry a victim who must be moved to a safe location, or have them walk slowly
- Wait for EMS personnel to arrive for treatment or to transport the victim to the medical facility

Spiders

Personnel shall be alert to the potential for spider bites. Spiders, such as the Brown Recluse and Black Widow, sometimes establish residence in dark places, stored clothing, and PPE. It is advisable for personnel to inspect clothing and PPE for spiders prior to donning. If a spider bite is sustained, personnel shall report it to their PHSM.

12.6 Asbestos Abatement Plan

Asbestos-containing materials are not anticipated to be encountered during the project scope of work.

12.7 Abrasive Blasting Plan

Not applicable to this project.

12.8 Confined Space

Not applicable to this project.

12.9 Hazardous Energy Control Plan

All hazardous energy shall be controlled in accordance with TVA procedure 613 Clearance Procedure to Safely Control Hazardous Energy Using Group Tagout.

12.10 Critical Lift Procedures

Prior to conducting a critical lift, a qualified person will prepare a critical lift plan. The plan will be provided to the TVA representative for review. Critical lifts will not proceed until all individuals involved in the lift, the contractor OSM/S, PHSM, TVA representative, and engineer (lifts in excess of 25 tons) have reviewed and approved the plan.

12.11 Contingency Plan for Severe Weather

12.11.1 Adverse Weather Conditions/Natural Disasters

Personnel should be aware of the possibility for the occurrence of severe weather such as lightning, thunderstorms, tornados, or high winds. Necessary precautions or response, directed by the SSHO, will be taken in the event of severe weather. Local weather broadcasts shall be monitored by the contractor OSM/S, PHSM, or designee when the likelihood for severe weather exists. Generally, cellular telephone communication will be used to alert crews to threatening

weather. For most types of severe weather, personnel shall take refuge in vehicles. In the event of a tornado, personnel should take cover in a basement, ditch, culvert, open "igloo," or interior room of a strong building. A severe weather shelter shall be identified and the location communicated with the crew(s) upon project mobilization. A sign shall be placed to identify the shelter.

Lightning Safety

The procedures provided below will be used on project sites to protect site personnel from lightning related injuries.

Training. A tailgate safety meeting will be conducted to increase awareness to the hazards and prevention of lightning related incidents.

Detection of Lightning. The contractor OSM/S and PHSM will be proactive in monitoring conditions that may produce thunderstorms and lightning. A daily and weekly weather forecast will be tracked and communicated to site personnel. When signs of impending storms, i.e., increasing wind, darkening skies, or lightning appear, local weather monitoring will be increased. The National Weather Service (http://www.nws.noaa.gov) in conjunction with project placed Lightning Detection Units (LDU) shall be monitored frequently when conditions arise. Personnel will be notified when thunderstorms may impact the site.

The "flash/bang" (f/b) technique of measuring the distance to lightning will be reviewed with all personnel. The f/b technique is defined as: for each five seconds from the time of observing the lightning flash to hearing the associated thunder, the lightning is one mile away.

Suspension/Resumption of Activities. All outside activities will be suspended when a lightning flash is immediately in the area or an f/b of 20 seconds (4 miles away) is noted. Personnel may continue indoor work activities. Outdoor activities will resume when 30 minutes has passed since the last observable f/b is 20 seconds or greater.

Lightning Protection. When notification is given, all outside work activities will stop and personnel will gather in the support zone for a head count and further instructions. Indoor work will continue, except for the use of electrical equipment, telephones and computers. When a safe location is not present and personnel are caught by a sudden lightning event, employees should seek the lowest possible area, away from large objects which might attract lightning or fall over, e.g., trees, utility poles. The employee should assume a crouching position with their head lowered and hands over their ears.

People who have been struck by lightning do not carry an electrical charge and are safe to handle. Apply first aid immediately if you are qualified to do so. Get emergency help promptly.

SAFE AREAS INCLUDE:

- Fully enclosed metal-topped vehicles with windows up
- Substantial and permanent buildings

UNSAFE AREAS INCLUDE:

- Small structures including huts and rain shelters
- Nearby metallic objects like fences, gates, instrumentation and electrical equipment, wires, and power poles

The following shall also be avoided when lightning is in the area:

- Trees
- Water
- Open fields
- Using hard-wired telephones and headsets

If hopelessly isolated from shelter during close-in lightning, adopt a low crouching position with feet together (up on toes, if possible) and hands on ears. If hair stands on end or rises on back of neck, a lightning strike is imminent.

Remember the warning phrase from the National Lightning Safety Institute: “If you can see it (lightning), flee it; if you can hear it (thunder), clear it.”

12.12 Access and Haul Road Plan

Not applicable to this stage of the project.

12.13 Demolition Plan

Not applicable to this project.

12.14 Emergency Rescue (Tunneling)

Not applicable to this project.

12.15 Underground Construction Fire Prevention and Protection Plan

Not applicable to this stage of the project.

12.16 Compressed Air Plan

Not applicable to this stage of the project.

12.17 Form Work and Shoring Erection and Removal Plans

Not applicable to this stage of the project.

12.18 Jacking Plan (Lift) Slab Plans

Not applicable to this stage of the project.

12.19 Site Safety and Health Plan

Not applicable to this project.

12.20 Blasting Plan

Not applicable to this project.

12.21 Diving Plan

Not applicable to this stage of the project.

12.22 Fall Protection Plan

12.22.1 Purpose

The purpose of this site-specific Fall Protection Plan is to identify the fall protection requirements during project activities. This plan will be updated to include any additional fall hazards, as part of project activities.

12.22.2 Required Fall Protection/Fall Protection Systems

Personal Fall Arrest Systems: Personnel involved in work in excess of 6 feet from a lower level without the proper guardrail systems may require the use of a personal fall arrest system. Personal fall arrest systems will consist of full-body harnesses, lanyards with locking snap hooks, and secure anchorage points. Lanyards and anchorage points (fixed objects or 3/8-inch cable lines) will be rated at a minimum of 5,000 pounds. Fall arrest systems will be checked daily for signs of debris, rust, or corrosion. Under no circumstances will personnel on ladders use their ladder as an anchorage point. They will find an anchorage point near the ladder and above their mid body to secure their lanyard.

12.22.3 Training Requirements

12.22.3.1 Fall Hazard Training

Site personnel who might be exposed to fall hazards will receive initial training by a competent person qualified in the safe use of access ways, fall protection systems, and the recognition of hazards associated with their use, including:

- Nature of access and the fall hazards in the work areas.
- Correct procedures for erecting, maintaining, using, dissembling, and inspecting the fall protection systems and access ways.
- Use and operation of fall arrest systems.
- Maximum load-carrying capacities of fall protection systems and access ways.
- Limitations on the use of mechanical equipment.
- Correct procedures for handling and storage of equipment and materials.

12.22.3.2 Training Documentation

Training shall be documented and maintained at the project site in the form of a written training certification record with the name of the employee trained, date of training, and the signature of the trainer.

12.22.3.3 Re-training

Re-training will be required whenever site conditions or types of fall protection change.

12.22.4 References

- Title 29, Code of Federal Regulation 1926, Subpart M – Sample Fall Protection Plan – Non-Mandatory Guidelines for Complying with 1926.503(k) – 1926 Subpart M App E
- TVA procedure 305 Fall Protection Systems

12.23 Steel Erection Plan

Not applicable to this stage of the project.

12.24 Night Operations Lighting Plan

Adequate lighting shall be provided to perform all activities in a safe manner. When possible, work shall be scheduled during daylight hours. When work is performed before sunrise, after sunset, inside buildings, or within other structures, the minimum lighting requirements specified in 29 CFR 1926.26 shall be observed.

Prior to approval for night time work, contractors will submit to TVA an outline of work area illumination plans.

12.25 Site Sanitation Plan

The following provisions shall be made to address sanitation:

- Portable toilets shall be provided, as necessary, at convenient locations at the project. Arrangements shall be made for the routine servicing and cleaning of these units.
- Under temporary field conditions, provisions shall be made to assure that at least one toilet facility is available.
- Toilets shall be provided. Where toilet rooms may be occupied by no more than one person at a time, can be locked from the inside, and contain at least one toilet seat, **separate toilet rooms for each sex need not be provided.**
- Safe drinking water is to be provided at each project and provisions shall be made as necessary to provide safe drinking water at individual field locations. One-serving size individual bottle of water or disposable sanitary cups shall be provided along with receptacles for their disposal. All outlets dispensing non-potable water (under TVA control) shall be posted with appropriate warning signs. Systems furnishing non-potable water and systems furnishing potable water shall be constructed to remain completely independent of each other.
- Portable washing facilities shall be provided as necessary at project sites. Portable washing facilities shall consist of, at a minimum, soap, water, and paper towels. When it is not feasible to use soap and water, such as during freezing weather, Handi-wipes or equivalent shall be made available.

12.26 Fire Prevention and Protection Plan

This section details fire prevention and protection procedures/resources to be used at the project.

12.26.1 Workplace Fire Hazards

The primary fire hazards at the project consist of fueling operations, storage of fuels, other flammable liquids at the project site, and welding and cutting activities.

12.26.2 Potential Ignition Sources

The significant ignition sources at the project include smoking materials, welding/cutting equipment, vehicle/equipment exhaust, catalytic converters, and engine block surfaces. Personnel shall also be alert for other ignition sources such as static electricity, lightning, and electrical equipment.

12.26.3 Fire-Control Systems, Equipment, and Procedures

Depending on the nature and extent of any fire, the following fire-control systems and equipment shall be evaluated or provided for at the project:

- The fire department shall be contacted prior to beginning new operations at the project site. The fire department shall also be contacted at the conclusion of operations.
- Fire extinguishers shall be provided at selected locations in contractor-controlled facilities and work areas. Project vehicles and heavy equipment shall also be equipped with fire extinguishers.
- Hudson sprayers filled with potable water shall be available when performing work at remote locations where dry grass exists.
- A Contractor Hot Work Permit is required before a flame- or spark-producing activity is to commence. Hot work permits will be performed in accordance with TVA procedure.
- Flammable and oxidizing materials shall be stored in marked (No Smoking, Matches, or Open Flame) flammable materials storage areas with fire extinguishers available.
- Smoking shall only be permitted in designated areas. Personnel shall never discard cigarette butts into the environment while working at the project site.
- Project personnel are only permitted to extinguish small fires in their incipient stages.
- Fighting fires is prohibited by project personnel and shall only be performed by the local fire department.

12.26.4 Fire-Control Equipment Maintenance Responsibilities

The contractor SSHO is responsible for the monthly inspections and annual service of all fire extinguishers provided at contractor facilities and work areas. Vehicle and heavy equipment operators are responsible for the inspection and service of fire extinguishers on vehicles/equipment.

13.0 Site-Specific Hazards and Controls

The AHAs identify potential safety, health, and environmental hazards associated with specific tasks and provide protective measures for personnel, the community, and the environment.

The AHAs will be developed for all major tasks performed for the project and included in the APP. The AHAs (see Attachment 4, "Activity Hazard Analyses") will be reviewed and modified by the contractor SSHO and PHSM (with input from field employees and subcontractors). An AHA will also be prepared when new tasks are added, the job situation changes, or when it becomes necessary to alter safety requirements. Work will not proceed on a particular task/phase until the AHA has been reviewed with the work crews. Additions or changes to the AHAs, which are less conservative or allow for a downgrade in PPE requirements, must have written approval from the TVA PHSM. In addition, changes to the APP must be attached as an APP Amendment (Attachment 5, "Site-Specific Accident Prevention Plan Amendments"). Any amendments must have written approval from TVA's PHSM and PM.

The names of the competent/qualified person(s) required for a particular activity (*i.e.*, excavations, crane operations, scaffolding, fall protection, and other activities), as applicable will be identified and included in the AHA.

The AHAs will be reviewed and modified throughout the workday, as necessary, to address changing site conditions, operations, or changes of competent/qualified person(s). AHAs will also be reviewed and modified during the daily tailgate safety and JSA meetings. Modifications will be handwritten in ink on the specific AHA. If more than one competent/qualified person will be used on the AHA, a list of names will be included as an attachment to the AHA. Those listed will be competent/qualified for the type of work involved and familiar with current site safety issues. If a new competent/qualified person (not on the original list) is added, the list will be updated (this is an administrative action not requiring an updated AHA). The new person will acknowledge, in writing, that he/she has reviewed the AHA and is familiar with current site safety issues.

The JSA will be revised, as necessary, when unforeseen circumstances arise or work site conditions change. Any revisions will be immediately communicated with the affected site workers. If the need to complete an unplanned task becomes necessary at any point throughout the day, a new JSA will be prepared to cover that task.

References

Code of Federal Regulations, Title 29, Part 1910, *Safety and Health Regulations for General Industry*, U.S. Government Printing Office, Washington, D.C., <http://www.access.gpo.gov/nara/cfr/index.html>.

Code of Federal Regulations, Title 29, Part 1926, *Safety and Health Regulations for Construction*, U.S. Government Printing Office, Washington, D.C., <http://www.access.gpo.gov/nara/cfr/index.html>.

National Institute for Occupational Safety and Health, 2005, *Pocket Guide to Chemical Hazards*, Publication No.2005-149, Cincinnati, Ohio, September.

TVA Safety Program Policies and Procedures

Attachment 1
TVA Health and Safety
Procedure Topics

TVA Health and Safety Procedure Topics

Chapter I TVA Safety Program

Number Subject Revision

Section 1 Program

101 TVA-SPP-18.0, “TVA Safety Program” 1
102 TVA-SPP-18.001, “Develop Safety Program Documentation” 3
103 TVA-SPP-18.002, “Establish Annual Safety Goals” 0
104 TVA-SPP-18.003, “Implement Labor Contract Safety Requirements” 1
105 TVA-SPP-18.004, “Implement Industrial Hygiene Activities” 0
106 TVA-SPP-18.005, “Plan Jobs Safely” 4
107 TVA-SPP-18.006, “Operate Certified Health and Safety Committees” 3
108 TVA-SPP-18.007, “Recognize and Reward Safety Performance” 1
109 TVA-SPP-18.008, “Implement Safety Training Requirements” 1
110 TVA-SPP-18.009, “Investigate Employee Hazard Identification Reports” 1
111 TVA-SPP-18.010, “Conduct Serious Accident Investigation” 4
112 TVA-SPP-18.011, “Conduct Workplace Regulatory Compliance Inspections 0
113 TVA-SPP-18.012, “Report and Investigate Injuries and Illnesses” 3
114 TVA-SPP-18.013, “Conduct Safety Program Assessments” 0

Section 2 Administrative

201 TVA Safety Manual 3
202 Health & Safety Policy 0
203 Safety Awareness Bulletins 0
204 Employee Safety Handbook 0
205 Management Accountability and Responsibility for Health and Safety 0
206 Employee Responsibilities and Rights 0
207 General Safety Rules & Employee Conduct 1
208 Availability of Health & Safety Information, Records, & Reports for Review 0
209 Health & Safety Bulletin Boards 0
210 Safety Resource Network (SRNet) 0
211 Central Safety Management Review Team (CSMRT) 1
212 Programs and Activities Team 1
213 Rules and Procedures Team 0
214 Chemical Hygiene for Laboratories 2
215 Hazard Assessment / Evaluation 0
216 Hazard Communication 2

Number Procedure Title Revision

2
217 Safety Coaching Visits 2
218 Pre-Job Briefing / Post-Job Review 1
219 Process Safety Management 1
220 Safety Meetings 2
221 Safety Recognition and Awards 0
222 Safety Self-Assessments 2
223 Weapon (Deslagging Shotgun) Accountability Policy 0
224 Worker's Compensation & Case Management 1
225 Classifying and Recording Work Injuries - **Cancelled** 1
226 Safety Stand-down 0

Section 3 Personal Protective Equipment

301 Breathing Air Systems 0
302 Electrical Arc Flash Protection 2
303 Emergency Showers / Eye Wash 0
304 Eye & Face Protection 3
305 Fall Protection Systems 6
306 Flotation Devices 1
307 Foot Protection 0
308 Hand Protection 5
309 Head Protection 2
310 Hearing Conservation 3
311 Ladder Climbing Safety Devices 1
312 Respiratory Protection (Non nuclear) 4
313 Special Protective Clothing 1
314 Wearing Apparel and Conductive Articles 2

Section 4 Health and Safety Training

Links to Health and Safety Training Materials
401 Health and Safety Training 10

402 Accident Investigation for Supervisors Course Standard 0
403 Aerial Lifts Course Standard 1
404 All Terrain Vehicle (ATV) Safety Course Standard 0
405 Ammonia Awareness Course Standard 1
406 Boating Safety Course Standard 0
407 Chain Saw Safety Course Standard 0
408 Chemical Cleaning of Boilers Course Standard 0
409 Chemical Hygiene Orientation Course Standard 0
410 Confined Space Entry Course Standard 3
411 Crane Safety (Mobile) Course Standard 3

Number Procedure Title Revision

3

412 Crane Safety (Overhead) Course Standard 1
413 Crane Safety (Pendant) Course Standard 1
414 Defensive Driving Course Standard 1
415 Arc Flash Hazard Calculation & Required Protection Course Standard 4
416 Electrical Safety per OSHA 1910.269 Course Standard 0
417 Employee Safety Orientation Course Standard 1
418 Ergonomics Course Standard 0
419 Excavating & Trenching (Affected Person) Course Standard 0
420 Excavating & Trenching (Competent Person) Course Standard 0
421 Fall Protection Systems Course Standard 0
422 Flagging Motor Vehicle Traffic Course Standard 1
423 Forklift Operations Course Standard 0
424 Grounding Safety Procedures Course Standard 3
425 Hand & Portable Power Tools Course Standard 0
426 Handling & Storage of Compressed Gases / Flammable / Combustible Liquids Course Standard

0

427 Hazard Communication Course Standard 0
428 Hazard Recognition and Control Course Standard 0
429 Health & Safety Committee Course Standard 0
430 Hearing Conservation Course Standard 0
431 Heat Stress Course Standard 2
432 Herbicide / Pesticide Applicator Course Standard 1
433 Inorganic Arsenic Course Standard 1
434 Inorganic Lead Course Standard 1
435 Safety Coaching Visits Course Standard 1
436 Job Safety Analysis Course Standard 0
437 Ladder Safety Course Standard 0
438 Lockout / Tagout (FM) Course Standard 0
439 Machine & Equipment Safety Course Standard 0
440 Mercury Awareness Course Standard 0
441 Personal Protective Equipment Course Standard 1
442 Powder Actuated Tools Course Standard 1
443 Radiation Boundary Course Standard 0
444 Radio Frequency (RF) and EMF Course Standard 0
445 Railroad Safety Course Standard 0
446 Refractory Ceramic Fibers Course Standard 0
447 Respiratory Protection (Non-Nuclear) Course Standard 2
448 Rigging Course Standard 2
449 Rivers and Decks Skills Course Standard 1
450 Scaffolds (Built-up & Suspended) Course Standard 1
451 Supervisory Safety Orientation Course Standard 1
452 Introduction to the TVA Safety Manual Course Standard 0

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453 How to Use the TVA Safety Manual Course Standard 1
454 Serious Accident Investigation Course Standard 0
455 OSHA Safety Training Course Standard 1
456 Formaldehyde Awareness Course Standard 1
457 Recording – Reporting – Classifying Occupational Injuries and Illnesses Course Standard 0
458 Safety Orientation for Staff Augmented Contractors Course Standard 0
459 Clearance Procedure Course Standard 0
460 Hexavalent Chromium Course Standard 0
461 Grounding Safety Procedures for Transmission Lines and Equipment Course Standard 0

Section 5 SERTA / Fire Training

501 Fire Brigade Membership 0
502 Fire Brigade Member Practical Review 0

503 Plant Annual Fire Brigade Refresher 0
504 Annual Fire Brigade Training (Nuclear ART) 0
505 Structural Fire Brigade Member 0
506 Fire Brigade Leadership 0
507 Fire Brigade Leadership Practical Review 0
508 CTP Incipient Stage Firefighting 1
509 Hydro Incipient Stage Firefighting 1
510 Confined Space Rescue-Fossil 0
511 Confined Space Rescue-Drill 0
512 Confined Space / Tech Rescue Instructor 0
513 Confined Space Rescue Instructor Refresher 0
514 Driver / Pump Operator 0
515 Introduction to Hazardous Materials 0
516 HazMat Operations Upgrade (Spill Response) **CANCELLED** 1
517 CPR / Bloodborne Pathogens Refresher 0
518 Airway Management Refresher 0
519 Patient Assessment Refresher 0
520 Trauma Management Refresher 0
521 Medical / Behavioral Refresher 0
522 OB / Infants / Children Refresher 0
523 Emergency Medical Technician 0
524 Adult-Child-Infant CPR / AED 0
525 Introduction to Donning and Doffing Level A Chemical Protective Suits 0
526 Hydro Fire Incident Command Coordinator 0
527 HAZWOPER Refresher **CANCELLED** 1
528 Yard Operations Incipient Stage Firefighting 0
529 Pre-hospital Emergency Management of Acute Stroke 0

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Chapter II General Safety

Section 6 General

601 All Terrain Vehicles 0
602 Barricades and Barriers (Temporary) 3
603 Boating Safety 0
604 Ergonomics Guidelines 0
605 Guarding Floor & Wall Openings 0
606 Hand Tools 0
607 Housekeeping 0
608 Identification of Piping Systems 1
609 Lifting / Handling Materials 3
610 Motor Vehicle Operations 5
611 Office Safety 2
612 Warning Signs 1
613 Clearance Procedure to Safely Control Hazardous Energy Using Group Tagout
4
614 Fabrication or Modification of Tools 1
615 Reserved
616 Movement of Items Using Material Handling Equipment 0

Section 7 Mechanical

701 Abrasive Blast Cleaning 0
702 Aerial Lifts 5
703 Brush Cutting and Trimming 0
704 Chain Saw Operations 1
705 Compressed Air 0
706 Compressed Gas Cylinders 3
707 Conveyor Safety Operations 0
708 Crane Suspended Work Platforms 1
709 Elevator Safety 0
710 Grinding and Cutting 3
711 Heavy Equipment Operations 1
712 Ladders (Fixed) 0
713 Ladders (Portable) 2
714 Machine Guarding 0
715 Mowers 0
716 On-line Maintenance of High Pressure Feedwater Heaters 0
717 Painting 0

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718 Pneumatic Tools 0
719 Portable Heating Equipment 0
720 Powder Actuated Tools 1
721A Rigging (Non-Nuclear) 6
721B Rigging (Nuclear) 6
721C TVA Rigging Manual 0
721D Rigging Equipment Standard Procurement Specifications 0
722 Ship's Ladders 1

Section 8 Special Work Requirements

801 Confined Space Entry 4
802 Requirements for the Safe Operation of Cranes 4
803 Drilling or Chipping in Concrete 3
804 Excavations and Trenching 4
805 Forklift Operations 4
806 Heat Stress 6
807 Heating / Cooling of Components 0
808 Helicopter Operations 1
809 Hot Work 3
810 Marine Operations for Tugboats and Deckhands 2
811 Radiography Operations 0
812 Railroad Operations 1
813 Scaffolds and Temporary Work Platforms 5
814 Underwater Diving Operations 3
815 Welding and Cutting 2

Section 9 Chemical / Hazardous Materials

901 Ammonia 1
902 Arsenic 1
903 Asbestos Management Plan 5
904 Cadmium 0
905 Caustics 0
906 Combustible & Flammable Liquids 3
907 Cryogenic Materials 0
908 Explosives 0
909 Lead 0
910 Mercury 2
911 Pesticides / Herbicides 0
912 Refractory Ceramic Fiber Guidelines 0

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913 Silica 0
914 Sulfuric Acid 0
915 Hexavalent Chromium 3

Section 10 Electrical General

1001 Conventional Hot Line Work 0
1002 Electrical Handlamps 0
1003 Electrical Switching Operations 0
1004 Extension Cords and Attachments 4
1005 Fuse Handling 1
1006 Generator Special Precautions 0
1007 Ground Fault Circuit Interrupters (GFCI) 1
1008 Temporary Protective Grounding for Generating Stations and Other Non-Transmission Facilities
6
1009 Guarding Energized Electrical Equipment 0
1010 Jumpers 1
1011 Portable and Vehicle Mounted Generators 0
1012 Portable Electrical Tools & Attachments 3
1013 Radio Frequency (RF) Safety 1
1014 Safe Distribution Systems 0
1015 Temporary Electrical Power Supply & Wiring Systems 0
1016 Temporary Lighting 0
1017 Transformers - Current and Potential 0
1018 Vehicle Operations Near Energized Lines / Equipment 0
1019 Wet Cell Storage Batteries 0
1020 Work in Coal Handling Areas 0
1021 Working on/or Near Energized Electrical Equipment 3
1022 Arc Flash Hazard Calculation and Required Protection 6

Chapter III Transmission / Substation / Telecommunication

Section 11 General - Transmission / Substation / Telecommunication

1101 Responsibilities and General Requirements for Transmission Employees 8
1102 Electrical Safety - General 1
1103 Electrical Protective Equipment 3
1104 Electrical Safety Non-Power Systems 2
1105 Field and Shop Safety for Transmission Workers 2
1106 Hazardous Material Handling for Transmission Workers 1
1107 Identifying Energized Electrical Hazards 1

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1108 Manual Material Handling for Transmission Workers 2
1109 Protective Grounding 5
1110 Minimum Clearance Distances for Energized Work 2

Section 12 Transmission / Generation / Electrical Testing / Telecommunication Work Activities

1201 General Requirements for Transmission, Substation and Telecommunication 4
1202 Electrical Testing 1
1203 Energized Equipment Maintenance 1
1204 Helicopter Operations for Transmission Line Work 1
1205 Insulator Cleaning on Energized Circuits and Equipment 1
1206 Live-line Work 1
1207 Stringing and Removing Conductors 2
1208 Transmission Line Work 4
1209 Right-of-Way Clearing and Grounds Maintenance 2
1210 Telecommunication Safety Requirements 2
1211 Telecommunication Tower Climbing 1

Section 13 Sub-Station and Switchyard

1301 General Requirements for Substation and Switchyard Work 1
1302 Capacitor Banks 1
1303 Gas-Insulated Switchgear 1
1304 Instrument Transformers 3
1305 Lightning Arresters 1
1306 Power Circuit Breakers 2
1307 Power Transformers 1
1308 EHV Switchyards 4
1309 Underground Electrical Installations 1

Chapter IV Non – Power

Section 14 ADMIN / CS&M

1401 Customer Service 0

Chapter V Appendix

Section 15 Reference

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1501 Conductor Characteristics 2
1502 Construction Design Distances for New Lines 1
1503 Safety Grounding for Maintenance Work on an Interrupter Head with Open Contacts 1
1504 Safety Grounds and Field Test Procedure for Safety Grounds 5
1505 Substation Locations Requiring Multiple Sets of Safety Grounds (FY 2006) 4
1506 Transmission Lines Requiring Multiple Sets for Safety Grounds (FY 2006) 4
1507 Notes on Using Multiple Sets of Safety Grounds 4
1508 Rigid Bus Current Carrying Capacity 1
1509 Minimum Net Clearances from Live Parts Through Air 1
1510 Poles Average Weights 1
1511 Aluminum Bus Weights 0
1512 Transmission Line Insulated Lifting Devices 0

Section 16 Useful Safety Information

1601 Definitions 1
1602 Hand Signals for Controlling Crane Operations 2
1603 Hand Signals for Helicopter Operations 1
1604 Hand Signals for Railroad Operations 1
1605 Hand Signals for Wire Stringing Operations 1
1606 Metric Conversion Units 2
1607 Rigging / Lifting 3
1608 Color Code for Marking Physical Hazards and the Identification of Certain Equipment 1

1609 Color Codes for Electrical Tests for Hotsticks, Insulated Measuring Sticks, Safety Grounds, Extension Cords and Electric Tools
3
1610 TVA Medical Constraints Codes 1
1611 Procedure for Handling Faulted SF6 Gas 1
1612 Public Safety Operating Machines or Equipment Proximate to Power Lines 1

Section 17 Safety Permits

1701 Confined Space Entry Permit 3
1702 Cutting, Welding, Open Flame and Spark Production Permit 1
1703 Drilling or Chipping in Concrete Permit 2
1704 Excavation Permit 1
1705 High Hazard Lift Plan 2
1706 Radiography Authorization 1
1707 Scaffold Permit and Scaffold Permit Log 1

Section 18 Safety Forms

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1801 Accident Investigation and Reporting 3
1802 Administrative and Program 2
1803 Committees and Teams 1
1804 General Purpose 1
1805 Inspections and Audits 2
1806 Hazard Assessments 1
1807 Equipment Inspections 1

Section 19 Safety Tools

1901 Chemical Inventory List 1
1902 Horizontal Lifelines Load Estimator 1
1903 Injury Rate Calculator 1
1904 Injury Rate Goal Estimator 1
1905 Interlocking Audit Tracking 1
1906 Respirator Fit Test Tracking 1
1907 Safety Self-Assessment **CANCELLED** 2
1908 Template for Safety Awareness Bulletins 1
1909 Template for Safety Meeting Topics 1
1910 Template for Safety Training Materials Development 1
1911 Template for TVA Safety Procedures 1
1912 Training Requirements / Needs Assessment 1
1913 OSHA Cold Stress Equation 1
1914 OSHA Heat Equation 1
1915 Heat Stress Management Work Guide 2
1916 Respirator Regulator + SCBA Cylinder Testing Tracking 0
1917 Template for Annual Industrial Hygiene Plan 0
1918 Arc Flash Incident Energy Calculator 0

Section 20 How To

2001 Calculate Work Injury / Illness Incidence Rates 2
2002 Conduct an Interlocking Safety Audit 2
2003 Conduct a Safety Inspection 1
2004 Conduct a Safety Meeting 1
2005 Find Material Safety Data Sheet (MSDS) 1
2006 Find OSHA Information 1
2007 Find Safety Information 1
2008 Guidelines for Posting Information on Health and Safety Bulletin Boards 1
2009 Handle Drums 1
2010 Handle an OSHA Visit 1

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2011 Perform Grinding Wheel “Ring” Test 1
2012 Sharpen Lineman’s Climbers 1
2013 Instructions for Conducting Regulatory Workplace Compliance Inspections 1
2014 Obtain a Medical Examination 1
2015 Obtain Industrial Hygiene Services 1
2016 Check for Lead 0
2017 Conduct Assessment of Confined Spaces 0
2018 Boost Vehicle Battery 0
2019 Set-up OSHA Injury Recordkeeping 0
2020 Elements of a Job Safety Plan (NEW)

Attachment 2
Accident Prevention Plan Acknowledgement

Safety and Health Plan
Acknowledgement Form

I have been informed of, and will abide by the procedures set forth in this health and safety accident prevention plan for Emory River Dredging at the TVA Kingston Fossil Plant, Harriman, Tennessee. By signing this acknowledgement form, I certify receipt of accident prevention plan training and hazard communication training required for safe performance of my job at the TVA reservation.

Printed Name	Signature	Representing	Date

Attachment 3
Key TVA Procedures

TVA will provide applicable procedures based on contractor specific scope of activities

Attachment 4
Activity Hazard Analysis

ACTIVITY HAZARD ANALYSIS

ACTIVITY Dredging ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Dredge Set-up and Deployment	The Failure to Communicate task ideals to the crew may lead to an injury, illness, environmental spill, and rework of task or other negative occurrences	• All field crew will review all aspects and impacts of SOP and AHA prior to beginning any work tasks. • MSDS sheets will be reviewed for any applicable chemicals. • All crew members will sign off on AHA acknowledgement form verifying that all stipulations will be followed. • AHA will be amended to reflect changes that need to be made to activity prior to the implementation of the change, by both Operations and Health and Safety. • A Job Safety Analysis (JSA), as required by TVA shall be prepared by the crew prior to commencing daily activities. • The JSA shall be revised at any time throughout the workday when new tasks are initiated, unforeseen circumstances arise, or if working conditions change.
	Improper Setup of Work Area	• Delineate the work zone by use of barricades or rope. • Ensure the work areas are secured and separate from other operations. • Keep other non-essential personnel out of the area. Only task specific personnel shall be allowed in the work area • If work-area is exposed to traffic, an appropriate traffic pattern shall be determined and executed with the use of traffic control personnel.
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Dredge Crane Pipe/Hose Heavy equipment Slings, chains, ropes; First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers)	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Dredging ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
	Caught In/ Between Moving Parts	• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar motions • Assure guards are in place to protect from these parts of equipment during operation • Provide and use proper work gloves when the possibility of pinching, or other injury may be caused by moving/ handling large or heavy objects • Maintain all equipment in a safe condition • Keep all guards in place during use • De-energize and lock-out machinery before maintenance or service
	Cuts/Punctures	• Wear prescribed hand protection. • Beware of sharp equipment, tools, and other materials. • Mark, identify sharp objects and protrusions or hidden hazards and eliminate or protect from the hazards-communicate the hazard to others. • Maintain all hand and power tools in a safe condition.
	Fire/Explosion	• Smoking is restricted to designated areas. • Any spark producing task requires a “Hot Work Permit”. • Practice good housekeeping.
	Crane	• The crane operator shall have had a physical examination within the last year. • Only qualified personnel shall be permitted to operate the crane. • The crane shall have had a periodic inspection, a pre-operational inspection, must

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Dredge Crane Pipe/Hose Heavy equipment Slings, chains, ropes; First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers)	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Dredging ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
		be inspected prior to each lift. • Clearance from all overhead electrical wires shall be maintained. All traffic regulations shall be observed. • The crane operator shall ensure all mechanical guards are in place and functioning properly. • All equipment shall be shut down with energies dissipated and locked/tagged out prior to performing maintenance activities. • Only qualified mechanics shall work on or repair the crane. All required tests are to be completed after crane maintenance. • Personnel are prohibited from standing or working under the boom. • TVA procedure 802 Requirements for the Safe Operation of Cranes applies to all crane operations • A lift-plan shall be completed for each lift. The operator shall direct all set-up and lifting operations. • A tag line shall be used if it does not create an additional hazard. • Rigging shall be inspected before each use. Deficiencies shall be noted on the inspection form. • Rigging load capacities shall be evaluated before use. • Chains shall not be used for lifting unless chains are made of alloy steel and are manufactured for use in lifting. Rigging found to be unsafe shall not be used, tagged, and taken out of service.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Dredge Crane Pipe/Hose Heavy equipment Slings, chains, ropes; First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers)	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Dredging ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
	Pinch points/heavy materials movements	• Ground personnel shall not position themselves between equipment and stationary objects and shall only approach equipment after a signal from the operator. • Personnel shall maintain eye contact with the operator when approaching equipment. • Personnel are prohibited from entering the swing radius of booms. Equipment load capacities shall not be exceeded. • Only one person is to give hand signals/direction to an operator at any given time.
	Underground/Overhead Utilities	• Identify all utilities around the site before work commences. • Cease work immediately if unknown utility markers are uncovered. • Use manual excavation within 3 feet of known utilities • Utility clearance shall conform with 29 CFR 1926.955 (high voltage >700 kv) 15 feet phase to ground clearance; 31 feet phase to phase clearance.
	Caught In/ Between Moving Parts	• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar injuries. • Assure guards are in place during equipment operations. • Provide and wear proper work gloves when the possibility of crush, pinch, or other injury may be caused by moving/stationary edges or objects • Maintain all equipment in a safe condition.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Dredge Crane Pipe/Hose Heavy equipment Slings, chains, ropes; First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers)	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Dredging ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
	Use of rigging.	• Keep all guards in place during use. De-energize and lock-out machinery before maintenance or service in accordance with TVA lock-out-tag-out procedures. • Rigging shall be inspected by a competent person before each use. • Deficiencies shall be noted on the inspection form. • Rigging found to be unsafe shall not be used and shall be tagged and taken out of service. • Rigging shall be marked to indicate safe working loads. • TVA inspection forms for rigging will be completed daily.
	Work near Water	• Wear USCG Approved TYPE III, V, or better, personal flotation devices for work activities on or near water where potential for drowning exists. Inflatable PFDs are not permitted. • Each task, on/above or near water, must be evaluated by a competent person, e.g. SSO, for safety and the work halted if conditions are deemed too hazardous. • USCG approved PFDs equipped with automatically activated lights for all work outside of daylight hours. • Provide a floating ring buoy with at least 90 feet in the immediate boat launch/land areas • Place ring buoys not more than 200 feet apart

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Dredge Crane Pipe/Hose Heavy equipment Slings, chains, ropes; First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers)	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Dredging ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
	Strains from manually moving materials and equipment Sharp Objects Slips, trips, and falls Injury from use of power and hand tools	• Direct personnel to use proper lifting techniques such as keeping back straight, lifting with legs, limiting twisting, and getting help in moving bulky/heavy materials and equipment. • Mechanical equipment will be used whenever possible. • Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects. • Maintain all tools in a safe condition. • Keep guards in place during use. • Use a long handle shovel to move auger cuttings away from the auger. • Visually inspect work areas, and mark, barricade, or eliminate slip, trip, and fall hazards. • Maintain good housekeeping. • Maintain proper illumination in work areas. • Personnel shall maintain a steady pace when using tools and take adequate rest periods. • Tools shall be appropriate for the task and maintained in good condition. • Inspect all power and hand tools before each use. • Train personnel in the use of all power equipment. • Keep electric cords tangle-free and out of the way of rotating tools. • Use pneumatic or double-insulated power tools when possible.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Dredge Crane Pipe/Hose Heavy equipment Slings, chains, ropes; First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers)	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Dredging ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
		• Protect electric tools with ground fault circuit interrupters (GFCI).
	• • High/Low Ambient Temperature	• • Monitor for Heat/Cold stress in accordance with TVA Health and Safety Procedures • Provide fluids to prevent worker dehydration • Follow work/rest schedule in APP

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Dredge Crane Pipe/Hose Heavy equipment Slings, chains, ropes; First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers)	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Excavation of Buried Obstructions ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Excavation	Underground/Overhead Utilities	• Identify all utilities around the site before work commences. • Cease work immediately if unknown utility markers are uncovered. • Use manual excavation within 3 feet of known utilities • Utility clearance shall conform with 29 CFR 1926.955 (high voltage >700 kv) 15 feet phase to ground clearance; 31 feet phase to phase clearance. • Complete the underground utility permit in accordance with TVA procedures.
	Pinch points/heavy materials movements	• Ground personnel shall not position themselves between equipment and stationary objects and shall only approach equipment after a signal from the operator. • Personnel shall maintain eye contact with the operator when approaching equipment. • Personnel are prohibited from entering the swing radius of booms and counterweights. Equipment load capacities shall not be exceeded. • Only one person is to give hand signals/direction to an operator at any given time.
	Struck By/ Against Heavy Equipment	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Dump Trucks Heavy equipment Slings, chains, ropes; First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers) Complete underground utility permit in accordance with TVA requirements	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR 10-Hour Construction Safety current w/in 3 Years

ACTIVITY HAZARD ANALYSIS

ACTIVITY Excavation of Buried Obstructions ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
	Injury from vehicular traffic	• Step away from equipment when bucket adjustments are made. • Park equipment in areas where operator can see clearly to dismount equipment • Use "spotters when backing. • Ensure the equipment has operable back-up alarms • All personnel shall wear DOT Class 3 safety vests when working on any roadway. • All vehicles will have spotters when backing up or maneuvering in restricted clearance areas.
	Caught In/ Between Moving Parts	• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar injuries. • Assure guards are in place during equipment operations. • Provide and wear proper work gloves when the possibility of crush, pinch, or other injury may be caused by moving/stationary edges or objects • Maintain all equipment in a safe condition. • Keep all guards in place during use. De-energize and lock-out machinery before maintenance or service in accordance with TVA procedures.
	Use of rigging.	• Rigging shall be inspected by a competent person before each use. • Deficiencies shall be noted on the inspection form.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Dump Trucks Heavy equipment Slings, chains, ropes; First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers) Complete underground utility permit in accordance with TVA requirements	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR 10-Hour Construction Safety current w/in 3 Years

ACTIVITY HAZARD ANALYSIS

ACTIVITY Excavation of Buried Obstructions ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
		• Rigging found to be unsafe shall not be used and shall be tagged and taken out of service. • Rigging shall be marked to indicate safe working loads. • TVA inspection forms for rigging will be completed daily.
	Work near Water	• Wear USCG Approved TYPE III, V, or better, personal flotation devices for work activities on or near water where potential for drowning exists. Inflatable PFDs are not permitted. • USCG approved PFDs equipped with automatically activated lights for all work outside of daylight hours. • Conduct work during low tide • Provide a floating ring buoy with at least 90 feet in the immediate boat launch/land areas • Place ring buoys not more than 200 feet apart
	Strains from manually moving materials and equipment	• Direct personnel to use proper lifting techniques such as keeping back straight, lifting with legs, limiting twisting, and getting help in moving bulky/heavy materials and equipment.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Dump Trucks Heavy equipment Slings, chains, ropes; First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers) Complete underground utility permit in accordance with TVA requirements	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR 10-Hour Construction Safety current w/in 3 Years

ACTIVITY HAZARD ANALYSIS

ACTIVITY Excavation of Buried Obstructions ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
	Sharp Objects	• Mechanical equipment will be used whenever possible. • Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects. • Maintain all tools in a safe condition. • Keep guards in place during use.
	Slips, trips, and falls	• Visually inspect work areas, and mark, barricade, or eliminate slip, trip, and fall hazards. • Maintain good housekeeping. • Maintain proper illumination in work areas.
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period)
	High Ambient Temperature	• Provide fluids to prevent worker dehydration • Monitor for heat stress in accordance with TVA procedures.
	Equipment failure	• Perform daily maintenance inspections on operating equipment • Inspect dump trucks before use
	Horseplay	• Prohibit horseplay on all project sites • Review rules about horseplay with subcontract supervisors and workers • Remind workers not to respond/participate in horseplay started by others

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Dump Trucks Heavy equipment Slings, chains, ropes; First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers) Complete underground utility permit in accordance with TVA requirements	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR 10-Hour Construction Safety current w/in 3 Years

ACTIVITY HAZARD ANALYSIS

ACTIVITY Excavation of Buried Obstructions ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
	Injury from use of power and hand tools	• Personnel shall maintain a steady pace when using tools and take adequate rest periods. • Tools shall be appropriate for the task and maintained in good condition. • Inspect all power and hand tools before each use. • Train personnel in the use of all power equipment. • Keep electric cords tangle-free and out of the way of rotating tools. • Use pneumatic or double-insulated power tools when possible. • Protect electric tools with ground fault circuit interrupters (GFCI).

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Dump Trucks Heavy equipment Slings, chains, ropes; First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers) Complete underground utility permit in accordance with TVA requirements	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR 10-Hour Construction Safety current w/in 3 Years

ACTIVITY HAZARD ANALYSIS

ACTIVITY Motor Boat Activities ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Boat Mobilization /Launching	Load Shift in Transit Caught In/ Between Objects or Pinch Points Struck By/ Against Heavy Equipment Slips, Trips, Falls	• Follow trailer/boat manufacturer's instructions for securing boat to trailer • Follow trailer/boat manufacturer's instructions for securing boat trailer to towing vehicle • Prohibit loading of heavy objects in boat during transport • Prohibit workers from moving into trailer/vehicle pinch points without advising vehicle operator • Use experienced operators when backing trailers on boat ramps • Wear proper work gloves when the possibility of pinching, or other injury may be caused by moving/ handling large or heavy objects • Maintain all equipment in a safe condition • Wear reflective warning vests when exposed to vehicular traffic • Launch boats one at a time to avoid collisions • Use a spotter for vehicles backing boats to launch area • Understand and review hand signals • Wear boots with non-slip soles when launching boats • Wear USCG approved flotation devices when working on/near water • Keep ropes and lines coiled and stowed to eliminate trip hazards • Maintain 3 point contact on dock/pier ladders

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Trucks / Vehicles Survey Equipment Boats First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA procedures Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers) Complete underground utility permit in accordance with TVA requirements	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Motor Boat Activities ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Boat Mobilization (Continued) On-Water Boat Operations	Drowning Capsizing (Slips, Trips, Falls) Handling Heavy Objects Sprains and Strains (Overexertion) Sharp Objects	• Wear USCG Approved personal flotation devices for work activities on or near water • Provide a floating ring buoy with at least 90 feet of rope in the immediate boat launch/land areas • Step into the center of the boat • Keep your weight low when moving in the boat • Move slowly and deliberately • Steer boat facing forward • Watch for floating objects in the water • Right-of-way is yielded to vessels on your boat's right (and vessels with limited ability to maneuver) • Cleanup spills immediately on docks, piers and ladders • Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (pulleys, winches) to move large, awkward loads • Use mechanical means to lift large/heavy objects from the water • Use even strokes when pull starting outboard engines • Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Trucks / Vehicles Survey Equipment Boats First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA procedures Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers) Complete underground utility permit in accordance with TVA requirements	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Motor Boat Activities ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
	Injury from use of power and hand tools	• Maintain all equipment in a safe condition • Keep guards in place during use • Personnel shall maintain a steady pace when using tools and take adequate rest periods. • Tools shall be appropriate for the task and maintained in good condition. • Inspect all power and hand tools before each use. • Train personnel in the use of all power equipment. • Keep electric cords tangle-free and out of the way of rotating tools. • Use pneumatic or double-insulated power tools when possible. • Protect electric tools with ground fault circuit interrupters (GFCI).
	Insect Bites	• Avoid insect nests areas, likely habitats along shore lines • Use insect repellant, wear PPE to protect against sting/bite injuries
	Contact Dermatitis	• Wear PPE to avoid skin contact with contaminated materials • Change socks and/or gloves to avoid water borne bacteria/contamination
	Drowning	• Wear USCG Approved personal flotation devices for work activities on or near water • Provide a floating ring buoy with at least 90 feet of rope in the immediate boat launch/land areas

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Trucks / Vehicles Survey Equipment Boats First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA procedures Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers) Complete underground utility permit in accordance with TVA requirements	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Motor Boat Activities ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
	Capsizing (Slips, Trips, Falls)	• Step into the center of the boat • Keep your weight low when moving in the boat • Move slowly and deliberately • Steer directly across other boat wakes at 90 degree angle to avoid capsizing • Cleanup spills immediately on docks, piers and ladders
	Boat Adrift/Survival	• Maintain a minimum of 1 anchor with rope • Maintain a minimum of 90 feet of rope attached to shore • Maintain a minimum of 1 boat plug • Maintain a minimum of 2 oars • Maintain a minimum of 1 two-way radio / cell phone • Keep at least one person on shore to facilitate on shore emergency services when needed
	Allergic Reaction	• Provide workers proper skin protection to prevent skin allergic reaction from exposure boom material, spill contaminants, or other skin irritants
	Caught In/ Between Objects	• Keep hands inside boat in proximity to other boats, on- water objects, piers • Wear proper work gloves when the possibility of pinching, or other injury may be caused by moving/ handling large or heavy objects • Maintain all equipment in a safe condition

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Trucks / Vehicles Survey Equipment Boats First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA procedures Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers) Complete underground utility permit in accordance with TVA requirements	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Motor Boat Activities ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
	Inhalation and Contact with Hazardous Substances	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Review hazardous properties of site contaminants with workers before operations begin • Monitor breathing zone air to determine levels of contaminants
	Severe Weather	• Halt all on water operations for lightening, high winds, severe weather
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with TVA Health and Safety Procedures • Provide fluids to prevent worker dehydration

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Trucks / Vehicles Survey Equipment Boats First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Crane and Rigging Inspections per TVA procedures Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers) Complete underground utility permit in accordance with TVA requirements	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Survey Activities ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Survey Activities	**Collision with other vehicle, object or pedestrian; falling objects**	• Wear seat belt • Keep safe distance from other vehicle(s); use 2 second rule • Obey speed limit/traffic rules • Avoid distractions, e.g. cell phones, eating/drinking, reading map – stop/pull over to perform activities that may distract • Have proper directions to site; take route free of known road hazards, e.g. construction, pot holes; congested traffic flow • Maintain vehicle safety equipment, e.g. mirrors, alarms, horns, wipers, lights • Maintain vehicle, e.g. tire pressure, fluid levels • Keep head lights on for maximum visibility • Perform 360 degree walk-around of vehicle to look for potential hazards/obstructions before pulling-out of parking spaces (back-in parking space if possible) • Use a spotter if backing in/out of hazardous area, e.g. blind spot. • All personnel shall wear DOT Class 3 safety vests when working on any roadway • Avoid/isolate survey activities in high traffic areas, warehouse shipping/receiving areas • Make eye contact with vehicle operators before approaching/crossing high traffic areas • Understand and review hand signals • Emphasize the "Buddy System" where injury potential exists
	Struck By/ Against Motor Vehicles/ Operating Equipment	

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Trucks / Vehicles Survey Equipment First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers)	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Survey Activities ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
	Contact with wild animals / insects	• Avoid wild animals – leave area, call for assistance if confronted • Use animal repellant only in extreme emergency • Report all bites and seek medical attention • Use insect repellant containing "DEET" e.g. "Deepwoods Off" • Wear long sleeve shirt and pants if exposed to insects • Check body for ticks • Be wary of rattle-snakes and avoid remote, grassy areas of site or areas around rocks or rubble that may harbor snakes • Make noise walking through grassy areas to help chase animals/snakes that may be present. • If a snake or rattling sound is observed, move away from the snake or sound. • Know emergency numbers and route to hospital
	Contact Dermatitis/ Poison Ivy	• Wear long sleeve shirts / trousers to avoid skin contact with plants or other skin irritants • Identify and review poisonous plants with workers • Avoid unnecessary clearing of plant/vegetation areas • Cover vegetation with plastic (visqueen) where survey position raises exposure potential • Apply protective cream/lotion to exposed skin to prevent poison ivy or similar

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Trucks / Vehicles Survey Equipment First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers)	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Survey Activities ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
		reactions • Identify workers who are known to contract poison ivy • Monitor for heat/cold stress in accordance with TVA Health and Safety Procedures • Provide fluids to prevent worker dehydration
	High/Low Ambient Temperature **Work near Water**	• Wear USCG Approved TYPE III, V, or better, personal flotation devices for work activities on or near water where potential for drowning exists. Inflatable PFDs are not permitted. • USCG approved PFDs equipped with automatically activated lights for all work outside of daylight hours. • Conduct work during low tide • Provide a floating ring buoy with at least 90 feet in the immediate boat launch/land areas • Place ring buoys not more than 200 feet apart
	Strains from manually moving materials and equipment	• Direct personnel to use proper lifting techniques such as keeping back straight, lifting with legs, limiting twisting, and getting help in moving bulky/heavy materials and equipment. • Mechanical equipment will be used whenever possible.
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Trucks / Vehicles Survey Equipment First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers)	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

ACTIVITY HAZARD ANALYSIS

ACTIVITY Survey Activities ANALYZED BY/DATE REVIEWED BY/DATE

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
	Slips, trips, and falls **Injury from use of power and hand tools**	• Maintain all tools in a safe condition. • Keep guards in place during use. • Use a long handle shovel to move auger cuttings away from the auger. • Visually inspect work areas, and mark, barricade, or eliminate slip, trip, and fall hazards. • Maintain good housekeeping. • Maintain proper illumination in work areas. • Personnel shall maintain a steady pace when using tools and take adequate rest periods. • Tools shall be appropriate for the task and maintained in good condition. • Inspect all power and hand tools before each use. • Train personnel in the use of all power equipment. • Keep electric cords tangle-free and out of the way of rotating tools. • Use pneumatic or double-insulated power tools when possible. • Protect electric tools with ground fault circuit interrupters (GFCI).

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Trucks / Vehicles Survey Equipment First Aid/Emergency Equipment Power and Hand Tools USCG TYPE III or V PFDs Class 3 High Visibility Vests	Daily equipment inspections as per manufacturers requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers)	Review AHA with all task personnel Review APP Review operations/safety manuals for all equipment utilized Review all applicable TVA Health and Safety Procedures First Aid/CPR

Activity Hazard Analysis (AHA)

AHA 2.0 TVA Kingston Fossil Plant Contract No.

Activity: Field/Site Mobilization Analyzed by/date: _____ Reviewed by/date: _____

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Arrival of new personnel at site.	Unfamiliarity with: site, general (chemical, physical, environmental) site hazards, project safety rules and hazard control procedures, chain of command, and emergency procedures.	All personnel shall attend the site orientation training. After personnel are trained in the contents of the Health and Safety Plan (HASP), they shall sign the HASP Acknowledgment Form. The pertinent AHAs shall be reviewed with personnel (as applicable). Other training certifications shall also be made available on-site.
Travel at project site.	Failure to properly plan daily activities.	A Job Safety Analysis (JSA), as required by TVA shall be prepared by the crew prior to commencing daily activities. The JSA may be used as a component of the morning Tailgate Safety Meeting. The JSA shall be revised at any time throughout the workday when new tasks are initiated, unforeseen circumstances arise, or if working conditions change.
	Poor lighting.	Additional lighting shall be put in place as necessary. Temporary lighting shall be protected with Ground fault circuit interrupters (GFCI).
	Slips, trips, and falls.	Work areas clear shall be kept organized during work activities. Personnel shall use extra care when walking or working on wet or slippery surfaces. Personnel shall not jump from equipment or elevated surfaces. Provide and use fall protection at working heights greater than six feet. A Fall Protection Plan shall be generated and implemented prior to personnel working at heights greater than six feet.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
See specific AHAs. Level D Personal Protective Equipment		Site safety orientation Applicable AHAs

Activity Hazard Analysis (AHA)

AHA 2.0 TVA Kingston Fossil Plant Contract No.

Activity: Field/Site Mobilization Analyzed by/date: _____ Reviewed by/date: _____

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Unload equipment/prepare site.	Heavy lifting/strains, sprains.	No individual employee is permitted to lift any object that weighs over 60 pounds. Proper lifting techniques shall be used. Multiple employees or the use of mechanical lifting devices are required for lifting objects over the 60-pound limit.
	Use of mechanical equipment.	Only qualified personnel shall be permitted to operate equipment. Mechanical equipment shall be inspected daily. Deficiencies in equipment shall be noted on the inspection form. Equipment found to be unsafe shall not be used. All equipment shall be operated at safe speeds and in a safe manner. Equipment operators shall wear safety belts and hearing protection. Ground personnel shall not position themselves between equipment and stationary objects. Personnel are only permitted to approach equipment after a signal from the operator. Personnel shall ensure all mechanical guards are in place and functioning properly. All equipment shall be shut down with energies dissipated prior to performing maintenance activities - lock out/tag out procedures may apply. Only qualified mechanics shall work on or repair heavy equipment.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Heavy equipment Slings, chains, ropes	Site inspections (daily) Heavy equipment (daily)	Site orientation Qualified equipment operators Lifting/back safety Lockout/tagout procedures

Activity Hazard Analysis (AHA)

AHA 2.0 TVA Kingston Fossil Plant Contract No.

Activity: Field/Site Mobilization Analyzed by/date: _____ Reviewed by/date: _____

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Unload equipment/prepare site (continued).	Use of rigging.	Rigging shall be inspected before each use. Deficiencies shall be noted on the inspection form. Rigging found to be unsafe shall not be used, tagged, and taken out of service.
	Hand injuries.	Items to be handled shall be inspected for sharp edges prior to being handled. Personnel shall wear leather gloves when handling sharp materials. Personnel shall be aware of and avoid pinch point hazards.
	Electrical.	Ground-fault circuit interrupters (GFCI) shall be used on all power tools and extension cords. Extension cords, power tools, and lighting equipment shall be inspected before each use, protected from damage, and kept out of wet areas. Keep extension cords off of roads.
	Fire.	Engines shall be shut off before refueling. A 20-B:C fire extinguisher shall be available at refueling areas. Smoking shall not be permitted near fueling areas. Use caution with vehicle exhaust systems in grassy areas.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Heavy equipment Slings, chains, ropes Leather gloves Extension cords, power tools, GFCI Fire extinguisher	Site inspections (daily) Heavy equipment (daily) Slings, chains, ropes (before each use) Fire extinguisher (weekly) Extension cords, power tools, GFCI (before each use) Housekeeping (daily)	Site orientation Fire extinguisher use

Activity Hazard Analysis (AHA)

AHA 2.0 TVA Kingston Fossil Plant Contract No.

Activity: Field/Site Mobilization Analyzed by/date: _____ Reviewed by/date: _____

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Setting up field support trailers.	Personnel or property struck by moving equipment.	Clearance of overhead utilities shall be verified before backing. Spotters shall be used to back trailers. Trailer tires shall be chocked.
	Emergency egress.	Trailers shall be positioned in a fashion to allow for safe and efficient egress during an emergency evacuation.
	Electrocution.	Only qualified electricians shall make electrical connections. All electrical work shall comply with National Electric Code standards. All circuit breakers shall be labeled. Personnel shall be instructed in main disconnect location.
	Slips, trips, falls.	Landings, stairs, and handrails shall be constructed for each doorway leading to the outside of a trailer which meet the requirements specified in 29 CFR 1910 Subpart D. Housekeeping shall be maintained.
	Fire.	Each trailer shall be immediately equipped with at least one 2-A: 10-B:C fire extinguisher.
	High wind.	All trailers shall be appropriately anchored.
	Sanitation.	Washing, toilet, and trash disposal facilities (dumpster) shall be installed prior to occupying trailers.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Fire extinguishers Wheel chocks	Site inspections (daily)	Main electrical emergency shut-off procedure

Activity Hazard Analysis (AHA)

AHA 1.0 TVA Kingston Fossil Plant Contract No.

Activity: Site Preparation Analyzed by/date: _____ Reviewed by/date:_____

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Unload equipment/prepare site.	Unfamiliarity with: site, general site hazards, project safety rules, chain of command, and emergency procedures.	All personnel shall attend the site orientation training. The MHASP and Site-specific HASP Addendum shall be covered with work crew. The site orientation shall include a review of the phone locations, evacuation routes, and any special requests from the CO of the facility. Post all hazard warning signs, emergency maps, and emergency phone numbers.
	Failure to properly plan daily activities.	A Job Safety Analysis (JSA), as required by TVAshall be prepared by the crew prior to commencing daily activities. The JSA may be used as a component of the morning Tailgate Safety Meeting. The JSA shall be revised at any time throughout the workday when new tasks are initiated, unforeseen circumstances arise, or if working conditions change.
	Heavy lifting, strains, and sprains.	No individual employee is permitted to lift any object that weighs over 60 pounds. Proper lifting techniques shall be used. Multiple employees or the use of mechanical lifting devices are required for lifting objects over the 60-pound limit.
	Overhead.	Vehicle drivers must be aware of overhead hazards and maintain safe clearances - use spotters when necessary.
	Slips, trips, falls.	Work areas clear shall be kept organized during site set-up. Housekeeping shall be maintained. Personnel shall not jump from equipment or elevated surfaces.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Warning signs, maps, emergency phone number lists Hand-trucks, carts	Check for JSA completion Verify maps, warning signs, and phone numbers are posted.	Site orientation Hazard Communication Lifting/back safety

Activity Hazard Analysis (AHA)

AHA 1.0 TVA Kingston Fossil Plant Contract No.

Activity: Site Preparation Analyzed by/date: _____ Reviewed by/date:_____

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Prepare site.	Hand injuries.	Items to be handled shall be inspected for sharp edges prior to being handled. Personnel shall wear leather gloves when handling sharp materials. Personnel shall be aware of and avoid pinch point hazards.
	Electrical.	GFCIs shall be used on all power tools and extension cords. Extension cords, power tools, and lighting equipment shall be inspected before each use, protected from damage, and kept out of wet areas.
	Fire.	Fire extinguishers shall be placed in work areas. The SSHO and Site Supervisor shall establish smoking areas in compliance with the facility policy.
	Chemical hazards.	Work areas shall be set-up and appropriately marked with applicable hazard signage. The Emergency Eyewash station shall be inspected, cleaned, filled, and then placed in service. Notify all personnel of the emergency eyewash station location.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Leather gloves Fire extinguishers Extension cords, power tools, GFCI Warning signs, barrier tape Eye wash station	Fire extinguishers (prior to placing in work areas) Extension cords, power tools, GFCI (before each use) Work zones/warning signs in place Eye wash station in service	Location of eyewash station

Attachment 5
Site Specific Accident Prevention Plan Amendments

SITE-SPECIFIC HEALTH AND SAFETY PLAN
AMENDMENT DOCUMENTATION

Project Name: _____ **Project No.:** _____

Amendment No.: _____ **Date:** _____

Amendment Revises: *Page:* _____ **Section:** _____

Task(s) Amendment Affects:* _____

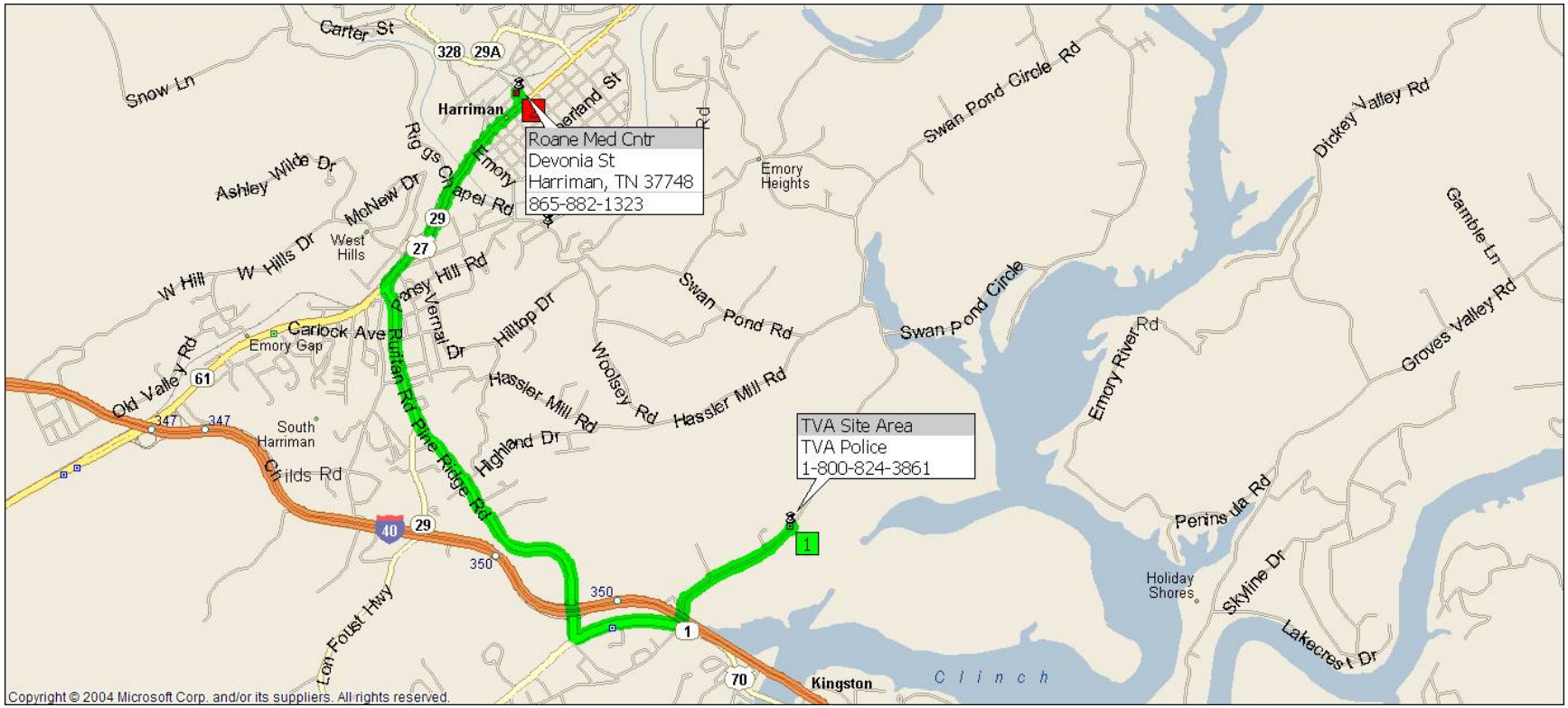
**(Attach new/revised Job Safety Analyses)*

Reason For Amendment:

Amendment: *(Attach separate sheet(s) as necessary)*

Completed by: _____ **Approved by:** _____

Attachment 6
Map to Hospital and Clinic



Mile	Instruction	For
0.0	**Depart TVA Site Area on Swan Pond Rd (South-West)**	**0.8 mi**
0.8	Road name changes to Swan Pond Circle Rd	0.1 mi
0.9	Turn RIGHT (West) onto US-70 [SR-1]	0.5 mi
1.4	Take Local road(s) (RIGHT) onto Pine Ridge Rd	1.7 mi
3.0	Keep STRAIGHT onto SR-29 [Ruritan Rd]	0.7 mi
3.8	Take Local road(s) (RIGHT) onto US-27 [SR-29]	1.3 mi
5.1	Turn LEFT (North-West) onto Queen Ave	109 yds
5.1	**Arrive Roane Med Cntr [Devonia St, Harriman, TN 37748]**	

Mile	Instruction	For	Toward
0.0	**Depart TVA Site Area on Swan Pond Rd (South-West)**	**0.8 mi**	
0.8	Road name changes to Swan Pond Circle Rd	0.1 mi	
0.9	Turn RIGHT (West) onto US-70 [SR-1]	0.5 mi	
1.4	Take Local road(s) (RIGHT) onto Pine Ridge Rd	0.1 mi	
1.5	Take Ramp (RIGHT) onto I-40	6.0 mi	I-40 / Knoxville
7.5	At exit 356, turn RIGHT onto Ramp	0.2 mi	TN-58 / Gallaher Rd / Oak Ridge
7.7	Take Ramp (LEFT) onto Local road(s)	131 yds	TH-58 / Oak Ridge
7.8	Merge onto SR-326 [SR-58]	0.1 mi	
7.9	Keep RIGHT onto SR-58 [Gallaher Rd]	4.2 mi	
12.1	Keep STRAIGHT onto SR-58 [Oak Ridge Tpke]	3.0 mi	
15.0	Road name changes to SR-95 [Gallaher Rd]	4.2 mi	
19.3	Keep STRAIGHT onto SR-95 [Oak Ridge Tpke]	3.1 mi	
22.4	Keep RIGHT onto Local road(s)	164 yds	
22.5	Keep STRAIGHT onto SR-62 [S Illinois Ave]	0.1 mi	
22.6	**Arrive Park Med Health [115 S Illinois Ave, Oak Ridge, TN 37830]**		

Attachment 7
Marine Safety and Transportation Plan

Interim Draft

MARINE SAFETY AND TRANSPORTATION PLAN
Phase I Ash Slide Dredging Project
Tennessee Valley Authority (TVA) Kingston Fossil Plant
Roane County, Tennessee

Contract No. 00028244-00014
Shaw Project Number: 134757
Revision 0

February 2009

Submitted to:
TVA

Prepared By:

Environmental & Infrastructure, Inc.

Table of Contents

List of Acronyms

Acronym	Title
APP	Health and Safety Accident Prevention Plan
KIF	Kingston Fossil Plant
MSTP	Marine Safety and Transportation Plan
OSM/S	On-Site Manager/Superintendent
PFD	Personal Flotation Device
Shaw	Shaw Environmental & Infrastructure, Inc.
SHSM	Site Health and Safety Manager
TVA	Tennessee Valley Authority
VHF-FM	Very High Frequency – Frequency Modulated

1.0 Introduction

This Marine Safety & Transportation Plan (MSTP) has been developed specifically to support the marine operations that will take place during the Tennessee Valley Authority (TVA) Kingston Fossil Plant (KIF) Ash Slide Dredging Project. A general site plan is provided as Figure 1. The purpose of this plan is to provide a precise set of procedures and protocols that will be used by Shaw Environmental & Infrastructure, Inc. (Shaw) and Shaw's Subcontractors when executing the marine portions of the work. The offshore operations will be supported by a derrick barges, tugboats, and crew boats. Additional vessel support may include deck barges and deck barge tugboats.

The primary concerns addressed by this MSTP are personal safety, environmental safety and vessel safety. The final draft of this plan, to be provided with the Health and Safety Accident Prevention Plan (APP), *that will be produced and approved by TVA prior to start of offshore work*, will address applicable permit conditions and freshwater mammal monitoring requirements, if required.

1.1 Background

The Kingston Fossil Plant (KIF) is located at the confluence of the Emory and Clinch Rivers near Kingston, Tennessee. Kingston is one of TVA's larger fossil plants. Plant construction began in 1951 and was completed in 1955. Kingston has nine coal-fired generating units. The winter net dependable generating capacity is 1,456 megawatts. The plant consumes some 14,000 tons of coal a day. The Kingston Fossil Plant is located on the Emory River, which feeds into the Tennessee River (Figure 1). Summer pool elevation for the Emory River at KIF is typically 745 feet msl and winter pool elevation is 741 feet msl. The U.S. Coast Guard has closed the Emory River from mile marker zero through mile marker 4. Work is complete on an underwater rock weir built on the Emory River, just north of the existing intake skimmer weir. The rock weir is about 615 feet long. The weir will allow water to continue flowing and retain the ash at the bottom of the river channel.

On Monday, December 22, a coal fly ash spill occurred at TVA's Kingston Fossil Plant, allowing a large amount of fly ash to escape into the adjacent waters of the Emory River. The dike failure released about 5.4 million cubic yards of coal ash that now cover about 275 acres and affected about 40 area homes. Failure of the dike caused about 60 acres of ash in the 84-acre containment area to be displaced. At the time of the slide, the area contained about 9.4 million cubic yards of ash. The fly ash filled the Emory River embayment on the north side of the KIF property adjacent to the dredge cell which is the source of the spilled material. A dike is being constructed in the eastern portion of the Emory River embayment to contain that fly ash until a

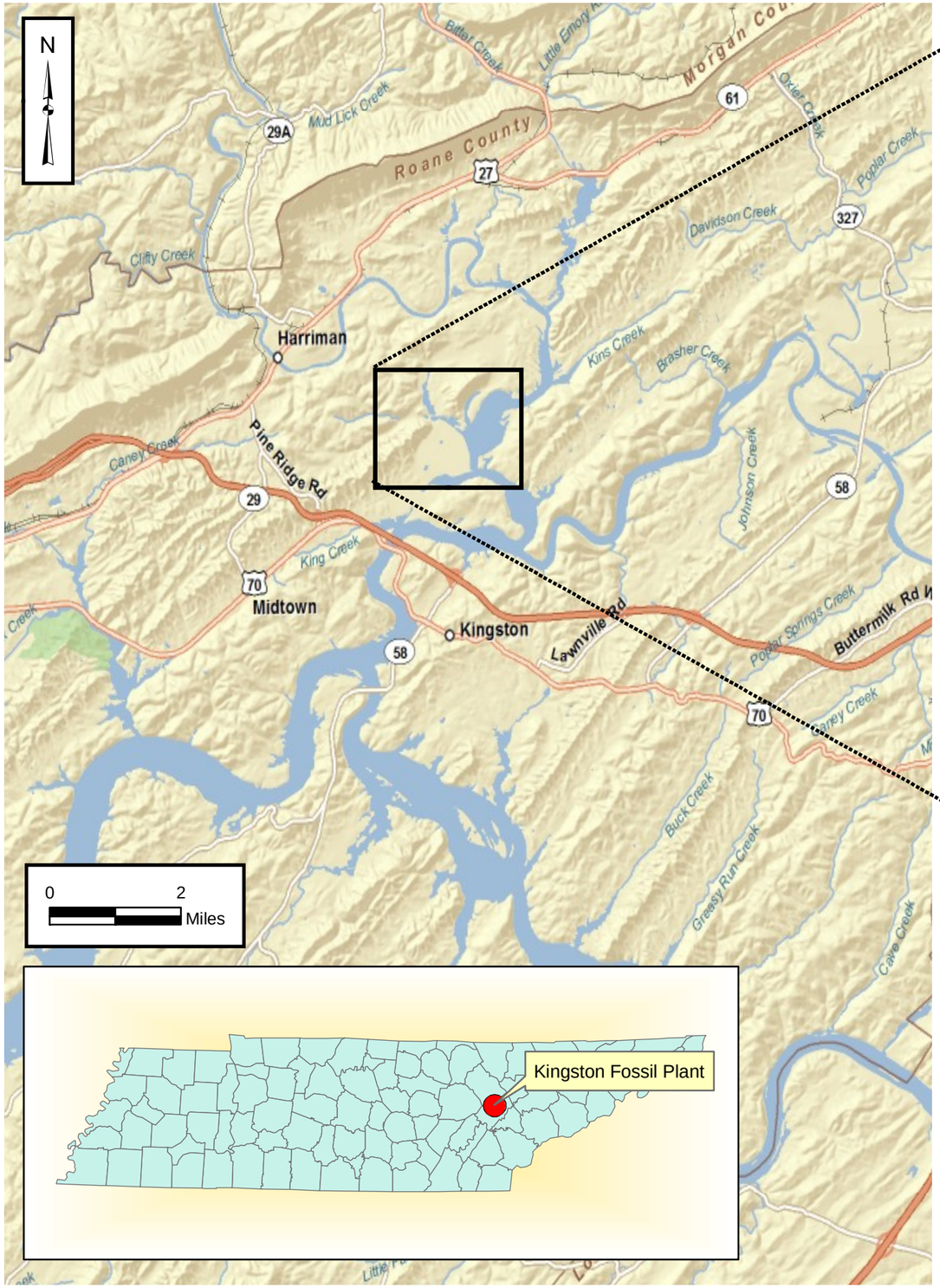


Figure 1

Site Location Map
Marine Safety and Transportation Plan,
Phase I Ash Slide Dredging Project
TVA Kingston Fossil Plant

Shaw™ Shaw Environmental, Inc.

X:\TVA_Ash_Spill\GIS_Documents\Project_Maps\Phase_I_Interim_draft_dredge_plan_jan09\Figure_1_site_location_map_marine_safety.mxd

remedial action plan is developed by TVA and approved by the Tennessee Department of Environment and Conservation (TDEC) and the U.S. Environmental Protection Agency (EPA), and the final disposition of that fly ash is completed. TVA is planning to recover the material outside of the embayment by use of dredging operations. The fly ash that was released to the Emory River originates from the coal burned in boilers for power production at KIF. The coal, in its natural state, contains various metals that can be retained in the ash after burning. The ash itself is primarily composed of fine silica particles very similar to sand.

1.2 Goals of Plan

The goals of this plan are:

- Increase the safety of the transportation system for motorized and nonmotorized users;
- Increase the security of the transportation system for motorized and nonmotorized users;
- Protect the environment
- Assure Stakeholders that process and protocols are in place for marine safe transport of materials and people during all project work.
- Minimize risk.

1.3 Plan Elements

This MSTP is composed of the following elements:

- Personnel, regulators, and authorities required to review this MSTP
- Lake project location (See Figure 1)
- Implementation and training requirements
- Marine operations protocol, including notifications, marine communications plan , and critical operations and curtailment plan
- Marine transportation plan, including identification of vessels, shore facilities, and navigational marking and lighting requirements

2.0 Implementation

2.1 Distribution of MSTP

This MSTP will be distributed to all pertinent regulatory agencies, TVA, TDEC, the U.S. Coast Guard, the US Army Corps of Engineers, Project Managers for all relevant subcontractors performing Maritime work, Marine support vessel operators, and radio operators. In addition, a copy of this MSTP will be placed on each support vessel utilized in this project.

2.2 Training

The Shaw Project Manager, Shaw and Subcontractor Field Supervisors, and pertinent Regulators will review the contents of this MSTP prior to any marine work at a kick-off meeting. The kick-off meeting will take place after associated environmental permits have been issued and prior to initiating marine field work. Pertinent comments or suggestions made during this kick-off meeting may be incorporated into revisions of this MSTP. A final draft of this MSTP will be produced and included in the final APP

TVA controls the marine work site. The marine work site is a U.S. Coast Guard Vessel Traffic Service area. There are restrictions on vessel operations or vessel anchoring in the navigation channel at this site. Setting of anchors, anchor lines, rigging for cables and setting night navigation lighting will be performed by trained and qualified personnel.

3.0 Marine Operations Protocols

The following operational protocols are intended for use by the offshore crews during the marine work. The purpose of these protocols is to provide a set of operational requirements and duties that will ensure that all marine operations are conducted safely.

3.1 Notifications and Communications

3.1.1 Work Period Notifications

The Shaw Site Safety Officer will notify TVA on a daily basis of the marine operations taking place at the offshore work site. The Shaw On-Site Manager/Superintendent (OSM/S) will notify TVA on a weekly basis, or more frequently if necessary.

3.1.2 Contact with Commercial Boat Traffic, Fishermen, or Recreational Boaters

In the event commercial fishermen or recreational boaters approach the offshore work site during periods of operations, Shaw personnel will notify the boaters by radio of the operations and required safety clearances.

3.1.3 Project Location

The area of work is shown in Figure 1.

3.2 Marine Communications Plan

This marine communications plan will be used by the work vessels to communicate with each other, and to communicate with the OSM/S and TVA security.

3.2.1 Work Site Radio Communications

Radio communications will be conducted using cell phones or very high frequency-frequency modulated (VHF-FM) marine band radios. Communication using VHF-FM marine band radios will be over VHF-FM Channel 16 (158.6 MHz) for short range use or 2182 kilohertz (kHz) for long range use. Channel 16 VHF is the distress frequency monitored 24 hours a day by the U.S. Coast Guard. 2182 kHz is the distress frequency on the marine MF band and is analogous to Channel 16 on the marine VHF band. The marine work crews will monitor Channel 16.

Emergency Procedure: If an incident occurs involving serious personal injury or vessel list, the severity may govern the actual procedure to follow. Otherwise follow Section 5.2 or use the following as a general guide:

- If an emergency situation occurs, break into radio conversation by stating, "This is an emergency." (In an extreme emergency the call is, "EMERGENCY, EMERGENCY, EMERGENCY") and then state your name and title and the problem. **ALL RADIO**

COMMUNICATIONS WILL CEASE IN THE FIELD AT THIS TIME AND ALL PERSONNEL WILL STOP WORKING UNTIL THEY ARE GIVEN FURTHER DIRECTIONS.

- Attend to the injured, remove from danger if possible, render first aid, and keep warm or cool (as the situation requires).
- If a fire is involved, only attempt to put it out if you are trained in fire protection and you are not at risk.
- Contact your Health & Safety Manager or Project Manager.
- Secure the area to prevent further injury or damage from occurring.

3.2.2 Cellular Telephone Contact

The Shaw OSM/S, the Health & Safety Manager, and other Subcontractor Managers will be available by cellular telephone. These individuals and their contact numbers will be found in the Contact List in the APP. Additionally, contact lists will be posted in the work area.

3.3 Critical Operations Plan

Following are critical operations and planned responses specific to this project:

3.3.1 Qualified Individual

The qualified individual for this project shall be Joe Kaldmo, the OSM/S. Contact information for this individual is provided in the Contact List located in the APP. This individual has the ultimate responsibility and authority for maintaining a safe offshore work site and responding to any oil spills or other emergencies. Each Subcontractor will have a Supervisor over their work areas responsible for health and safety.

3.3.2 Offshore Safe Working Conditions

Unsafe conditions are any lake or weather conditions that create unsafe working conditions for personnel or equipment.

Response: In the event of unsafe lake or weather conditions, the Shaw Health & Safety Manager will shut down or not permit any operation that is affected by these conditions. In addition, Shaw safety personnel will monitor National Oceanic & Atmospheric Administration (NOAA) weather forecasting for daily and 5-day outlook predictions of weather conditions.

3.3.3 Offshore Refueling

Periodic refueling will be required for vessels and equipment mounted on vessels and barges that are performing and supporting the dredging work. As with any refueling requirement, the possibility of spillage exists.

All refueling of vessels and equipment mounted on vessels will take place at the shore base or at approved fueling docks. Refueling of the equipment mounted on barges will take place from integral fuel tanks built into the support barge, or from deck mounted fuel totes. If necessary, U.S. Coast Guard approved fuel totes will be used and transported to site where they will be placed on the deck of the support barge assisting the derrick barge crane. No cross-vessel refueling will be allowed. All refueling operations will follow U.S. Coast Guard regulations and oil spill containment equipment will be onsite in accordance with an Oil Spill Contingency Plan.

3.3.4 Rigging and Lifting Operations

This project will require extensive rigging and lifting of heavy objects. Rigging failure or dropped loads could create hazards to personnel and equipment. All critical rigging and lifting requirements will be pre-determined and pre-planned. Critical rigging and lifting requirements will be engineered and specified in task-specific rigging and lifting plans, developed in accordance with the requirements of Shaw Policies HS822, Crane Operations, and HS823, Rigging and Lifting.

3.3.5 Anchoring Operations

Anchoring operations present special safety hazards to the offshore crews as well as other boaters who pass through the marine site during anchoring operations. All anchor handling crews will be trained and experienced in operating the anchor winches, releasing anchors, and recovering anchors. Anchor setting operation can only occur when commercial or recreational boaters are clear of the marine work site.

3.3.6 Storm Contingency

Thunderstorms endanger employees engaged in marine activities. In the event of predicted thunderstorms, or in the event of high winds, marine operations will discontinue until the storm passes or winds subside, and work conditions are safe for personnel to resume operations.

4.0 Marine Transportation Plan

4.1 Vessels

The river operations will be supported by dredges, barges, tugboats, and crew boats. Additional vessel support may include deck barges.

4.1.1 Hydraulic Dredge

The hydraulic dredges will be used to recover ash in the Emory River. The hydraulic dredge will be towed to the lake work site. The hydraulic dredge will remain moored in the Emory River until its work is complete.

4.1.2 Mechanical Dredge Tugboat

A tugboat will be used to tow and tend the mechanical dredge and spoil barges. The tugboat will tow the mechanical dredge to the marine work site and then stand by with the mechanical dredge and barges at the marine work site. A tugboat will also be used to set and retrieve the dredge anchors and to provide support vessel services to the marine field operations, as needed. The tugboat may also be used to ferry light equipment and supplies from the shore base.

4.1.3 Crew Boats

Crew boats will be supplied by TVA to haul personnel to and from the shore base on an as-needed basis. The crew boats will travel the most direct route between the marine work site and the selected local shore base.

4.1.4 Deck Barge

A deck barge may be used to transport recovered materials to the disposal site.

4.1.5 Shore Base

A local shore base will be established at a secured jobsite compound for departure and landing of crews, light equipment and supplies for the offshore operations. The location will be incorporated into this plan as it is identified.

5.0 Marine Transportation Emergency Response Plan

The following operational protocols are intended for use by the offshore crews in the event of a marine transportation accident, incident, or an emergency.

5.1 Man Overboard

- Sound the Alarm
- Throw the bouy overboard, as close to the person as possible
- Stop the engines
- Have someone maintain visual contact with the person overboard, or send someone to the highest point on the vessel to search for the person
- Should the person be unconscious, have a crewman wearing a personal flotation device (PFD) and rope harness attached to a rope get into the water and rescue the person
- If the person is not located, commence circling the area in a search pattern and notify the TVA.

Should a passenger fall overboard while the boat is elevated above the water?

- Determine whether the person overboard in is or is not under the vessel, lower boat and retrieve person according to Section 5.1.

5.2 Marine Distress Communications

- Make sure your radio/telephone is on.
- Select either VHF channel 16 (158.6 MHz) or 2182 kHz
- Press Microphone and say "MAYDAY - MAYDAY – MAYDAY"
- Give you location (what navigational aids or land marks are near you?)
- State the nature of your distress
- Give the number of persons aboard and conditions of the injured
- Estimate present seaworthiness of your vessel
- Provide the vessel name.
- Briefly describe your vessels length and width in feet, characteristics (e.g. black hull, white cabin), and anything else that will help rescuers find you.

- Say " I WILL BE LISTENING ON CHANNEL **16 or 2182**"
- Provide your name.
- Release microphone and listen, someone should answer. If they do not, repeat call, beginning at item #3 above. If there is still NO answer switch to another channel and begin again.

Attachment 8
TVA Environmental Emergency Notification

TVA **FPG Standard Processes and Procedures**	**TITLE** **Environmental Emergency Notification**	**FPG.SPP.05.016** **Rev. 0003** **Page 1 of 34** Effective Date 7/30/03

Responsible Peer Team: Engineering Peer Team - M. Tritapoe, Envir. Affairs

Reviewed by:	Dan E. Gustafson	10/31/2003
	Peer Team Leader	Date
Approved by:	W L Elliott	3/11/2004
	Peer Team Sponsor	Date
Approved by:	D. H. Fuike	3/19/2004
	M&P General Manager	Date

Current Revision Description

7/18/2006 - Combines the Spill Reporting Procedure and ODS Notification Procedure Compliance with addition of the TVA Environmental Management System 7/18/2006 updates, reporting requirements and contact information in Attachments "Emergency Planning & Response Process" and "Environmental Emergency Response Notification Procedure".

Table of Contents

1.0 PURPOSE

This process provides a uniform procedure for documenting all environmental events (see Definitions) and making proper notification for certain reportable environmental events (noncompliance), e.g., oil spills to the surface waters of the U.S., which require notifications to the appropriate regulatory agencies and internal TVA offices and staffs. This procedure provides a process for making proper notifications and, if necessary, to relay a request from the plant for spill clean-up assistance to the applicable TVA spill response organization or contractor.

While this procedure is tailored to coal-fired facilities, all sites and organizations (Heavy Equipment Division, Combustion Turbines, Power Service Shops, Central Laboratory Services, Distributed Resources, and Fuels) must comply with the intent, policies, and practices described by making adjustments appropriate to the site or organization roles and responsibilities.

2.0 SCOPE

The scope of this process is to ensure that environmental events are documented and that all necessary notifications are performed for an oil, PCB, or hazardous substance or waste release, or spill at FPG facilities. Also, in the event that an oil, PCB, or hazardous substance spill requires non-plant assistance, provide the information necessary to promptly relay a request to the appropriate spill response organization.

3.0 PROCESS

3.1 Roles and Responsibilities

Environmental Affairs Regulatory Specialists

Provide regulatory support for procedure and interface, develop, monitor and deploy procedures, support problem analysis, guidance on spills and develop solutions.

Program Administrators-Environment

Provide compliance support, maintain records, prepare and issue reports, support problem analysis and solution development, deploy procedures, and assist in emergencies.

Operations Duty Specialist (ODS)

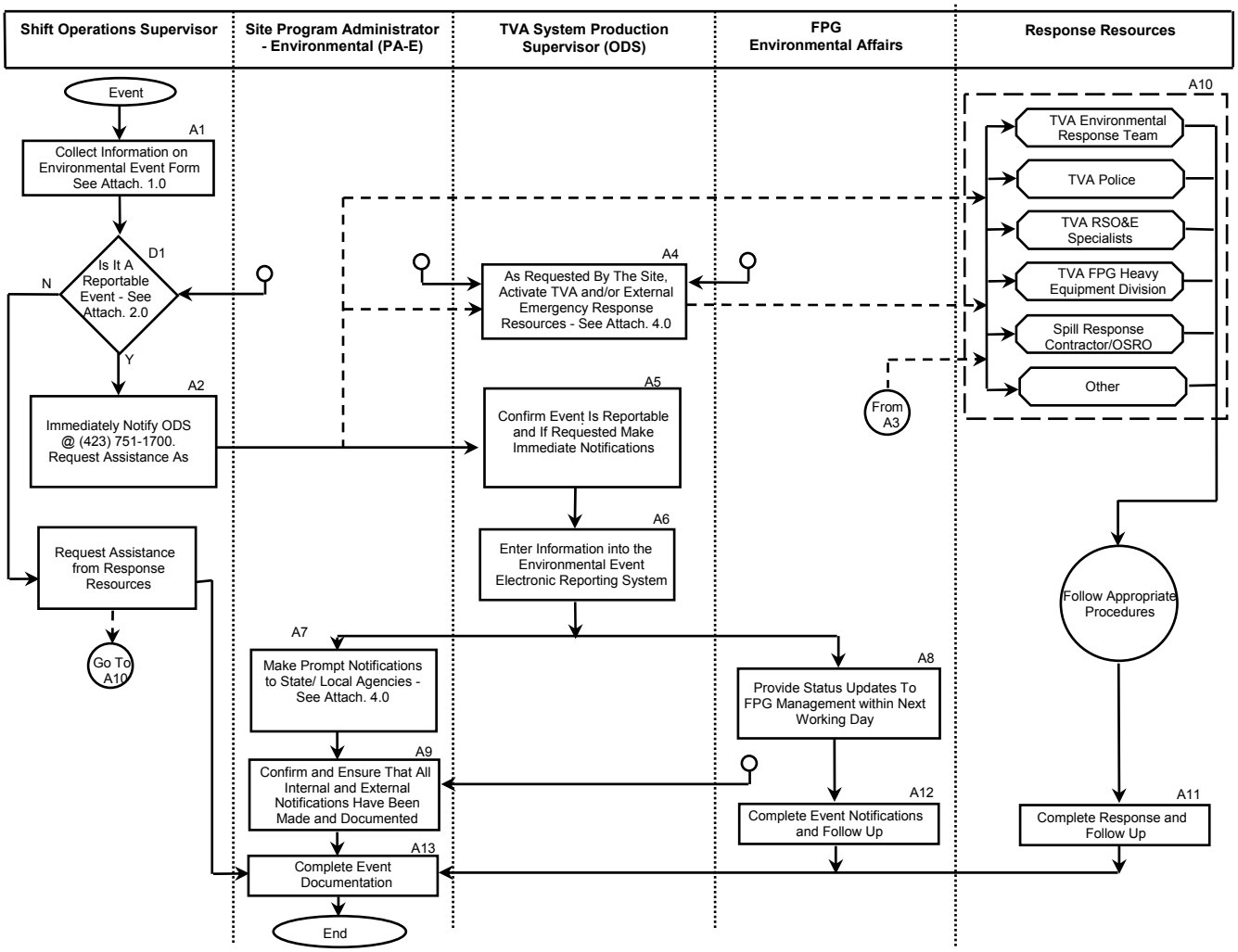
Facilitate reporting criteria for TVA wide operations, which includes information collection, external reporting and internal reporting to TVA personnel.

Shift Operations Supervisor

Supervises the fossil power operations, initiates event reporting through the electronic notification system, request assistance from TVA and off site response organizations

3.2 Instructions

3.2.1 Flowchart



3.2.2 Process Steps

A. **Activity A1 - Environmental Event Information -** The Shift Operations Supervisor (SOS) gathers and enters event information on the Environmental Event Reporting System. This system is accessed by TVA intranet under Environmental Information System – Emergency Reporting. A paper copy of the Environmental Event Reporting Form (TVA Form 17557) may be used temporarily until the information can be transferred to the electronic system. This is an electronic copy of the form TVA 17557 located on the TVA intranet and is intended to be completed online, see Attachment 1 for a copy of the form. Site location information needed to complete part of the form is located in Attachment 7.

3.2.2 Process Steps (continued)

B. **Decision D1 - Does Event Require Regulatory Notifications? -** The SOS on shift, in coordination with the Site Program Administrator-Environmental (PA (E)), determines whether the event requires internal and/or external notifications and what level of reporting is required. The reporting requirement is determined by reviewing the event information and following the Notification Decision Tree in Attachment 2. Additional information for determining reportable quantities (RQ) is located in Attachment 8. Attachment 8, "Hazardous Substances Typically Present", lists RQs for the most common hazardous substances found at FPG facilities. Attachment 9, "Guide to Consolidated Chemical Lists", is a complete listing of hazardous substances and their RQs.

C. **Activities A2 and A3 - EC/QI Notifies ODS and Requests Response Assistance As Needed -** For a reportable event, the SOS on shift notifies the Operations Duty Specialist (ODS) by phone and provides the event information as specified on the Environmental Event Reporting Form. If completed online, the form will be available to the ODS directly through the TVA intranet. Otherwise, the Shift Operations Supervisor provides the information verbally.

Based on the nature of the event, and in consultation with the facility's applicable spill response plan (IPP, SPCC, and/or ICP Plan), the site-designated Emergency Coordinator/Qualified Individual (EC/QI) initiates a site response as warranted and as site resources allow (EC/QI may be the SOS on shift if so designated). If response support is needed for a **reportable event**, the SOS on shift can request assistance from the response resources directly or ask the ODS to help make the requests. If response support is needed for a **non-reportable event**, the Production Supervisor shall request assistance from the response resources directly.

In the event of a fire, site evacuation, or medical emergency, the Shift Operations Supervisor contacts the local emergency response resources directly by dialing the local emergency number (typically 911).

The EC/QI or designee is responsible for directing the activities of the response resources. Contact information for response resources, including TVA's spill response organizations: TVA Resource Group - Environmental Response Team (ERT) and Spill Response Contractor(s) are located in Attachment 5. Shaw E&I is TVA's spill response contractor and is to be activated in accordance with the procedure for contract initiation in Attachment 5. Notification and activation of ERT and/or Shaw is especially critical if there is a large spill, e.g., a discharge of several thousand to millions of gallons of oil.

D. **Activity A4 - ODS Activates Emergency Response Resources -** As requested by the Facility Shift Operations Supervisor, the ODS, contacts and activates emergency response resources. The ODS may request additional guidance from the Site PA (E) and Environmental Affairs (ENV AFF) media specialist.

3.2.2 Process Steps (continued)

Contact information for the PA(E), ENV AFF and response resources, including TVA's spill response organizations, include the following: TVA Resource Group - Environmental Response Team (ERT) and off site spill response assistance. TVA's spill response contractor is to be activated in accordance with the procedure for contract initiation in Attachment 5. Notification and activation of ERT and/or off site response is especially critical if there is a large spill, e.g., a discharge of several thousand to millions of gallons of oil.

E. **Activity A5 - Confirm Event Information and Make Immediate Notifications -** based on the provided information and discussion with the Shift Operations Supervisor, the ODS confirms the event is reportable. The ODS, if required, makes the Immediate Notifications (external and internal) as presented in Attachment 4 and 5.

NOTE

It is not necessary or advisable to wait for all information before calling the National Response Center @ 800-424-8802

F. **Activity A6 - Complete Environmental Event Report Form and Distribute -** Contact information for the PA(E) and ENV AFF specialist is located in Attachment 4. If the form was completed online, an email notice will be automatically sent to the PA (E) and ENV AFF media specialist.

G. **Activity A7 - Prompt Notifications To The State and Local Agencies -** The site PA(E) (or alternate or designee) makes the prompt notifications (i.e., those not requiring immediate notification) to the state, local and other outside agencies as presented in Attachment 5 and 6.

H. **Activity A8 - Provide TVA Management with Event Status -** In the event of an oil, PCB or hazardous substance spill that resulted in an REE or which posed substantial threat to personnel and/or environment, the ENV AFF specialist responsible for the impacted media provides FPG Management with a status report within the next working day following the event.

I. **Activity A9 - Confirm Notifications Have Been Made -** the site PA (E), confirms that all internal and external notifications have been made and documented. The PA (E) reviews Attachment 3 to ensure that any overlooked notifications are completed and documented.

J. **Activity A10 - Response Resources -** the requested resources coordinate activities with the EC/QI or designee. Activities will also be coordinated with the Site PA (E).

K. **Activities A11, A12, A13 - Response, Documentation, and Follow-up -** Under the direction of the Facility EC/QI or designee, the deployed response resources complete the response/cleanup and document their activities. The EC/QI provides all documented event information to the site PA (E).

ODS will provide management with an email describing the event as outlined in the TVA Environmental Emergency Response Notification Procedure TVA-SPP-5.18.

3.2.2 Process Steps (continued)

The Site PA (E) obtains all the documentation for the event (e.g., notifications, shipping records, disposal records, sampling logs. etc.). In general, all records are stored in accordance with the FPG Records Management Procedure. Specifically, the spill records and correspondence with outside agencies are stored in the FPG records management process, FPG.SPP.05.014

3.3 Evaluation Criteria

NONE

3.4 References

A. TVA Environmental Management System Environmental Emergency Preparedness and Response Process

B. TVA-SPP-5.18, “TVA Environmental Management System Environmental Emergency Response Notification”

C. FPG.SPP.05.014, “Environmental Records Management”

D. EPA 40 CFR Part 112

E. OSHA 29 CFR Parts 1910.119 and 1910.120(q)

4.0 RECORDS

Records generated as a result of this procedure shall be filed and retained in accordance with the requirements of the Fossil Power Group (FPG) - FPG.SPP.05.014, “Environmental Records Management” system.

5.0 DEFINITIONS

CERCLA - **Comprehensive Environmental Response, Compensation, and Liability Act**

CT - Fossil Power Group Combustion Turbine

Discharge - Includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping into the environment

EC/QI - Emergency Coordinator/Qualified Individual means an English-speaking representative(s) of the facility identified in the facility response plan, available on a 24-hour basis, familiar with implementation of the plan, trained in his or her responsibilities under the plan, and has written authority to implement the plan

EMS - Environmental Management System

ENV AFF - Environmental Affairs

5.0 DEFINITIONS (continued)

Environment - For the purpose of determining a reportable release in accordance with CERCLA, means (1) the navigable waters, the waters of the contiguous zone... (2) Any other surface water, groundwater, drinking water supply, land surface, or subsurface strata, or ambient air within the United States

Environmental Event - An event (resulting from human activities or Acts of Nature) that requires external reporting to comply with regulations or has potential to negatively impact human health or the environment. Environmental events include spills/releases of hazardous chemicals/products or oil, accidental releases of pollutants to air, land, or water (does not include permitted releases or permit non-compliances), fish kills or harm to wildlife, discovery of hazardous or potentially hazardous containers (i.e. tanks, drums, etc.)/materials in public waters or dumped on TVA land in the Tennessee Valley, equipment or other explosions, fires, or any other events that require external reporting to comply with regulations or have potential to negatively impact human health or the environment. This definition does not include minor events that are under direct control of site personnel and do not require external reporting or threaten human health or the environment. (See Attachment 2 - Notification Decision Tree Flow Chart)(Note: Notifications for Stack Exceedances which trigger CERCLA/EPCRA reporting criteria are found in FPG.SPP.05.026 and should not be reported using this procedure).

EPA - Environmental Protection Agency

EP&P - Environmental Planning & Policy, RSO&E

ERT - Environmental Response Team - comprised and directed by personnel from TVA RSO&E

Fish Kill - A mass die-off of fish determined by TVA's fishery biologists

Hazardous Substance - Any substance listed as hazardous or extremely hazardous under Section 311 of the Clean Water Act (See Attachment 8)

HED - Fossil Power Group Heavy Equipment Division

ICP - Integrated Contingency Plan

IPPP - Integrated Pollution Prevention Plan

NPDES - National Pollutant Discharge Elimination System

Oil - Oil of any kind or form; including, but not limited to, petroleum, fuel oil, gasoline, diesel fuel, insulating oil (mineral oil), sludge, oil refuse, and oil mixed with wastes other than dredged spoil, fats, greases of animal, fish or marine mammal origin, vegetable oil, and synthetic oils (40 CFR 112.2).

OPA 90 - Oil Pollution Act of 1990

OSRO - Oil Spill Removal Organization

Partners / Contractors - Contractors (TVA and non-TVA) onsite to perform construction, repairs, maintenance, or other activities involving oil and/or hazardous substances

5.0 DEFINITIONS (continued)

PCB - ≥ 500 ppm polychlorinated biphenyles

PCB Contaminated - 50 to 499 ppm polychlorinated biphenyles

Pollutant - For the purpose of this process, the term pollutant shall refer to any substance listed as toxic under Section 307(a)(1) of the Clean Water Act, oil as defined in Section 311(a)(1) of the Act, and any substance listed as hazardous under Section 311 (Attachment 8 & 9).

Reportable Quantity (RQ) - The threshold value at or above which a release of a hazardous substance to the environment must be reported to the National Response Center (NRC) and/or regulatory agencies (see Attachment 8 for hazardous substance RQ values); or, a release of oil that causes a film or sheen upon or discoloration of the surface of Waters of the U.S. or adjoining shoreline, or causes a sludge or emulsion to be deposited beneath the surface of Waters of the U.S. or upon adjoining shoreline that must be reported to the NRC and regulatory agencies (see Attachment 3 for PCB, hazardous substance, and oil release reporting requirements).

Significant Materials - Includes, but is not limited to, raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of CERCLA; any chemical the facility is required to report pursuant to Section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have potential to be released with storm water discharges.

SPCC - Spill Prevention Control and Counter Measures

Spill - An oil or hazardous substance that escapes its container or intended point of use (i.e., tank, drum, transformer, pipeline, or any other storage facility or operating equipment).

ODS - Operations Duty Specialist

Surface Waters - Rivers, reservoirs, creeks, and adjacent wetlands, and artificial embayment and channels that are permanently connected to, or tributary to, any of the preceding waterways. Onsite holding ponds, ash ponds, or similar structures are not considered surface waters

SWPPP - Storm Water Pollution Prevention Plan

TPS - Transmission Power Supply

Attachment 1
(Page 1 of 2)

Environmental Event Reporting Form

Environmental Event Reporting Form

Notification Type: ☐ Emergency ☐ Internal ☐ Voluntary	**Date/Time Report Received**	**Received By** *(Name and Organization [TVAP, SPS, BU, etc.])*

Name of Reporting Party	Title
Company Name and Address *(Street, City, State, and Zip)*	Area Code / Telephone
Name of Potential Responsible Party ☐ Same as above	Title
Company Name and Address *(Street, City, State, and Zip)*	Area Code / Telephone

Incident Information

Date / Time *(Discovered):* _____ **Date / Time *(Occurred):*** _____

Incident Type: ☐ Hazardous Materials Spill ☐ Fish Kill *(Estimate Number of Fish and Type)* ▸ _____
☐ Oil Spill ☐ Other ▸ _____

Incident Address / Location	County	State	Mile Post
Nearest City / Distance / Direction / Nearest Residence		Distance	Direction
Directions *(i.e., nearest crossroads, distance, direction, etc.)*		Longitude	Latitude

River / Lake / Waterway Information ☐ Impacted ☐ Threatened *(Estimated hours until impact)* ▸

Name	River Side ☐ RBD ☐ Channel ☐ LBD	River Mile	Wind Speed / Direction

Number of Injuries ▸	Number of Fatalities ▸	Evacuations ▸	Damage Estimate ▸ $

Materials Released

	Material Name *(or product code)*	Container Type/Desc.	Container Capacity	Facility Capacity	Amount Spilled
1					
2					
3					
4					
5					

	Material Description / Color / Odor / Estimated size of affected area	Secondary Containment	Medium Affected
1			
2			
3			
4			
5			

Source *(Describe)*

Cause: ☐ Dumping ☐ Equipment Failure ☐ Explosion ☐ Fire ☐ Natural Phenomenon
☐ Operator Error ☐ Transport Accident ☐ Vandalism ☐ Unknown ☐ Other ▸ _____

How does this incident involve TVA? *(Check all that apply)*
☐ Caused by TVA ☐ Threatens TVA Operations / Projects ▸ _____ ☐ Threatens TVA Managed Natural Resources ☐ Request for Assistance

Response resources that have been requested or that may need to be notified of this event. *(Check all that apply)*
☐ TVAP ☐ ERT ☐ BIO Team *(Fish Kills)* ☐ Dive Team ☐ Aviation Services
☐ RAD CON ☐ HED ☐ Environmental Response Contractor ☐ Other ▸ _____

Attachment 1
(Page 2 of 2)

Environmental Event Reporting Form *(Continued)*

Notification Record					
	ODS	Business Unit ▸	TVAP	ERT	Other ▸
Received By					
Date / Time					
Report No.					

Regulatory Notifications				
	National Response Center	State Emergency Response Commission	Local Emergency Planning Commission	Other ▸
Received By				
Date / Time				
Report No.				

Incident Terminated	
Name / Organization ▸	Date / Time ▸

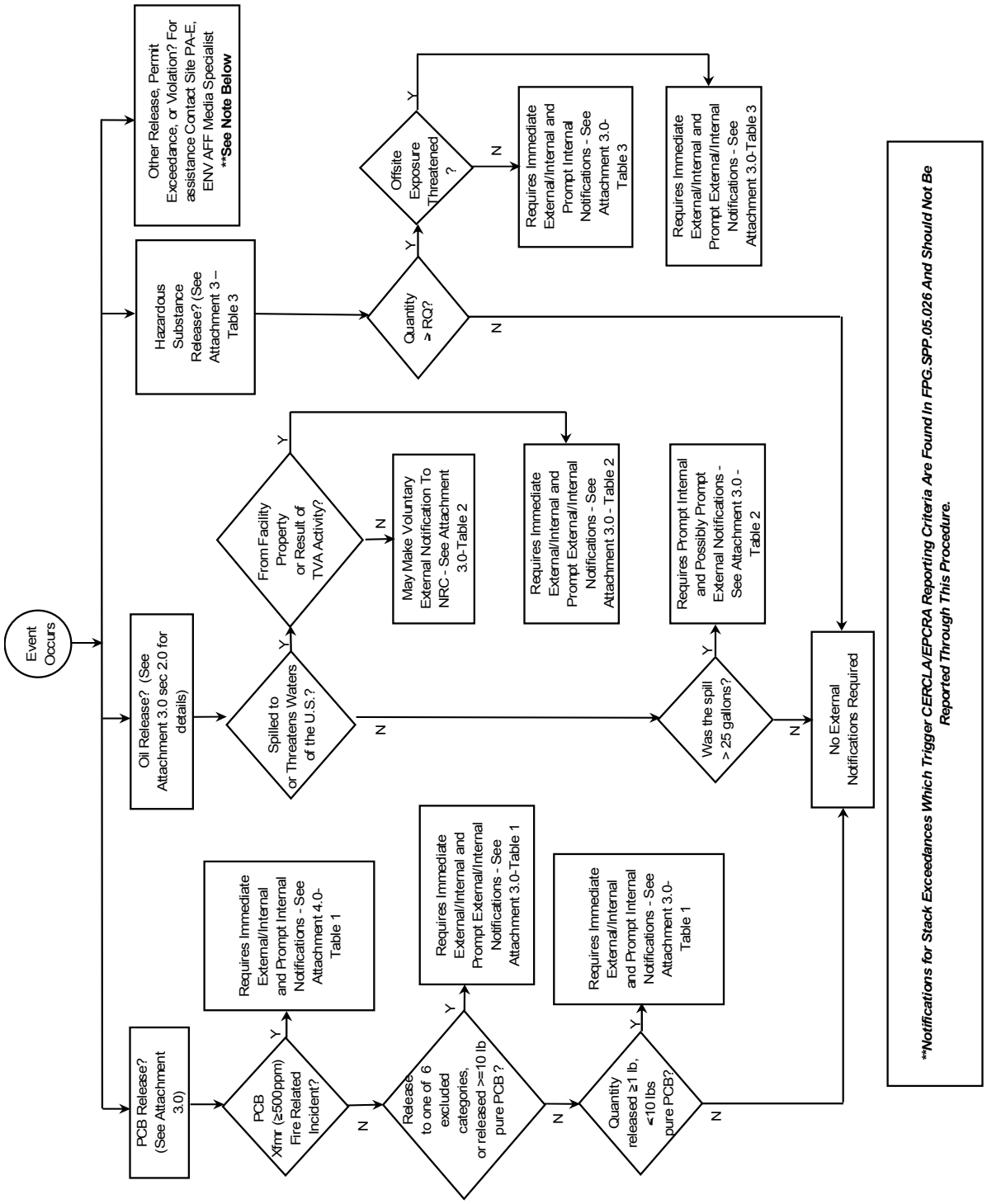
Remarks / Notes / Weather / Remedial Actions:

Operations Duty Specialist - Telephone 423/751-1700 Fax 423/751-8620
National Response Center 1-800-424-8802

☐ *See attached sheet for additional information*

Attachment 2
(Page 1 of 1)

Notification Decision Tree



Attachment 3
(Page 1 of 7)

Notification Requirements

1.0 PCB & PCB-CONTAMINATED RELEASE REPORTING REQUIREMENTS

A. Determine the type of spill. NOTE: It is possible to have more than one type.

B. Calculate the amount of PCBs released (see PCB calculation method below).

C. Make notification as listed in **Table 1.**

FIRE-RELATED INCIDENT--Fire-related incidents are defined as incidents involving electrical equipment containing PCBs ≥500 ppm in which sufficient heat from any source causes the release of PCBs from the equipment casing.

EXCLUDED CATEGORIES--The six excluded categories (i.e., areas where PCBs must not be spilled) are for **any** amount of PCB release which contaminates:

A. Surface waters

D. Sewers or sewage treatment plants

E. Private or public drinking water sources

F. A spill that has the potential to migrate to Category 1, 2, or 3.

G. Animal grazing lands

H. Vegetable gardens

PCB CALCULATION--To calculate the amount of PCBs in the spilled or released substance where the actual concentration is known, the following formula is used:

(Cs x C)A = Ws; where:

- A: = Total amount of the spilled or released material in gallons.
- C: = Concentration of the spilled or released material in ppm.
- Cs: = 0.0000125 (which is the weight of 1 ppm PCB in pounds/gallon); *or use 1.25E-5.*
- Ws: = Amount of PCB spilled or released in pounds.

If the actual concentration is not known and you assume it is, reporting requirements will occur at a release of approximately 10 fluid ounces which equals 1 pound of PCB.

Attachment 3
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1.0 PCB & PCB-CONTAMINATED RELEASE REPORTING REQUIREMENTS (continued)

TABLE 1: NOTIFICATION MATRIX FOR PCB & PCB-CONTAMINATED RELEASE

Type Of Spill	Immediate (Within 2 Hrs).			Prompt (Within 24 Hrs).			
	Organization/ Personnel[a]	Notification By		Organization/ Personnel[a]	Notifications By		
		Site	ODS		Site	ODS	ENV AFF
PCB Transformer (>= 500 ppm) Involved in a Fire Related Incident **OR**	ODS (423) 751-1700 Site PA(E) NRC 800-424-8802 State EMA Local EMA if needed @ Local Emergency # (Typically 911) Others: ENV AFF Media Specialist • Spill Response Services • TVA Management	X X X X	 X X X X X	Courtesy Notification to EPA Region IV (404) 562-8700	**X**		
PCB release of ≥ 1 lb to one of the 6 Excluded Categories **OR** **Release > 10 lb Pure PCB** **OR**	ODS (423) 751-1700 Site PA(E) NRC 800-424-8802 State EMA if off-site release Local EMA if needed @ Local Emergency # (Typically 911) Others: ENV AFF Media Specialist • Spill Response Services • TVA Management	X X X X	 X X X X X X	Notification to State and/or Regional Department of Environmental Protection EPA Region IV (404) 562-8700	X		
PCB release <1 lb to one of the 6 Excluded Cat. OR	Site PA(E) Others: ENV AFF Media Specialist	X 	 X 	EPA Region IV (404) 562-8700 Others: TVA Management	**X**		X
PCB release ≥ 1 lb and ≤ 10 lb Pure PCB	ODS (423) 751-1700 Site PA(E) NRC @ 800-424-8802 State and Local EMA if off-site release Others: • ENV AFF Media Specialist • Spill Response Services • TVA Management	X X X 	 X X X X[b] X[c]	Courtesy Notification to EPA Region IV (404) 562-8700	**X**		

[a] See Attachment 3.0, 4.0 and 5.0 for contacts information
[b] If requested by the plant, ODS can make required notifications.
[c] See Attachment 3.0 for Internal Notification Matrix.

Attachment 3
(Page 3 of 7)

1.0 PCB & PCB-CONTAMINATED RELEASE REPORTING REQUIREMENTS (continued)

NRC = National Response Center, ODS = Systems Production Supervisor, EMA = Emergency Management Agency PA(E) = Program Administrator - Environmental

2.0 OIL / PETROLEUM PRODUCT RELEASE REPORTING REQUIREMENTS

A. Determine the type of spill. NOTE: It is possible to have more than one type.

B. Determine the amount released.

C. Make notification as listed in **Table 2**.

WATERS OF THE U.S.--A spill "to the waters of the U.S." means any "harmful quantity" released to rivers, reservoirs, creeks, adjacent wetlands, and artificial embayment and channels with a permanent water surface connected to any of the preceding waterways. Onsite holding ponds, ash ponds, and similar structures are not considered surface waters.

HARMFUL QUANTITY--Includes any discharge of oil that causes a film or sheen upon, or discoloration of, the surface of the water or adjoining shorelines or causes a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

RELEASE TO THE ENVIRONMENT OF KENTUCKY—(Kentucky Revised Statutes chapter 224.40-330(1)(d)1) Includes any release in Kentucky from the primary container that meets or exceeds the following requirements of a spill of twenty five gallons or more in a twenty four hour period, except for diesel fuel for which the reportable quantity is seventy five gallons or more in a twenty four hour period, regardless of whether there is secondary containment present or the release is to a plant sump.

Attachment 3
(Page 4 of 7)

2.0 OIL / PETROLEUM PRODUCT RELEASE REPORTING REQUIREMENTS (continued)

TABLE 2: NOTIFICATION MATRIX FOR OIL/PETROLEUM PRODUCT RELEASE

Type Of Spill	Immediate			Prompt (Within 24 Hrs).			
	Organization/ Personnel[a]	Notifications By		Organization/ Personnel[a]	Notifications By		
		Site	ODS		Site	OD S	ENV AFF
To waters of the U.S., any amount, including sheens **OR**	ODS (423) 751-1700 Site PA(E) EPA Region IV (404) 562-8700 NRC 800-424-8802 State EMA Local EMA @ Local Emergency # (Typically 911) Others: • ENV AFF Media Specialist • Spill Response Services • TVA Management	X X X X	 X X X X X[b] X[c]	State and/or Regional Department of Environmental Protection Others: • TVA Management	X		X[c]
To waters of the U.S., but not from TVA facility nor a result of TVA activities **OR**	ODS (423)-751-1700 Site PA(E) May make **voluntary** notification to NRC 800-424-8802 Others: • ENV AFF Media Specialist	X X •	 X X				
Not to waters of the U.S. but at a facility in Kentucky and ≥ 25 gallons any petroleum or ≥ 75 gallons Diesel released to envir. **AND/OR**	Kentucky EMA @ (502) 564-2380 Site PA(E) Others: • Spill Response Services (If Required) • ENV AFF	X X X X	 X[b] 				
Not to waters of the U.S., but Oil discharges > 25 gallons or which *could have caused emergency notification*	Site PA(E)	X		ODS (423) 751-1700 Others: • Spill Response Services(If Required) • ENV AFF	X X X	 X[b] 	

[a] See Attachment 3.0, 4.0, and 5.0 for contacts information
[b] If requested by the plant, ODS can make required notifications.
[c] See Attachment 3.0 for Internal Notification Matrix.
[d] This is an internal notification only.
NRC = National Response Center, ODS = Operations Duty Specialist, EMA = Emergency Management Agency PA(E) = Program Administrator - Environmental

Attachment 3
(Page 5 of 7)

3.0 HAZARDOUS SUBSTANCE/WASTE REPORTING NOTIFICATIONS

A. Determine the type of hazardous substances released by:

1. Reading label on drum/container

2. Referring to the Material Safety Data Sheet (MSDS)

3. Calling the site environmental contact

B. Determine the amount released

C. If amount released is greater than the RQ and to the environment, make notification as listed in **Table 3.** (RQs are determined by reviewing the MSDS or consulting Attachments 8 and 9)

4.0 CALCULATING AMOUNT RELEASED

A. To calculate the amount spilled or released for wastes or substances that are hazardous (characteristic or listed) and the actual concentration of the hazardous component is known, the following formula is used: (C x A)/1,000,000 = Ws; where

A:= Total amount of the spilled or released material in pounds
C: =Concentration of the spilled or released material in ppm for the hazardous constituent
Ws: = Amount of the hazardous constituent spilled or released in pounds

B. If you only know the total amount spilled or released in gallons rather than pounds, use the following calculation to first convert gallons to pounds:

S x Sg x 8.34 = A; where

- S: = The total amount spilled or released in gallons
- Sg: = The specific gravity of the material (this can be found on the MSDS or lab analysis)
- A: = The total amount spilled or released in pounds

Attachment 3
(Page 6 of 7)

4.0 CALCULATING AMOUNT RELEASED **(continued)**

NOTE

If you do not know the concentration of the hazardous constituent, the RQ is based upon the total weight of the waste

C. C. RQs for hazardous substances and wastes typically found at TVA facilities are listed in Attachment 8. If the released material is not listed in Attachment 8, refer to Attachment 9 "Consolidated Chemical List."

TABLE 3: NOTIFICATION MATRIX FOR HAZARDOUS SUBSTANCE/WASTE REPORTING NOTIFICATIONS

Type Of Spill	Immediate			Prompt (Within 24 Hrs).			
	Organization/ Personnel[a]	Notifications By		Organization/ Personnel[a]	Notifications By		
		Site	ODS		Site	ODS	ENV AFF
> RQ, To The Environment - Onsite Only	ODS (423) 751-1700 Site PA(E) NRC 800-424-8802 Others: • ENV AFF Media Specialist • Spill Response Services • TVA Management	X X X	 X X X[b] X[c]	State and/or Regional Department of Environmental Protection	X		
> RQ, To The Environment - Offsite Threatened or Occurring	ODS (423) 751-1700 Site PA(E) NRC 800-424-8802 State EMA Local EMA @ Local Emergency # (Typically 911) Others: • ENV AFF Media Specialist • Spill Response Services • TVA Management**	X X X X	 X X X X[b] X[c]	State and/or Regional Department of Environmental Protection	X		
< RQ, Onsite or Offsite[d]	ODS (423) 751-1700 Site PA(E) Others: • Spill Response Services (If Required) • ENV AFF	X X 	 X X	N/A			

[a] See Attachment 3.0, 4.0 and 5.0 for contacts information
[b] If requested by the plant, ODS can make required notifications.
[c] See Attachment 3.0 for Internal Notification Matrix.
[d] This is an internal notification only.
NRC = National Response Center, ODS = Operations Duty Specialist, EMA = Emergency Management Agency PA(E) = Program Administrator – Environmental

Attachment 3
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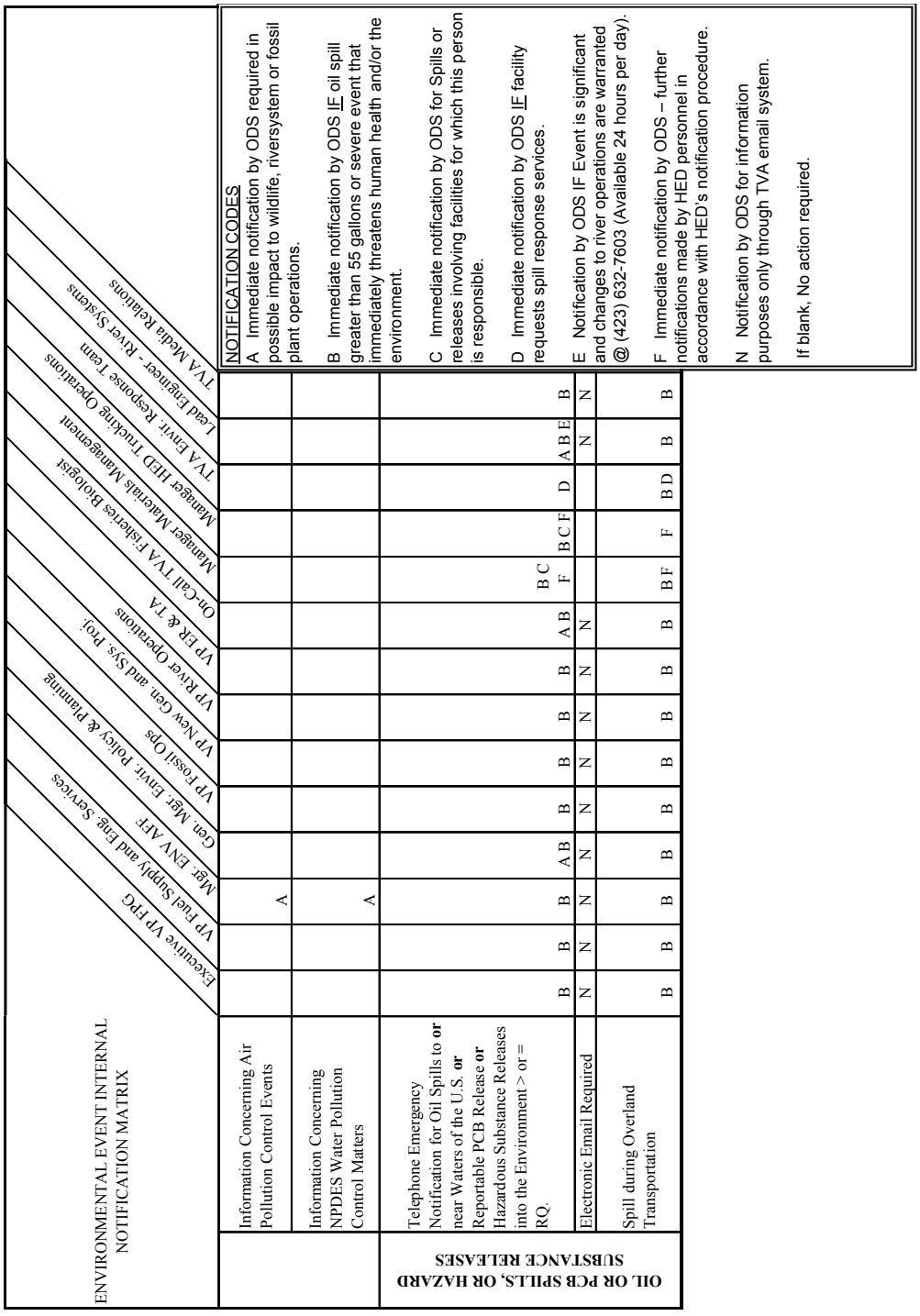
5.0 TVA MANAGEMENT NOTIFICATION REQUIREMENTS



ENVIRONMENTAL EVENT INTERNAL NOTIFICATION MATRIX

	Executive VP FPG	VP Fuel Supply and Engr. Services	Mgr. ENV. AFF.	Gen. Mgr. Envir. Policy & Planning	VP Fossil Ops	VP New Gen. and Sys. Proj.	VP River Operations	VP ER & TA	On-Call TVA Fisheries Biologist	Manager Materials Management	Manager HED Trucking Operations	TVA Envir. Response Team	Lead Engineer - River Systems	TVA Media Relations
OIL OR PCB SPILLS, OR HAZARD SUBSTANCE RELEASES														
Information Concerning Air Pollution Control Events			A											
Information Concerning NPDES Water Pollution Control Matters			A											
Telephone Emergency Notification for Oil Spills to **or** near Waters of the U.S. **or** Reportable PCB Release **or** Hazardous Substance Releases into the Environment > or = RQ.	B	B	B	A B	B	B	B	A B	B C F	D	A B E	B	B	B
Electronic Email Required	N	N	N	N	N	N	N	N			N	N	N	N
Spill during Overland Transportation	B	B	B	B	B	B	B	B	B C F	B D	B	B	B	B

NOTIFICATION CODES

A Immediate notification by ODS required in possible impact to wildlife, riversystem or fossil plant operations.

B Immediate notification by ODS IF oil spill greater than 55 gallons or severe event that immediately threatens human health and/or the environment.

C Immediate notification by ODS for Spills or releases involving facilities for which this person is responsible.

D Immediate notification by ODS IF facility requests spill response services.

E Notification by ODS IF Event is significant and changes to river operations are warranted @ (423) 632-7603 (Available 24 hours per day).

F Immediate notification by ODS – further notifications made by HED personnel in accordance with HED's notification procedure.

N Notification by ODS for information purposes only through TVA email system.

If blank, No action required.

Attachment 4
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Current Contacts Information as of 8/1/2006

See Environmental Affairs Web Address for Attachment 4 Updates

\\chapgfs1.main.tva.gov\Env_Aff\Prod\environmental_affairs_homepage\environmental_affairs.htm

FACILITY RESPONSIBILITIES	CONTACT	WORK # (423) 751-	HOME #*	BEEPER#*/ CELL PH. # 1 (800) 283-0028*
AIR: (BRF, CUF, GFP, KIF, ALF, GFP CT, JOF CT)	STEVE STRUNK (Alt: Skip Markham, Tom Waddell)	2808 2809 2005	(423) 624-0070 (423) 886-4508 (423) 296-6369	423 - 315-0067 423 - 596-0300
AIR: (COF, JSF, SHF, MSPSC, HRT, WBM, CPSC, SERTA)	TOM WADDELL (Alt: Skip Markham)	2005 2809	(423) 296-6369 (423) 886-4508	 423 - 596-0300
AIR: (WCF, JOF, PAF, LCT, KCT, Dist. Generation)	SKIP MARKHAM (Alt: Steve Strunk, Tom Waddell)	2809 2808 2005	(423) 886-4508 (423) 624-0070 (423) 296-6369	423 - 596-0300 423 - 315-0067
NPDES AND WATER REGULATORY MATTERS (GAF, GCT, JSF, KIF, ALF, ACT)	LINDY P. JOHNSON (Alt: Mike Stiefel)	3361 6844	(423) 821-9518 (423) 842-6622	423 - 902-5433 423 - 595-6923
NPDES AND WATER REGULATORY MATTERS (BRF, PAF, JOF, WCF, JCT, Dist. Generation)	MIKE STIEFEL (Alt: Lindy P. Johnson)	6844 3361	(423) 842-6622 (423) 821-9518	423 - 595-6923 423 - 902-5433
NPDES AND WATER REGULATORY MATTERS (COF, CUF, SHF, KCT, LCT, MSPSC)	STEVE BARNES (Alt: Mike Stiefel)	6436 6844	(423) 339-3019 (423) 842-6622	423-284-5527 423 - 595-6923
SOLID WASTE (ALF, COF, CUF, JOF, KIF, PAF, GCT, JCT, LCT, KCT)	LARRY BOWERS (Alt: Amos Smith)	4947 3522	(423) 451-0412 (423) 886-9907	423 - 309-6156 423 - 718-6299
SOLID WASTE (BRF, GAF, JSF, SHF, WCF, DIST. GEN)	AMOS SMITH (Alt: Larry Bowers)	3522 4947	(423) 886-9907 (423) 451-0412	423 - 718-6299 423 - 309-6156
HAZARDOUS SUBSTANCE AND WASTE SPILLS (ALF, BRF, CUF, PAF,LCT)	CYNTHIA ANDERSON (Alt: Denice Thacker)	4878 2281	(423) 847-6629 (423) 622-6460	423 - 290-4064 423 - 290-4064
HAZARDOUS SUBSTANCE AND WASTE SPILLS (GAF, JSF, WCF, PSS, KCT, DGs)	DENICE THACKER (Alt: Cynthia Anderson)	2281 4878	(423) 622-6460 (423) 847-6629	423 - 290-4064 423 - 991-3267
HAZARDOUS SUBSTANCE AND WASTE SPILLS (COF,JOF,KIF,SHF,CLS,WBM)	KEN HICHERSON (Alt: Cynthia Anderson Denice Thacker)	7561 4878 2281	(423) 843-3898 (423) 847-6629 (423) 622-6460	423 - 304 -5687 423 - 991-3267 423 - 290 -4064
OIL SPILLS (WCF, COF, BRF, MSPSC, HRT, WBM, CPSC, SERTA, GUH, PKH, WEH, WLH, KYH)	MIKE TRITAPOE (Alt: John Dizer, Andy Polahar)	2811 7636 4811	(423) 886-7770 (423) 855-7969 (423) 842-4106	423 - 580 - 6833 9474 or 423 - 280-8962 9475 or 423 - 596-2002

Attachment 4
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OIL SPILLS (JOF, CUF, GAF, JSF, LCT, ALD, BOH, CRH, DGH, FNH, FLH, FPH, MHH, NOH, SHH, WTH, WIH)	JOHN DIZER (Alt: Andy Polahar, Mike Tritapoe)	7636 4811 2811	(423) 855-7969 (423) 842-4106 (423) 886-7770	9474 or 423 - 280-8962 9475 or 423 - 596-2002 423 - 580-6833
OIL SPILLS (SHF, PAF, KIF, ALF, KCT, PWD, APH, BRH, CTH, CHH, GFH, HIH, NJH, HTH, O1H, O2H, O3H, TFH,WBH, RPS)	ANDY POLAHAR (Alt: John Dizer, Mike Tritapoe)	4811 7636 2811	(423) 842-4106 (423) 855-7969 (423) 886-7770	9475 or 423 - 596-2002 9474 or 423 - 280-8962 423 - 580-6833
PCB/ASBESTOS SPILLS	KEN HICKERSON (Alt: Cynthia Anderson Denice Thacker)	7561 4878 2281	(423) 843-3898 (423) 847-6629 (423) 622-6460	423 - 304-5687 423 - 991-3267 423 - 290-4064
UNDERGROUND STORAGE TANK LEAKS	MIKE TRITAPOE	2811	(423) 886-7770	423 - 580-6833
MANAGER, PERMITTED PROGRAMS	STEVE STRUNK	2808	(423) 624-0070	423 - 315-0067
MANAGER, REGULATORY PROGRAMS	CYNTHIA ANDERSON	4878	(423) 847-6629	423 - 991-3267
MANAGER, ENV AFF	GORDON PARK	2806	(423) 842-1978	423 - 240-2820

* Also available via TVA operator @ (423) 751-0011 in Chattanooga.
** Pager Access #: 800-443-7243
*** Chattanooga local number. If dialed outside of the Chattanooga exchange, use area code.

Attachment 4
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PLANT CONTACTS

FOSSIL PLANT	PLANT MANAGER	ENVIRONMENTAL	
		PROGRAM ADMINISTRATORS	ALTERNATE (TSA)/(PAE)
Allen	L. A. Lee (901) 789-8450	**Deanne Hardy** Phone: (901) 789-8464 Pager: (800) 448-2154 Fax: (901) 789-8469	N/A
Bull Run	N. W. Burris (865) 945-7212 / 2239-C	**W. H. (Bill) Ross** Ph: (865) 945-7290 Fax: (865) 945-7316	**Jason Cobb** 945-7292
Colbert	S. L. Hargrove (256) 389-7000 / 2170-C *Steve Michael, Asst.Plt.Mgr.*	**Michael A. Gean** Ph: (256) 389-7152 Fax: (256) 389-7002 Pager: (800) 323-4853 ID: 30585 **John Muse** Ph: (256) 389-7710 Pager: (800) 283-0028 ID: 039127	N/A
Cumberland	Tim Czubakowski (931) 827-6000 / 2097-C	**Carrie S. McCarty** Ph: (931) 827-6278 Fax: (931) 827-6001 Pager: (800) 841-7243 ID: 22127	**Jeannette Bumpus** (931) 827-6219
Gallatin	Dennis Spencer (615) 230-4090 / 2910-C	**W. L. (Bill) Hunt** (615) 230-4059 Fax: (615) 230-4077	**Bill Brock** 230-4065
Johnsonville	Donnie Wallace (931) 535-8203	**Ronald D. Harned** Ph: (931) 535-8294 Fax: (931) 535-8283 Pager: (800) 283-0028 ID: 9353 **Anthony R. Dillon** Ph: (931) 535-8206	**Becky Seaton** 535-8290
John Sevier	Mike Wagner (423) 921-6601	**T. E. (Tonya) Bailey** Ph: (423) 921-6650 Nextel: 193*4272-2 Fax: (423) 921-6609 **Roger Sims** Cell 865-740-3347	**Kristi Lisenby** Nextel: 193*4272*22 **Paul Wagner** Nextel: 193*4272*39 **Ken Lewis** Nextel: 193*4272*21
Kingston	Michael T. Beckam (865) 717-2500	**Linda F. Campbell** Cell Ph: 865/755-5077 Ph: (865) 717-2157 Fax: (865) 717-2505 **Cynthia O. McCowan** Ph: (865) 717-2180 Cell Ph: 865/755-5082	
Paradise	D.E. (Don) Gaston jr (270) 476-3320 Cell 423-921-4113	**Kimberly Dukes** 270-476-3332 Fax: (270) 476-3314 **Mark Pendley** (270) 476-3336 Cell Ph: 270-543-9778	**Malcolm Nelson** (270) 476-3375 **Mickey Wilson** (270) 476-4041
Shawnee	J.T. Parsley (270) 575-8005 Fax: (270) 575-8007	**Allan Stephens** (270) 575-8024 Fax: (270) 575-8019	
Widows Creek	Gerald Hemmer (256) 437-4400	**John Pinnix** Fax: (256) 437-4403 Phone: (256) 437-4423	N/A
Kemper County	Bart Gast 601-389-2401	L. Chip Diamond (423)-751-2447	
Lagoon Creek	J. H. Ambrose (731) 772-7520	L. Chip Diamond (423) 751-2447	N/A

Attachment 4
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FOSSIL POWER GROUP MANAGEMENT CONTACTS

TITLE	CONTACT	PHONE	MOBILE[2]	PAGER ID[3]
Executive Vice President, Fossil Power Group	J. R. (Joe) Bynum	423-751-2601	667-1074	
Senior Staff Advisor	W. S. (Bill) Bain	423-751-4444		b. 40777
VP, Fossil Operations (East)	E. E. Freeman	423-751-3013	774-2016 or 593-0709	
VP, Fossil Operations (West)	R. M. Tanis	423-751-3013	619-8715	
Sr. VP Fossil Engineering & Technical Services	M. A. Cooper	423-751-6038	280-3373	
Mgr, Power Service Shops	D. E. (Dave) Brock	256-314-7501	366-5040	1-800-323-4853 (11092)
Mgr, Heavy Equipment Division	R. J. (Roy) Galyon	423-751-8379	240-2292	a. 0476
Mgr, Central Laboratory Services*	V. L. (Vanessa) Ramey	423-876-4317	322-6374	d. 1-800-882-0668
Mgr, Support Services	C. W. (Charley) Spencer	423-751-7567	240-4226	
GM, Fuel Supply	J. E. Jacky Preslar	423-751-4600	802-6443	
Mgr, Environmental Affairs	G. G. Park	423-751-2806	240-2820	----
VP, Fossil Projects	R. A. (Bob) Summers	423-751-3353	240-9447	c. 043179
GM, Combustion Turbines and Distributed Resources	R. C. (Ronald) Hall	423-751-4075	240-5593	----

(p) Personal cell phone
TVA Main Lines: Chattanooga 423-751-0011; Knoxville 865-632-2101
1 Fax Numbers: Use same area code and prefix as phone number.
2 Mobile Numbers: Use same area code as phone number unless noted otherwise
3 Paging Systems: a: 1-800-283-0028; b: 423-751-1792; c: 1-800-443-7243; d: 1-800-841-7243

Attachment 4
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TVA CONTACTS OUTSIDE FPG

POSITION	CONTACT	TVA	HOME*	BEEPER	MOBILE
Vice President River Operations	Janet Herrin	(865) 632-6770	*	(800) 283-0028 / 9737	(865) 599-8823
Mngr. Environmental Policy and Planning	Bridgette K. Ellis (Acting)	(423) 751-3742	*		
VP Research and Technology Applications	Ron Williams	(256) 386-2026	*		
TVA Police	Dispatch	800-824-3861 East 800-548-4005 Central 800-839-0028 North 800-839-0003 West			
General Site Media Relations	24 HR Chattanooga 24 HR Knoxville	(865) 632-6000 (865) 632-8048	The 24-hour Chattanooga/Knoxville number is for the on-duty media relations duty specialist.		

*Home and Additional Contacts Made VIA TVA Operator @ (423) 751-0011

Attachment 5
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Regulatory Agencies and Spill Response Organization Contacts

AGENCY	CONTACT			PHONE #	
NATIONAL RESPONSE CENTER	U.S. COAST GUARD			(800) 424-8802	
EMERGENCY RESPONSE CENTER OF THE ENVIRONMENTAL PROTECTION AGENCY	EPA-REGION IV			(404) 562-8700	
ALABAMA	DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OR PUBLIC SAFETY OFFICER (AFTER HOURS)			(800) 843-0699 (334) 260-2700 (334) 242-4378	
KENTUCKY	SPILL HOTLINE - DEPARTMENT OF NATURAL RESOURCES			(502) 564-2380	
GEORGIA	DEPARTMENT OF NATURAL RESOURCES			(404) 656-4300	
MISSISSIPPI	EMERGENCY MANAGEMENT AGENCY			(601) 352-9100 (800) 222-6362 in State	
NORTH CAROLINA	EMERGENCY RESPONSE COMMISSION (AFTER HOURS) (EMERGENCY PAGER)			(919) 733-5083 (919) 733-3867 or (919) 733-3861 (919) 899-4500 (800) 858-0368 in State	
TENNESSEE	EMERGENCY MANAGEMENT AGENCY			(800) 262-3300 or (615) 741-0001	
VIRGINIA	DEPARTMENT OF EMERGENCY SERVICES			(800) 468-8892 in State (804) 674-2400, 24 hours	
SPILL RESPONSE CONTRACTOR *	PRIMARY – SHAW Environmental SECONDARY – National Response Corporation (NRC) to be used as backup for extreme events beyond the primary responders capabilities as determined by the site.			1-(800)-537-9540 (800) 899-4672 or (369) 224-9141	
TVA ENVIRONMENTAL	Team Leader	Months on Call	Work Phone	Home Phone	Cell/Pager
ENGINEERING SERVICES-	Ron Majiros	Jan., May., Sept.	256-386-2149	931-852-2625	256-762-3411
ENVIRONMENTAL RESPONSE TEAM	Brant Rutledge	Feb., June, Oct.	256-386-2086	256-766-9119	800-443-7243 (032765)
	Johnny McFall	Mar, July, Nov.	256-386-3426	256-766-7311	800-443-7243 (0863945
	Lisa Beard	April, Aug., Dec.	423-673-2327	423-687-8675	865-250-9044

NOTE: ALL PHONE NUMBERS ARE 24-HOUR EMERGENCY, EXCEPT AS OTHERWISE NOTED.

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Initiation of Spill Response with Off Site Spill Response Contractor

In the event that an incident should warrant a notification to a spill response contractor, the call should be initiated by the Shift Production Supervisor or site personnel. The request for services under this contract must be made by a Qualified Individual (QI) or a person designated by and acting for a QI (e.g. site personnel, ODS, Engineering Services - Environmental Response Team, etc.).

When contacting spill contractor, the QI or designee should define as detailed as possible the situation and the type of services requested by following the items found below.

A. Name of Client

B. Caller name and title

C. Facility

D. Location of spill and geographical coordinates

E. Nature and estimate of oil quantity

F. Approximate time of incident

G. Current weather and forecast

H. Condition of Facility

I. Name of Qualified Individual and Federal On-Site Coordinator (if applicable)

J. Response Resources to deploy at that time.

Attachment 7
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Facility Abbreviations and Location Information

FOSSIL LOCATION ABBREVIATIONS

ALF - ALLEN

BRF - BULL RUN

COF - COLBERT

CUF - CUMBERLAND

GAF - GALLATIN

JSF - JOHN SEVIER

JOF - JOHNSONVILLE

KIF - KINGSTON

PAF - PARADISE

SHF - SHAWNEE

WBF - WATTS BAR

WCF - WIDOWS CREEK

DISTRIBUTIONS FACILITY ABBREVIATIONS

HDC - HARTSVILLE DISTRIBUTION

MDC -MUSCLE SHOALS DISTRIBUTION

MAINTENANCE FACILITY ABBREVIATIONS

WBMF -WATTS BAR MAINTENANCE

HTM - HARTSVILLE MAINTENANCE

MSM - MUSCLE SHOALS MAINTENANCE

HED - HEAVY EQUIPMENT DIVISION

OTHER FACILITY ABBREVIATIONS

AMD -ALBERTVILLE MUNICIPAL UTILITY BOARD FACILITY

CLS - CENTRAL LABS AT CPSC

CPSC - CHICKAMAUGA POWER SERVICE CENTER

DIST GEN - DISTRIBUTED GENERATION FACILITIES

KCT -KEMPER COUNTY COMBUSTION TURBINES

LCT -LAGOON CREEK COMBUSTION TURBINES

MSPSC - MUSCLE SHOALS POWER SERVICE CENTER

PWD - PERRY W. DAVIS, GENERATING STATION (AKA MERIDIAN)

SERTA - SAFETY AND EMERGENCY RESPONSE TRAINING ACADEMY

SMW -SINGLETON MARINE WAYS, KNOXVILLE

MISCELLANEOUS ABBREVIATIONS

PCB - POLYCHLORINATED BIPHENYLS

UST -UNDERGROUND STORAGE TANKS

Attachment 7
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FOSSIL PLANT LOCATIONS

FOSSIL PLANT	STREET ADDRESS	DISTANCE FROM CLOSEST CITY, AND COUNTY	LATITUDE AND LONGITUDE	RIVER MILE MARKER
Allen	2574 Plant Road Memphis, TN 38109	City: Memphis, TN Distance: In Memphis County: Shelby	Lat: 35° 07.5' N Long: 90° 03.4' W	Mississippi River 725.6
Bull Run	1265 Edgemoor Road Clinton, TN 37716-6270	City: Clinton, TN Distance: 7 Miles County: Anderson	Lat: 36° 06.4' N Long: 84° 07.7' W	Clinch River 48.6
Colbert	900 Steam Plant Road Tuscumbia, AL 35674	City: Cherokee, AL Distance: 6 Miles County: Colbert	Lat: 34° 45.4' N Long: 87° 58.4' W	Tennessee River 245
Cumberland	815 Cumberland City Rd Cumberland City, TN 37050	City: Cumberland City, TN Distance: 1 Mile County: Stewart	Lat: 36° 23.3' N Long: 87° 38.1' W	Cumberland River 103.2
Gallatin	1499 Steam Plant Road Gallatin, TN 37066	City: Gallatin, TN Distance: 10 Miles County: Sumner	Lat: 36° 23.3' N Long: 86° 26.8' W	Cumberland River
John Sevier	611 Old Highway 70 Rogersville, TN 37857	City: Rogersville, TN Distance: 4 Miles County: Hawkins	Lat.: 36° 24.4' N Long: 83° 00.5' W	Holston River 106.7
Johnsonville	Highway 70 West New Johnsonville, TN 37134	City: New Johnsonville, TN Distance: 0.5 Mile County: Humphreys	Lat: 36° 01.3' N Long: 84° 58.0' W	Kentucky Lake At Tennessee River 100
Kingston	714 Swan Pond Road Harriman, TN 37748	City: Kingston, TN Distance: 2 Miles County: Roane	Lat: 35° 52.4' N Long: 84° 30.3' W	Clinch River 2.7, Watts Bar Reservoir
Paradise	13246 State Route 176, Suite 10 Drakesboro, KY 42337	City: Drakesboro, KY Distance: 8 Miles County: Muhlenburg	Lat: 37° 12.3' N Long: 87° 10.8'W	Green River Mile 100.5
Shawnee	7900 Metropolis Lake Rd W. Paducah, KY 42086	City: W. Paducah, KY Distance: 18 Miles County: McCracken	Lat: 37° 00.8'N Long: 88° 36.9'W	**Ohio River 36.5**

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Watts Bar Maintenance	467 Steam Plant Road Spring City, TN 37381	City: Spring City, TN Distance: 5 Miles County: Rhea	Lat: 35° 41.6' N Long 84° 51.5' W	Tennessee River 529.6
Widows Creek	Country Road 96 Stevenson, AL 35772	City: Stevenson, AL Distance: 6 Miles County: Jackson	Lat: 34° 52.1' N Long: 85° 50.3' W	Guntersville Reservoir At Tennessee River 407.5

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OTHER FACILITIES	STREET ADDRESS	DISTANCE FROM CLOSEST CITY, AND COUNTY	LATITUDE AND LONGITUDE	RIVER MILE MARKER
Albertville Municipal Utility Board	Albertville 590 Water Plant Road Guntersville, AL 35976	City: Guntersville Distance: 4 Miles County: Marshall	Lat: 34° 21' 35" N Long: 86° 13' 20" W	Tennessee River 361
Chickamauga Power Service Center	Hwy. 153 & Access Rd North Side Of Chickamauga Dam Chattanooga, TN 37415	City: Chattanooga, TN Distance: In City County: Hamilton	Lat: 35° 02.6' N Long: 85° 18.3' W	Tennessee River 471
Hartsville Maintenance Facility and Hartsville Investment Recovery Facility	Hwy. 25 P. O. Box 2000 Dixon Springs, TN 37057	City: Hartsville, TN Distance: 7 Miles Counties: Sumner/Trousdale	Lat: 36° 23.7' N Long: 86° 09.8' W	Cumberland River 284
Lagoon Creek Combustion Turbines	615 Elm Tree Road Brownsville, TN 38012	City: Brownsville Distance: 5 Miles County: Haywood	Lat: 35° 37.5' N Long: 89° 30' W	NA
Muscle Shoals Power Service Center (Distribution Center, Power Service Shops)	Wilson Dam Highway State Route 133 Muscle Shoals, AL 35660-1010	City: Sheffield Distance: 5 Miles County: Colbert	Lat: 34° 45.7' N Long: 87° 40.5' W	Tennessee River 259.4
Muscle Shoals Maintenance Facility	Heavy Equipment Department River Rd Muscle Shoals, Al 35661	City: Sheffield Distance: 3 Miles County: Colbert	Lat: 34° 45.7' N Long: 87° 40.5' W	Tennessee River 259.4
Perry W. Davis (Meridian)	374 Fletcher Road Meridian, MS 39309	City: Meridian Distance: 16.2 miles County: Lauderdale	Lat: 32° 33' 17" N Long. 88° 36' 22" W	N/A
Safety and Emergency Response Training Academy	Nickajack Reservation Shellmount Road Jasper, TN 37347	City: Jasper Distance: 6 miles County: Marion	Lat: 39° 0' 56' N Long: 85° 37' 04"W	Tennessee River 424.3
Singleton Marine Way	Singleton Marine Way Louisville, TN	City: Louisville Distance: 4 Miles County: Blount	Lat: 35° 45.7' N Long: 83° 57.8' W	Tennessee River 636
Watts Bar Maintenance Facility	Hwy. 68 Spring City, TN 37381	City: Spring City Distance: 9 Miles County: Rhea	Lat: 35° 41.6' N Long: 84° 51.5' W	Tennessee River 529

Attachment 8
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Hazardous Substances Typically Located at Fossil Plants

Hazardous Substance	Reportable Quantity[2] (RQ Pounds (kilograms)
Acetic acid	5,000 (2270)
Acetone	5,000 (2270)
Ammonia	100 (45.4)
Aluminum sulfate	5,000 (2270)
Ammonia liquid	100 (45.4)
Ammonium hydroxide	100 (45.4)
Ammonium bifluoride	100 (45.4)
Antifreeze (see Ethylene Glycol)	5000 (2270)
Asbestos	1 (0.454)
Benzoic acid	5,000 (2270)
Chlorine[3]	10 (4.54)
Chloroform[3]	10 (4.54)
Ethylene dibromide	1 (0.454)
Ethylene glycol	5000 (2270)
Hazardous waste, F001	10 (4.54)
Hazardous waste, F002	10 (4.54)
Hydrazine[3]	1 (0.454)
Hydrochloric acid	5,000 (2270)
Mercuric nitrate	10 (4.54)
Mercury	1 (0.454)
Methyl ethyl ketone	5,000 (2270)
Nitric acid[3]	1,000 (454)

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Polychlorinated biphenyls (PCBs)[4]	1 (0.454)
Potassium chromate	10 (4.54)
Potassium hydroxide	1,000 (454)
Silver nitrate	1 (0.454)
Sodium bisulfite	5,000 (2270)
Sodium hydroxide	1,000 (454)
Sodium hypochlorite	100 (45.4)
Sulfuric acid	1,000 (454)
Tetrachloroethylene	1 (.454)
Trichloroethane (1,1,1)	100 (45.4)
Unlisted Hazardous Wastes: Characteristic of Ignitability (D001) Characteristic of Corrosivity (D002)	 100 (45.4) 100 (45.4)

NOTES:

1 - This table lists hazardous substances known to be typically present at fossil plants. The listing provides quick reference to reportable quantities for known hazardous substances, but may not be complete. Attachment 9 and the Environmental Affairs Web Site should also be checked for substances suspected to be hazardous, but are not found in this attachment.

2 - Reportable quantities as of July 2000.

3 - Material is listed as an extremely hazardous substance (see Attachment 8 and 9).

4 - Please note: Release of any amount of PCBs to surface waters, drinking water supplies, sewers, vegetable gardens, or grazing lands must be reported immediately to the NRC.

Attachment 9
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Guide to Consolidated Chemical List

The following web site was updated in October 2001. The latest version of this publication may be found on-line at the following web link:

http://www.epa.gov/ceppo/pubs/title3.pdf