All contractors performing work for Tampa Electric are required to have in place a safety program that as a minimum, meets the requirements of the Occupational Safety and Health Act (OSHA) as amended, and state plans approved thereunder and regulations thereunder, to the extent applicable.

Tampa Electric may review the contractor’s safety program to ensure that the minimum OSHA standards are addressed; and to cause the contractors, where necessary, to modify and/or expand their safety programs to address project site-specific hazards and incorporate Tampa Electric safe work practices.

This information is not intended to be a safety manual or a training manual. It is a presentation which addresses safety hazards at Tampa Electric Energy Supply facilities, emergency procedures and safe work practices in the areas of hazardous energy control, confined spaces, hot work, line breaking and radiation work to name a few.

Safety, safe work practices and safety training are the responsibility of every contractor. Nothing in this safety orientation or materials shall relieve the contractor from their safety obligations, nor does Tampa Electric assume any contractor’s liability.

Agenda
- Why safety orientation
- Drug & alcohol policy
- Power plant basic principles & hazards
- Safe work practices to include programs & policies
- Environmental work practices
- Emergency reporting, response & evacuation
- Site specific safety & security
  - Polk Power Station
  - Bayside Power Station
  - Big Bend Power Station
Safety Orientation - Why is it Necessary?

- To provide a safe and healthy workplace
- To provide information to orient personnel of the requirements at Energy Supply facilities
- To ensure compliance with all applicable regulations
- To achieve a goal of ZERO incidents
- To meet the annual requirement of informing individuals of changes and enhancements

Access Requirements

- All who need to gain access to a Tampa Electric Energy Supply site to perform work shall first receive this "Safety Orientation"
- Sites include, but not limited to:
  - Big Bend Power Station
  - Bayside Power Station
  - Polk Power Station
  - Manatee Viewing Center
  - Causeway Lab

Who needs this Orientation?

- This orientation is required for all non-Energy Supply personnel
- Tampa Electric personnel who work for another department outside of Energy Supply need this orientation prior to working in an Energy Supply facility
- All contractors of Tampa Electric working in an Energy Supply facility need this orientation

Work Activity Approvals

- Tampa Electric Personnel who are not part of the Generating Facility Organization need a Plant Staff Sponsor prior to beginning work activity on the Generating Facility Property
- The requirement applies to the following groups:
  - Energy Delivery
  - Facilities Maintenance
  - Peoples Gas
  - Engineering & Project Management
  - Environmental Health & Safety

Work Activity Approvals

- Project Lead contacts Plant Staff Sponsor at least 2 weeks prior to work starting
- Plant Staff Sponsor provides approval for the work activity and coordinates plant notifications, as needed

Work Activity Approvals

- Project Lead Considerations:
  - Energy Supply Orientation requirements
  - Security requirements
  - Delivery and laydown of project materials
  - Location and marking of underground utilities in project area
  - Permit requirements; hot work, excavation and confined space
  - Hazardous Energy Control requirements
  - Environmental procedures and/or permits
Process Area Definition
- Any area where equipment or systems may be operational in the support of megawatt production

Exception to Orientation
- Instead of completing this orientation
  - Contractors or visitors who need to access a site other than for work, such as a job assessment, a one time visit or during an emergency, must be escorted by a Tampa Electric Energy Supply employee during their entire visit

Exception to Orientation
- Delivery personnel not performing work and not entering the “Process Area,” shall receive access information from the entrance security officers and are not required to receive this “Safety Orientation”

Trainer’s Responsibility
- Provide orientation to employees
- Document:
  - Company
  - Date trained
  - Trainer’s name
  - Student’s full name
  - Student’s birth date
  - Non-US citizens must provide Alien Registration Number from USCIS documentation (Form I-551, Form I-776, or Passport with work authorization)
  - Submit documentation to Tampa Electric

Trainer’s Responsibility
- Distribute completion access badges
- Questions should be directed to a member of the TEC safety staff or TEC Contract Supervisor

Employee’s Responsibility
- Successfully complete this “Safety Orientation”
- Adhering to safe work practices and policies
- Access badges are required to be on your person at all times while on site
- You will not be allowed site access without a federal, state, or US territory photo ID or driver’s license and current badge or a Tampa Electric escort
- A valid driver’s license is required to operate a motor vehicle on site
Basic Power Plant Principles
- The purpose of a power plant is to produce electricity
- The majority of power plants burn fossil fuels such as gas, oil or coal
- Tampa Electric facilities burn coal, natural gas and synthesis gas made from coal
- Tampa Electric facilities utilize combustion turbines and steam turbines to generate electricity

General Power Plant Hazards
- Power plants can contain the following hazards:
  - Heat and hot surfaces
  - Combustible and other dust
  - Flammable gases and vapors
  - Hazardous chemicals and gases
  - High voltages
  - Falls to a lower level
  - Slippery walking surfaces
  - Moving machinery
  - Noise

General Power Plant Hazards
- There are other hazards
- The environment demands an awareness of the surroundings and hazards

Examples of Precautions for Power Plant Hazards
- Following prescribed procedures for:
  - Confined Space entries
  - Hot Work activities
  - Line Breaking
- Wearing appropriate Personal Protective Equipment (PPE)
  - Goggles in dusty environments
  - Hearing protection in loud areas
- Pre-job planning to anticipate and plan for the hazards

Possible Power Plant Injuries
- Slip, trip or fall
- Dust or debris in the eye
- Pinched hands or fingers
- Burns
- Insect stings and bites
- Heat illness
- Sprains & strains

Drug & Alcohol Policy
- Tampa Electric is a “Drug-Free” company
- Policy compliance helps ensure a safe and healthy workplace
- Consuming, possessing or being under the influence of illegal drugs or alcohol while on Tampa Electric property is prohibited
- Abuse of any drug will not be tolerated
Drug & Alcohol Policy
- Over-the-counter and prescription drugs that cause impairment must also be considered
- When a drug and alcohol screen is conducted following an incident, proof of a negative screening is required prior to returning to work

Safe Work Practices
- All contractors shall comply with Tampa Electric Safe Work Practices
- If a contractor’s safety program conflicts with Tampa Electric’s program(s) the contractor shall notify Tampa Electric for direction regarding resolution
- Tampa Electric Energy Supply Safety Programs and Policies can be found on the Internet at tampaelectric.com/contractorsafety/programs

Zero Tolerance Policy
- A Zero Tolerance Rule is a specific rule within a policy or program that if violated would likely result in significant personal injury or property damage
- A violation of Safe Work Practices, especially a Zero Tolerance Rule, may not only result in serious personal injuries, but may result in immediate and permanent discharge from the premises
- Consistent violations of Safe Work Practices may also put the contracting firm’s work contract at risk

Specific Zero Tolerance Rules - examples:
- Failure to use fall protection above 4 feet
- Entering a permit required confined space without a permit
- Failing to be protected by Hazardous Energy Control prior to performing work
- Unsafe or hazardous staging or rigging of equipment
- Contract Supervisors are responsible for orienting their employees to the TEC Energy Supply Zero Tolerance Policy

Minimum PPE Requirements – All Facilities
- Anyone entering a Process Area must be wearing, at a minimum:
  - Hard hat
  - Safety glasses with side-shields
  - Safety-toed shoes
  - Hearing protection
  - Long pants
  - Sleeved shirts (no tank tops)
- All PPE shall be provided by the contractor
- Loose clothing, hair and jewelry must be secured or removed before working around moving equipment

Minimum PPE Requirements – Polk
- All Personal Protective Equipment (PPE) shall meet appropriate ANSI standards and be worn and maintained according to manufacturer’s specifications
- Minimum PPE of Hardhat and Safety Glasses
- Visitors, delivery personnel, vendors and any other personnel taking a direct route from the parking lot to an administrative building are exempt from this requirement
  - Unless their route takes them through a “Process Area,” then they shall wear the Personal Protective Equipment required of that area
Minimum PPE Requirements – Bayside & Big Bend

- All Personal Protective Equipment (PPE) shall meet appropriate ANSI standards, and be worn and maintained according to manufacturer’s specifications
- Minimum PPE of hardhat and safety glasses are required at all times
  - Includes upon exiting vehicle anywhere
    - Parking lots
    - Delivery doors/docks

What Other PPE Is Needed?

- Additional PPE may be required based on:
  - Task
  - Duration
  - Hazards
  - Conditions
- Each task should be evaluated to determine the PPE needed
- Examples of additional PPE: goggles, face-shields, respirators, gas detectors, gloves, protective clothing, etc.

Eye Protection

- ANSI approved safety glasses with solid side shields shall be worn
- Dark lens in low light areas are prohibited
- Photo gray and tinted lens are allowed
- Eye protection may be upgraded due to hazards such as chemicals, dust and flying debris
- Some eyewash stations are tied in to the alarm system; only use them in case of an emergency.

Head Protection

- Only ANSI Z89.1 minimum type 1 class “G” approved hard hats shall be worn
- They shall be in good condition, free of damage as per manufacturer’s specifications
- Hard hats shall be worn in the direction indicated by the manufacturer
- All hard hats shall be marked legibly with your company name and employee name

Hearing Protectors

- Sound level surveys at all facilities indicate the need for hearing protection as posted while in the “Process Areas”
### Hand Protection 29 CFR 1910.138

- Hand protection relative to:
  - Task
  - Conditions
  - Duration
  - Hazards

---

### Safety Shoes

- Shall meet the ANSI Footwear Standard: ANSI Z41 class 75, or ASTM F 2412/F and 2413 C75
- Must be in good condition
- Shall be worn at all times while in the process area(s)
- When welding and/or cutting, high-top boots (minimum 6”) that are covered by pant legs shall be worn

---

### Fall Protection

- 29 CFR 1926 Subpart M & 1910.23
- Three conventional methods:
  - Standard handrail systems
  - Safety net systems
  - Personal fall arrest systems
- TEC Energy Supply facilities require fall protection where the fall exposure is 4 feet or more
- TEC Energy Supply requirements are more stringent than OSHA construction standards

---

### Personal Fall Arrest Systems

- Contractors must:
  - Inspect and maintain all fall arrest equipment
  - Identify appropriate anchorage points

---

### Respiratory Protection

- All contractors shall comply with 29 CFR 1910.134
- Respirators shall be selected for the exposures
- All personnel shall comply with all signage
- The use of respiratory protection is required in some area regardless of task being performed:
  - Cooling towers
  - High airborne particulate areas such as the tripper room at Big Bend Power Station

---

### Expectation

- Assess the workplace for hazards
- Use engineering and work practice controls to eliminate or reduce hazards before using PPE
- Select appropriate PPE to protect employees from hazards that cannot be eliminated
- Inform employees why the PPE is necessary and when it must be worn
- Train employees how to use and care for their PPE and how to recognize deterioration and failure
### Expectation
- Require employees to wear selected PPE in the workplace
- Coordinate with the TEC Contract Supervisor in pre-job planning and hazard assessment

### Smoking Policy
- Smoking is allowed only in designated areas of TEC Energy Supply facilities
- No smoking near flammables or combustibles
- No smoking inside of enclosed buildings, unless specific designated areas have been determined by TEC station management

### Hazard Communication “Right-to-Know”
- Tampa Electric must be notified of the intent to bring, use or store any chemicals on site
- Chemicals must be approved by TEC prior to bringing on site. Coordinate approval through the TEC Contract Supervisor.
- Safety Data Sheets (SDS) must be available to personnel on site
- Containers must be labeled
- SDS for materials obtained by TEC can be requested from the TEC Contract Supervisor

### Inorganic Arsenic
- Tampa Electric must comply with all provisions of the OSHA Inorganic Arsenic Standard 29CFR 1910.1018
- Individuals who work on or near boiler components, syngas power blocks, pollution control devices and duct work where coal combustion by-products are present, may be exposed to fly ash containing trace amounts of arsenic
- Tasks of concern are: grinding, chipping, cutting, abrasive blasting, welding, arc welding, gouging, etc.

### Asbestos
- Big Bend and steam plant areas of Bayside have various materials that contain asbestos, mostly in the form of gaskets and insulation
- Transite siding, floor tiles, or arc chutes may also contain asbestos materials
- Do NOT remove, disturb or come in contact with any thermal system insulation or surfacing material without Tampa Electric authorization
- Report any material that is damaged to TEC Contract Supervisor immediately

### First Aid & Bloodborne Pathogens
- Nurses and First Aid stations are located on site
  - Check with the location for specific hours
  - Staffing and/or hours may be increased during outages
- Contractors must have 1 person trained in First Aid for every 10 people working on site
- AEDs are available at each facility
- Bloodborne Pathogens are: HIV, HBV & HCV
- Practice universal precautions when providing first aid assistance
  - Assume everyone is a carrier
First Aid & Bloodborne Pathogens

- Report all incidents or exposures immediately
- Ensure proper disposal of bio-hazardous waste and clean-up of blood

Hazards Requiring Work Area Protection

- Where personnel may be exposed to falling objects
- Where personnel could enter accessible areas within the swing radius of the rear of the rotating superstructure of a crane and be struck or crushed
- Where personnel could be at the edge of an excavation, well, pit, shaft or other hole
- Where personnel could be next to open-sided floors, walkways or platforms with a distance four feet or greater to the next lower level
- Where personnel could be above or next to dangerous equipment that they could fall into or onto

Hazards Requiring Work Area Protection

- Where exposed electrical conductors are present
- Where overhead crane use is occurring
- Where any slipping or tripping hazard may be present
- Where any other temporary or newly discovered hazard may exist
- Where x-raying of equipment is in progress
- Where asbestos work is taking place

Work Area Protection Access

- Coordination is required when barriers and barricades will block passageways, exit routes and equipment needed for plant operations
  - Plant Operations must be involved
  - Coordinate with the TEC Contract Supervisor
- Consider access needed for traveling in areas when placing barriers & barricades
  - Can a pathway be provided?
- Ensure that barriers & barricades are as compact as possible, i.e. only around the area where the hazard is present

Work Area Protection Access

- Personnel must go around the barricade/barrier area
  - Except where permission to enter the area has been granted by a designee
- Be diligent to remove barricade/barrier once the hazard has been eliminated
- Personnel must use situational awareness and be conscientious of the hazards in their work area as well as body positioning

Work Area Protection Tagging and Inspection

- All barriers and barricades shall be tagged every 25 feet on all sides:
  - Specific identification of the hazard(s)
  - Date the barrier or barricade is erected
  - Expected date of removal
  - Printed full name of the person responsible for placement of the barrier or barricade
  - Name of this person’s employing company and a contact phone number
Work Area Protection Tagging and Inspection

- All barriers and barricades shall be inspected periodically
  - Minimum: Once per day while on-site & work being performed inside the barrier/barricade area
  - Document the inspection on the tag

Work Area Protection: CAUTION Hazards

- Understand and be protected from the hazard while in the area
- Example hazards:
  - Excavations less than 4 feet deep
  - Trip hazards
  - Low hanging or sticking out hazards
  - Wash down or water spray
  - Small particles (blasting or paint)

Work Area Protection: DANGER Hazards

- Only personnel assigned to work in the area who have received a job briefing to address the hazards
- Example hazards:
  - Overhead work: falling objects, hot particles
  - Live electrical
  - Swing radius of cranes
  - Steam leaks
  - Gas or other harmful substance leaks
  - Unguarded rotating equipment

Warning Signage

- Tampa Electric must authorize posting of signage
- Contractors responsible for posting relative to scope of work
- Contractors shall comply with all instructional signage

Warning Signage

- Never enter Restricted Access Areas without appropriate site approval
- When contractor employees do not comprehend the English language, adequate escorts shall be provided by the contractor to ensure employee safety AT ALL TIMES
Warning Lights – Big Bend Station
- Flashing yellow strobe lights for ball mill hazard
- Lights are located centrally to each mill on the:
  - Ground floor
  - Mezzanine level
  - Classifier level
- Personnel should avoid walking through or working around this area while lights are on.

Compressed Gas Cylinders
- Use and storage of acetylene, oxygen or pressurized gas cylinders is restricted to approved areas
- Cylinders must be secured with non-combustible material at all times
- Cylinders must not be locked open or shut
- Fireproof partition or > 20 ft. separation between O₂ and flammable gases when in storage

Compressed Gas Cylinders
- Transported and stored in safe manner
- Valve protection caps shall be in place, hand-tight, except when cylinders are in use
- Disconnect hose(s) when the cylinder will not be used for a shift or longer
- Flashback arrestors at the cylinder valve shall be utilized

Flammables and Combustibles
- All flammables & combustibles brought, used or stored on site must be approved by TEC
- All flammable liquids must be stored in accordance with NFPA and OSHA
- Fueling dispensing stations must comply with NFPA and OSHA requirements

Fueling Dispensing Stations
- "No Smoking" or "No Open Flame" sign
- Fuel identification
- Fire extinguishing equipment
- Approved auto shutoff dispensing nozzles
- Spill prevention & secondary containment
- Grounding system
Tampa Electric – Confined Space Program

- All confined spaces are permit required
- A pre-job briefing with the TEC Contract Supervisor shall be conducted prior to entry
- The TEC Confined Space Permit must be used

Tampa Electric – Confined Space Program

- Tampa Electric shall:
  - Inform contractor of permit required confined spaces
  - Inform contractors of known hazards

Tampa Electric Contract Supervisor Shall:

- Walk through the permit process to ensure the contractor is competent in the permitting process to include the use and handling of the multigas analyzer
- Sign-off on the initial confined space permit
- Subsequent permits will be on a case by case basis
- Ensure confined space permits are being applied as per the written program

Contractor Shall:

- Make no entry into any confined space until a Tampa Electric Contract Supervisor has reviewed the permit and given approval
- Make no entry before the permitting process has been applied as per the written program to include all signatures
- Ensure all their employees are trained
- Supply all necessary equipment and PPE including gas monitor(s)
- Ensure permit scope matches the job scope
Contractors Shall:
- Ensure proper use of appropriate PPE
- Notify Tampa Electric Contract Supervisor if any work or conditions change during the confined space entry
- Report any unsafe or unusual conditions or hazards not identified by the confined space permit
- Notify Tampa Electric Contract Supervisor prior the start of work not identified on permit

Confined Space Rescue Retrieval Devices
- A full body harness to aid in rescue retrieval shall be worn for all entries, unless
  - A further assessment is to be performed and determines the full body harness a greater risk potential
  - Where the full body harness presents a greater risk, wristlets shall be worn
- Vertical entries with a 5' or greater descent shall also be attached to a lifeline which can be used with a mechanical retrieval device

Vertical entry tripod

Excavations, Trenching & Shoring
- Contractors shall provide a competent person to the job site when performing excavations and/or trenching operations. This competent person shall conduct a daily inspection.
- Specific authorization from Tampa Electric Contract Supervisor is required prior to commencement of any trenching or excavation operations. A permission to dig permit is required.
- Ensure underground piping and utilities have been identified
- At TEC ES locations the soil type is always “C”

Cranes
- Example of program / plan requirements:
  - Design criteria
  - Operational criteria
  - Communications
  - Inspection & proof testing
  - Job planning

Cranes & Rigging
- Contractors shall provide a competent crane operator when performing crane operations
- Riggers and signal persons shall be qualified, as required by OSHA standards
- Cranes shall be inspected by a competent person
- Check ground stability
- Use outriggers as required
- Obtain fly zone permits for high reaching cranes
- Ensure work area protection
Cranes & Rigging

- When operating cranes near power lines
  - De-energize and ground lines, or
  - Maintain minimum clearance distances according to Energy Supply policy

Industrial Equipment

- Contractors shall not use Tampa Electric vehicles, industrial equipment, forklifts, high-reach, lift baskets, lifting equipment, hand tools or any device that would be considered standard equipment to accomplish the task, unless otherwise specified in the contract or approved by the TEC Contract Supervisor
- Contractor personnel shall be trained and qualified to operate the equipment they utilize

General Electrical Safety

- Labels indicating “Low Voltage” indicate voltage is as high as 600 volts
- Electrical rooms or switchgear rooms are not to be used for material storage or as break rooms
- Personnel who are required to enter substation areas are required to attend the Energy Delivery Substation Orientation. Coordinate this training through the TEC Construction Supervisor.
Electrical Equipment Room Restrictions

- Motor Control Centers (MCCs), switchgear rooms, breaker houses or substations contain energized electrical equipment
- These areas SHALL NOT be used as break areas or storage areas
- Access to these areas is prohibited, except to perform work related to the area

Arc Flash & Shock Hazards

- The label is designed to notify you of the correct level of PPE that will be needed if there is:
  - A shock hazard
  - An arc flash hazard

Shock Hazard

- Electrical equipment greater than 50 volts shall be de-energized and hazardous energy control applied before work begins
- Where there are energized electrical conductors and circuit parts to which an employee might be exposed:
  - Shock protection is required - Examples:
    - Insulated gloves and/or tools
    - Grounding
    - Distance
  - Refer to the label to determine the shock approach boundaries

Shock Approach Boundaries

- Arc Flash Hazard may exist when:
  - Energized electrical conductors or circuit parts are exposed, or
  - When they are within equipment in a guarded or enclosed condition, provided a person is interacting with the equipment in such a manner that could cause an electric arc
- Under normal operating conditions, enclosed energized equipment that has been properly installed and maintained is not likely to pose an arc flash hazard
Arc Flash Boundary

Flash Protection Boundary - Persons must not cross this boundary unless they are wearing appropriate personal protective clothing and are under close supervision of a qualified person.

Warning label provides boundary information

Limited  Restricted  Prohibited

Arc Flash PPE

Hazard Risk Category 0
Hazard Risk Category 1
Hazard Risk Category 2
Hazard Risk Category 3
Hazard Risk Category 4

Electric Cords

- Contractor shall provide ground fault protection when using cord and plug equipment
- Welding leads and extension cords must be protected from damage by foot and vehicle traffic
- Welding leads and extension cords should be placed as to not be a tripping hazard
- All electrical tools shall be double insulated or grounded

Equipment and Tools

- All tools and equipment shall be inspected prior to use
- Damaged or defective tools or equipment are to be taken out of service, tagged “DO NOT OPERATE,” and stored out of distribution until repaired
- The manufacturer’s use instructions shall be followed
- Air sources supplying hoses exceeding ½” ID shall be protected by excess flow valves to prevent whipping
Exposed Blades

- Knives (exposed blades) should not be used when a safer cutting tool is available on the market.
- Where an exposed blade tool must be used, the following are examples of precautions that are to be taken:
  - Cut resistant PPE
  - Cut away from yourself
  - Keep blade sharp
  - Keep all co-workers out of the reach of the exposed blade
  - Sheath when not in use

Radios & Electronic Equipment

- Battery powered radios, pagers, mobile phones, tape recorders and calculators are prohibited in areas classified as hazardous unless the equipment is approved for use by UL.
- Cell phones, texting and hands free devices are not allowed when operating vehicles or equipment.

Gas Detection / Monitoring Instrumentation

- Gas monitoring instrumentation may be mandatory due to specific conditions.
- All contractors shall supply required gas monitoring instrumentation for hot work and confined space entry unless otherwise specified in contract.

H.E.C. – Hazardous Energy Control

- HEC is a method of ensuring that all energy is eliminated and/or controlled.
- HEC is required to be used anytime that energized equipment could cause harm or injury.
  - Required during maintenance.
  - Required during servicing, unless a guard provides protection.
- Another name for HEC is Lockout/Tagout or LO/TO.

H.E.C. – Hazardous Energy Control

- Tampa Electric Energy Supply facilities utilize a system of locks to provide HEC.
- Each person requiring protection from Hazardous Energy while performing servicing or maintenance must have a personal lock applied to each system on which they are working.
- No person may remove any other individual’s personal lock.
- Locks on equipment may only be removed with permission and direction from the Hazardous Energy Control Supervisor (HEC Supervisor).

The HEC Process

1. Job Preparation
2. Application of Locks and Danger Tags with Verification
3. Isolation Confirmation by Confirmation Team
4. Commence Work
H.E.C. – Hazardous Energy Control

- **HEC Supervisor - Hazardous Energy Control Supervisor**
  - Responsible for overall energy isolation at a site
  - Person in charge of Primary Lock Box
- **Confirmation Team – A person or group of people who visually inspect lockout devices described in the HEC Procedure**
  - Performed prior to work beginning
  - Must include TEC personnel
  - May include Contractor personnel

The HEC Process

1. **Job Preparation**
   - Work scope and energy isolation scope are determined
   - Equipment shut-down and prepared for isolation
2. **Application of Locks and Danger Tags with Verification**
3. **Isolation Confirmation by Confirmation Team**
4. **Commence Work**

Hazardous Energy Control Lock and Tag

- Orange equipment locks hang on the energy isolation devices, such as valves and electrical breakers
- The locks hold the energy isolation device in the isolated position
- Tags will hang with the lock to provide additional identifying information
- Never tamper with or attempt to remove the locks or tags

Energy Isolation Device with Lock and Tag

- TEC personnel operate energy isolation devices
- TEC personnel verify energy is isolated
- TEC personnel apply equipment locks
- Contractor personnel shall not operate energy isolation devices
Energy Isolation Device with Lock and Tag

The HEC Process
- Confirmation Team confirms that isolation is completed
- Confirmation Team applies a lock to the Primary Lockbox

Job Preparation

Application of Locks and Danger Tags with Verification

Isolation Confirmation by Confirmation Team

Commence Work

Primary Lock Box
- The Confirmation Team Lock is hung on the Primary Lock Box after confirmation is complete

The HEC Process
- Job Lead communicates with HEC Supervisor
- Job Lead applies a lock to the Primary Lockbox
- Job Lead places key to the lock in a Group/Crew Lockbox
- Job Lead applies another lock to Group/Crew Lockbox
- Authorized Employee applies personal lock to Group/Crew Lockbox

Commence Work

H.E.C. – Hazardous Energy Control
- The Job Lead talks with the HEC Supervisor to ensure the scope of work and the scope of hazardous energy control match
- The Job Lead shall ensure the correct equipment has been isolated prior to starting work
- The Job Lead informs the HEC Supervisor of work scope changes so that they may determine that the HEC procedure still provides protection
- The Job Lead notifies the HEC Supervisor if issues with energy isolation arise
- Anyone may visually inspect the locks, but should coordinate with the HEC Supervisor

Hazardous Energy Control Primary Lock Box
- The Primary Lock Box contains the key(s) to the equipment locks hanging on the Energy Isolation Devices
- The Job Lead will hang a lock on the Primary Lock Box after discussing Job Scope and HEC Scope with the HEC Supervisor
Big Bend & Bayside Require Electronic Sign-on/Sign-off
- Job Leads at Big Bend and Bayside are required to sign-on electronically in the Ni-Soft software upon applying a lock to the Primary Lock Box
- Computers with the Ni-Soft link are available in the Big Bend and Bayside Tagging Office
- Upon removal of a lock from the Primary Lock Box, electronically sign-off in Ni-Soft

Hazardous Energy Control Group/Crew Lockbox
- The Group/Crew Lockbox will contain the key to the Job Lead’s lock hanging on the Primary Lockbox
- The Job Lead hangs a second personal lock on the Group/Crew Lockbox, he keeps this key in his possession
- The Job Lead will secure a copy of the HEC Procedure to the Group/Crew Lockbox

Hazardous Energy Control Individual Protection
- Anyone performing maintenance or servicing activities that require HEC must be personally protected
  - The key to the Authorized Employee’s lock shall be in his/her possession at all times when the lock is applied to the lockbox
  - The Authorized Employee’s lock must be removed from the group/crew lockbox at the end of each shift at Bayside
  - The Authorized Employee’s lock may remain on the group/crew lockbox at Big Bend and Polk

Hazardous Energy Control Group/Crew Lockbox
- A pre-job briefing is required with crew at least before the work begins each shift
- Authorized Employees (AE) hang a personal lock on the Group/Crew Lockbox and keeps the key on his person
- AE Locks must be on the Group/Crew Lockbox BEFORE work begins
H.E.C. – Hazardous Energy Control

- **Job Lead**
  - Personal lock remains on the Primary Lock box until:
    - The work scope(s) are complete, tools are removed, guards are replaced, Group/Crew Lockboxes have been cleared, and work scope(s) do not prevent equipment from being returned to operational service
    - OR
    - Another Job Lead places his/her lock onto the Primary Lockbox for the same work scope(s)

Work completed

- **Authorized Employee** removes their personal lock from the Group/Crew Lockbox
- **Job Lead** verifies that the work is complete
- **Job Lead** removes their personal lock from the Group/Crew Lockbox
- **Job Lead** can retrieve key for the personal lock on the Primary Lockbox from inside the Group/Crew Lockbox
- **The Job Lead** removes his personal lock from the Primary Lockbox

Testing or positioning of equipment and/or a system:

- Inspect work area and remove non-essential items
- Discontinue work and notify Affected and Authorized Employees of the intended changes
- Authorized Employees must remove personal locks

Testing or positioning of equipment and/or a system:

- **Job Lead(s)** and HEC Supervisor shall determine protection for the scope of testing/positioning
  - If protection is provided by the remaining energy isolation locks or devices, then work may continue
  - If new energy isolating devices are needed, then work may continue after:
    - The new locks and lockout devices are affixed with "Reissued" Danger Identification Tag(s)
    - A Confirmation Team has performed a visual confirmation of the new energy isolation points
    - Personal locks are reapplied
Testing or positioning of equipment and/or a system:

- Where protection is not afforded by the remaining energy isolation devices then work may not continue until protection is restored

Simplified Lockout

- Some work may fall under Simplified Lockout procedures. All three of the following must be met:
  - Energy isolation that requires six (6) or less energy isolation devices, and
  - The work will be completed before the Authorized Employees’ shift ends, and
  - There are six (6) or less Authorized Employees

Simplified Lockout

- Prior to implementing a Simplified Lockout the HEC Supervisor must be contacted for approval
- Contractors shall not operate energy isolation devices, even for Simplified Lockout

Simplified Lockout

- In a Simplified Lockout, each Authorized Employee hangs a personal lock on each energy isolation device
- An Isolation Confirmation Team is not required for a Simplified Lockout

Contractor Requirements

- Contractors will be required to supply their own personal locks
  - Locks must be keyed differently
  - There may only be one key per lock
  - Locks must be orange in color
  - A personal identification tag must be included with the lock to identify the individual person the lock is protecting
- Contractors may be required to supply their own Group/Crew Lockboxes
  - Boxes must be able to secure a key
  - Boxes must allow locks to secure access to the key
Committeeing a Lockout Device

- Locks can be removed when the individual is not present to remove it himself.
- Procedure is called "committeeing" a lock.
- Strict guidelines must be followed.
- All attempts will be made first to contact the person whose lock is applied.
- Committed locks have to be physically cut off.
- If your lock was committed, you will be notified by your supervisor at the beginning of your next work day.

Contractor Hazardous Energy Control Programs (LO/TO Programs)

- All contractor Hazardous Energy Control programs (LO/TO Programs) shall be reviewed by the TEC safety staff prior to any application.
- Permission must be granted for the contractor program to be utilized.
- Contractors must have a Hazardous Energy Control program meeting requirements of 29 CFR 1910.269(d).

Contractor LO/TO Program Coordination

- Contractors may apply their own locks and/or tags as a supplement to the Tampa Electric program only if:
  - All contractor Hazardous Energy Control devices (ex. Locks) shall have the contractor name clearly identified on the device.
  - The contractor applies the contractor owned lock and/or tag in the same location as the Tampa Electric tag is applied, i.e. the same isolation point is used.
  - The contractor owned locks and/or tags are removed when the work is completed or at the end of each shift.

Additionally, contractors are required to:

- Indicate on a copy of the HEC procedure the location of each locking device utilized.
- A copy of the locations must be kept at the contractor’s lock box.
- A phone list of contractor representatives shall be kept with the contractor’s lock box, if the need to remove locks in an off-shift arises.

Turn Over Tags & Stickers

- GREEN & BLUE TURN OVER TAGS
  - DO NOT provide personnel protection.
  - Indicate the transfer of components/systems from construction to start-up (green) or from start-up to operations (blue).
  - Personnel protection requires the use of Hazardous Energy Control procedures.
Blasting / Explosives

- Contractors engaged in the removal of boiler slag and build-up by the use of explosive technology will follow the blasting procedures
- All work will be coordinated through the TEC Contract Supervisor
- Contractor is responsible to account for all blasting devices before and after detonation
- Signage shall be posted and intercom announcement made to stay clear of the area

Hot Work Program

- This program provides guidelines that address fire protection and fire prevention during hot work activities
- Hot work is defined as any temporary operation involving open flames, sparks or heat
- Any open burning of solid waste (construction generated material or trash debris) is prohibited

Hot Work Examples:

- Welding
- Cutting
- Heating
  - When performed in the presence of a flammable or combustible atmosphere:
  - Chiseling
  - Drilling
  - Chipping
  - Grinding
  - Abrasive blasting
- Use of any equipment capable of producing flames, spark or heat
- This program does not cover vehicle fueling or vehicle operation, to include: forklifts, trucks, cars, cranes, etc.
- Operation of gasoline powered engines, such as portable generators, is included in this program

Hot Work Permit

- Hot Work permits shall be approved by designated TEC personnel, prior to beginning work
- Prior to any hot work activities, section “A” of TEC hot work permit shall be completed
- If section “A” cannot be satisfied continue to section “B”
- Authorized employee and each crew member is responsible to follow procedures to prevent accidental fire

Hot Work Permit Highlights

- Ensure non-combustible atmosphere with use of self supplied multi-gas analyzer (air monitor)
  - < 10% LEL
  - < 10 ppm Hydrogen Sulfide
  - < 23.5% Oxygen
- Remove all flammables and combustibles within a 35’ radius
- Shield areas where sparks may cause additional hazards
- Follow precautions outlined on permit
- Obtain TEC approval
Remember to shield or guard areas below “Hot Works”

Fire Watch
- Have extinguisher readily available – not from those hanging in the plant
- Be familiar with plant emergency procedures & be able to activate them
- Watch for fires in all exposed areas
  - Must not be distracted from this duty
- Trained with the ability to use fire extinguisher
- Must be able to communicate in English

Fire Watch
- Terminates work if unsafe conditions arise
  - Examples
    - Fire alarm
    - Air monitor alarm
    - Plant alarm
- Wears appropriate PPE
- Monitor the area for a designated time as indicated on the hot work permit after work stops, including breaks

Hot Work Permit Duration
- The Hot Work Permit is valid for a single crew for the duration of shift
  - At Big Bend, this is the working crew’s shift
  - At Bayside and Polk, this is the Operations crew’s shift
- If the job is turned over to a new crew, a new hot work permit shall be issued
  - Atmospheric testing conducted, again, prior to resuming work

Hot Work In Confined Spaces
- Both “hot work” permit AND “confined space” permits required
- Permits shall be made available at the confined space entrance
- Permit Required Confined Space cannot be reclassified while performing hot work
- Continuous monitoring of the confined space atmosphere is required during hot work activities
- Job and scope must be evaluated to determine if attendant may also be the fire watch

BREAK
- Please take a short break now
- Press the “Next” button below or the forward arrow key to continue
Housekeeping

- Work areas, passageways, stairways and all other areas shall be kept free of debris and materials
- Storage areas shall be kept clean and neat at all times
- Cords, wires, electrical cables, hoses and other such temporary systems shall be situated so as to pose no hazard

Contractor Vehicles

- Only company vehicles will be allowed on job site
- Personal vehicles not allowed in plant except for:
  - Job bids
  - Scheduled management meetings

- All contractor company vehicles shall be identified with company name
- Contractors shall use designated entrance gates
- Contractors shall park in designated parking areas
  - At Big Bend, cleared contractors will be issued a hang tag

- Park at own risk
- Liability – TEC shall not be liable to any contractor employee for injury/damage sustained by any privately owned or contractor owned vehicles on TEC parking premises or station property
Traffic Rules for Vehicles

- Vehicles include all mobile equipment used for transporting people or materials
  - Trucks
  - Cars
  - Bicycles
  - Golf carts
  - Forklifts
  - Cranes, etc.

Traffic Rules for Vehicles

- Cell phones shall not be used while operating vehicles on company property
- Stop at all railroad crossings
- Obey posted speed limits
- Obey posted traffic signs
- Park only in designated areas
- Back into parking spaces

Traffic Rules for Vehicles

- Seat belts shall be worn at all times
- No riders on equipment
  - No seat belt = no ride
- Do not drive into Restricted Access Areas without proper prior approval

Traffic Rules

- Transporting of personnel outside of the cab of a pick-up truck
  - Must be on benches with seatbelts designed for personnel
  - No appendages outside of truck bed
  - Minimum PPE:
    - Hard hats
    - Safety glasses with side-shields

Radiography

- Contractors or others involved in radiography shall have current certification and training and will implement safe operating procedures for radiological activities as required by all applicable regulations
- Prior to use of equipment, notification shall be made to the plant radiation safety officer or designee

Radiography

- The following shall be completed for X-ray activity:
  - Complete a “Radiography Check Sheet”
  - Notify radiation safety officer prior to the start of any work
  - Rope off the area with radiation tape
  - Post signs indicating “X-ray activities in progress”
  - Signs shall be sufficiently spaced and visible from all sides
Radiography
- Announcements shall be made over the PA system
- "X-rays in progress stand clear of area"
- Do not enter the area while X-ray activity is in progress
- Completed Radiography Check Sheet is sent to the site radiation safety officer

Radiation Sources
- Big Bend and Polk power stations have nuclear gauges
- All radiation sources are labeled
- Sources are of a very low dose and are sealed
- Sources cannot be removed
- The contractor shall not perform work on or within 12 inches of these sources without prior approval of the station’s radiation safety officer designee
- The shutters of nuclear devices must be closed and locked prior to vessel entry

Tampa Electric Exposure Limits
- Surveys at Tampa Electric power plants reflect exposure well below the 10% of annual limit
- Individuals that are 18 years of age or younger, or pregnant, must notify their employer for monitoring prior to working on or around radiation sources

Walking and Working Surfaces
- Housekeeping
  - Maintain as you go
- Aisles and passageways
  - Keep them clear
- Covers and guardrails
  - If removed, need to assess the need for personal fall arrest systems

Walking and Working Surfaces
- All guards, handrails and fall protection devices shall be reinstalled prior to leaving the area
- Floor loading protection
  - Know your load capacities before landing an object
  - Do not over load
**Scaffolds**

**GREEN TAG** – to be placed on scaffolds that comply with all federal OSHA regulations and more stringent TEC requirements:
- Complete as per manufacturer’s specifications
- No fall protection required, unless working outside the confines of the scaffold or other hazardous conditions exist

**YELLOW TAG** – to be placed on scaffolds that are structurally sound, but contain any other recognized serious safety or health hazard
- Fall protection is required only if a fall hazard is indicated on the yellow tag

---

**Tampa Electric Scaffold Program**

- TEC scaffold program utilizes a tagging system
  - All scaffolds shall be tagged by a competent person
  - Work only from green and yellow tagged scaffolds
- Fall protection required at four (4) foot height
- Scaffolds must be inspected each shift, prior to use, by a competent person and following an incident that could alter scaffold safety

---

**Tampa Electric Scaffold Program**

- All scaffolding is erected and dismantled under control of, and approved for use by, a competent person, to be designated by the contractor as per the OSHA standard
- Contractor must provide written documentation outlining fall protection to be used during erection and dismantling of scaffold
- Contractors shall comply with the TEC scaffold program
- Refer to the TEC scaffold program regarding scaffolds to be built near energized conductors

---

**Scaffolds**

- Scaffolds that are not tagged are not to be used, and shall be red-tagged until assessed by a competent person
- Scaffolds should be built to completion whenever possible
- Swing gates are the preferred method to access scaffolds
### Scaffolds
- RED TAG – to be placed on scaffolds that are:
  - Under construction
  - Being disassembled
  - That are damaged or defective
- Red tagged scaffolds should not be used
- Fall protection required during assembly & disassembly for heights above 4'

### Utilities
- The contractor shall make no connection, either temporary or permanent, to any utility line, nor shall operate valves or switches on any such lines, without prior authorization of the Tampa Electric Contract Supervisor
- The contractor shall not make any connection to the water systems without prior approval of the TEC Contract Supervisor

### Portable Ladders
- Withdraw defective ladders from service and tag or mark "Dangerous, Do Not Use"
- Never use metal ladders near electrical equipment
- Extension and straight ladders require a tie off at top or someone to foot the ladder
- Job made ladders are not allowed

### Pre-Job Briefings
- The contractor shall ensure job briefings are conducted prior to starting each task
- The briefing shall cover at least the following:
  - Hazards associated with job
  - Work procedures involved
  - Special precautions
  - Energy source controls, i.e. HEC or LO/TO
  - Personal Protective Equipment (PPE) requirements

### Miscellaneous
- Tampa Electric offices, phones, fax machines, break rooms and restrooms are off limits to contractor personnel
- All warehouse material requests must be approved by Tampa Electric Contract Supervisor
- "Get and go" materials are not for contractor use unless approved

### Waste Management
What is a Waste?

- A waste is defined as anything that cannot be reused as product or recycled

Hazardous Waste

- Any substance that exhibits a hazardous characteristic or is a mixture containing a hazardous waste
- EPA’s Hazardous Categories
  - Ignitability
  - Corrosivity
  - Reactivity
  - Toxicity

Hazardous Waste

- No paint or chemicals of any kind should be left in open containers to dry
- Any old, or expired paint or chemical cans are considered waste and must be taken for proper disposal
- These things can all be considered improper handling of hazardous waste

Hazardous Waste

- All Hazardous Waste generators must
  - Perform waste determinations
  - Ensure proper disposal
  - Keep records (3 years or more)
  - Attend annual training
- All Hazardous Waste must be labeled “Hazardous Waste” or other words that describe the contents

Don’ts for Paint

- Don’t leave open paint cans or buckets uncovered to dry
- Don’t throw paint rags into the trash. All paint waste should be disposed of properly.
- Don’t leave old rags and paint brushes lying around. Good housekeeping is the key to environmental compliance.

Satellite Accumulation

- 55-gallons maximum & be approved
- Labeled “Hazardous Waste” and any other words that describe contents
- Mark the accumulation start date and move to Hazardous Waste storage area within 3 days after reaching 55 gallons
- Notify station environmental coordinator of drum location and when the drum is full
Sandblasting
- All curtains must be kept in good condition
- The work area used for sandblasting must be kept neat and sandblasting contained
- All spent sandblasting is waste and must be taken for proper disposal

Used Oil
- Used oil destined for recycling is not a hazardous waste if:
  - It contains <1,000 PPM total halogens, and
  - It is not mixed with hazardous waste

Aerosol Cans
- Aerosol cans contain propellant and can be a danger, so they are considered a hazardous waste
- Whenever an aerosol can is empty or becomes unusable, take it to the Used Oil Shed for proper disposal

Not Allowed in Dumpsters
- The following are examples of wastes that should NEVER be disposed of in any dumpster but rather accumulated in their designated location:
  - Liquid Wastes
  - Chemicals
  - Paints & solvents
  - Aerosol cans
  - Batteries
  - Asbestos
  - Fluorescent bulbs
  - Welding Rods
  - Mercury containing equipment
  - Oil
  - Soil
  - Ballasts
  - Filters
  - Raw greases
  - Smoke detectors
  - PCB waste
  - Oily waste
  - Metal
  - Tires

Best Management Practices and Storm Water Pollution Prevention

Plans
- Each site has Best Management Plans and Storm Water Pollution Prevention Plans that are designed to control the discharge of pollutants in storm water runoff from industrial facilities into surface waters
- BMP/SWPP Plans Components
  - Pollution Prevention Team
  - Identify Potential Pollution Sources
  - Measures and Controls
  - Comprehensive Site Compliance Evaluation
Potential Pollution Sources
- Loading/unloading areas
  - Storage Tanks
  - Dumpsters
  - Warehouse Deliveries
  - Coal Field
  - Barge & Truck Unloading
- Outdoor Storage Areas
  - Byproducts Area
  - Laydown Areas
  - Spare Transformer Storage
- Outdoor Processing Areas
  - Sandblasting
  - Painting
  - Demolition
  - Metal cutting
- Raw Material and Chemical Storage
  - Shops
  - Used Oil Shed

Measures and Controls
- Implement “Best Management Practices”
- Good Housekeeping
- Preventative Maintenance
- Spill Prevention & Response
- Inspections
- Employee Training
- Monitoring of storm water discharges

Spills
- Any spill must be reported to the station environmental coordinator regardless of the size or where it occurs

Best Management Practices
- Concrete barriers, curbing, and rocks can be added to prevent contact storm water from reaching the Bay

Best Management Practices
- Coal combustion byproducts (CCP) container covered to avoid rain water contact
- Proper management of materials, used and unused
- Even in “off the beaten path” areas

Best Management Practices
- Silt fencing should be “toed-in” to the ground and undamaged
- Silt fencing is staked & tight, with no gaps
**Best Management Practices**

- Use absorbents or drip pans to catch drips

---

**Best Management Practices**

- Cap transfer hoses

---

**Best Management Practices**

- Practice good housekeeping in chemical storage areas
- Isolate chemicals to prevent accidental release to storm water drains

---

**Best Management Practices**

- Residual oil should be removed from used equipment that will be stored outside and exposed to storm water

---

**Spill Prevention Control and Countermeasures Plan (SPCC)**

- SPCC plans are written documents that describe the steps a facility must take to prevent oil spills and to minimize the risk of harm to surface waters in the event of a release or oil spill
- The term “Oil” includes petroleum products such as:
  - gasoline
  - diesel
  - kerosene
  - heating oil
  - motor oil both used and new
  - hydraulic oil
**SPCC Plan Applicability**
- Applies to facilities that have a maximum aboveground storage capacity greater than 1,320 gallons of oil, AND
- There is a “reasonable expectation” that an oil spill would reach navigable waters or adjoining shorelines of the United States

**SPCC Plan Contents**
- SPCC Plans address the following four areas:
  - Potential of oil spills to occur
  - Operating procedures that prevent oil spills;
  - Control measures installed to prevent a spill from reaching navigable waters; and
  - Countermeasures to contain, clean up, and mitigate the effects of an oil spill that reaches navigable waters

**Secondary Containment**
- Required for all “Oil” containers more than 55 gallons
- Even drums must have some sort of adequate secondary containment
- Secondary containment must be in good shape and inspected regularly
- All containment areas should be free of pooled oil and spills should be removed promptly

**Containers Greater than 55 gallons**
- Any container over 55 gallons must be registered with the Station Environmental Coordinator
- All containers over 55 gallons must be labeled with the contracted company name

**Discharges Of Oil**
- Include discharges that violate water quality standards
- Cause a film or sheen on the water’s surface
- Leaves sludge or emulsion beneath the surface of water
- Discharges to soil
- Report any discharges of oil to the station Environmental Coordinator

**Housekeeping**
- Good housekeeping is important in safety and is critical to environmental
- It is important that any construction debris be cleaned up and disposed of properly
- Flammable cabinets and storage areas should be kept neat, free of spills and drips
Air Pollution

- Dusting
  - All areas should be kept clear and free of bulk material that may cause dusting
- Circumvention of pollution control equipment
  - Conveyor covers and covers on any bulk materials must be kept intact and working
  - Removing these dust control measures can be considered a violation and could result in a fine

Wildlife

- All injured birds or animals should be reported to the Environmental Coordinator
- Any threatening wildlife (ex. alligators, wasps) should be reported to the Environmental Coordinator

Environmental Staff Phone Numbers

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Mobile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karen Zwolak</td>
<td>Big Bend</td>
<td>813-505-2263</td>
</tr>
<tr>
<td>Zel Jones</td>
<td>Big Bend</td>
<td>813-309-3680</td>
</tr>
<tr>
<td>(Land &amp; Water)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raul Rivera</td>
<td>Big Bend</td>
<td>813-407-8993</td>
</tr>
<tr>
<td>(Air)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qui Phan</td>
<td>Bayside</td>
<td>813-476-5560</td>
</tr>
<tr>
<td>Mike Perkins</td>
<td>Polk</td>
<td>813-690-3805</td>
</tr>
</tbody>
</table>

Emergency Notification and Response

Reporting Requirements

- Report all emergencies to the operations center immediately to initiate appropriate emergency response
- Call to 9-1-1 should be initiated by operations center
- Emergency response trained personnel are available on site
- Report all incidents
  - First aid, near misses, injuries, environmental, fires, vehicular and property damage to Tampa Electric Contract Supervisor

Emergency Notification and Response Programs

- Compliance with these programs is critical, to ensure:
  - All medical and environmental emergencies are responded to
  - No emergency response is delayed
  - Emergency conditions are communicated to all personnel
  - Emergency conditions are documented to help facilitate corrective actions
Emergency Notification and Response

- Be prepared to give the operations center personnel the following information
  1. Location of emergency
  2. Nature of emergency
  3. Type of assistance required
  4. Your name and your company name
  5. Are you remaining at that location

Emergency Notification by In-Plant Radio

- Each site/plant will coordinate in-plant radio use on a “per job” basis
- Contractors shall coordinate and have approval granted for radio usage through the Tampa Electric Contract Supervisor
- All radio communication shall yield to the “Emergency” alert until the emergency “all clear” is given
- Not all plant radios are capable of communicating with the control room or operations center

Emergency Notification by Phone

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Plant Phone #</th>
<th>Cell Phone #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big Bend</td>
<td>48155</td>
<td>813-635-1555</td>
</tr>
<tr>
<td>Bayside</td>
<td>35155</td>
<td>813-627-2911</td>
</tr>
<tr>
<td>Polk</td>
<td>39132</td>
<td>863-428-1405</td>
</tr>
</tbody>
</table>

Emergency Action Plan

- Each site/plant at Tampa Electric has a written emergency action plan
- Tampa Electric emergency response teams will respond to emergency situations
- Tampa Electric will utilize the Incident Command System
- Emergency response teams shall work under the direction of the Incident Commander

Incident Reporting Policies

- Contractors shall report ALL incidents to Tampa Electric Contract Supervisor immediately
- An Incident Investigation form shall be completed by the end of the shift
- All chemical spills or releases shall be reported immediately to Tampa Electric Contract Supervisor

Accounting for Personnel

- All contractors must have plans for accounting for their personnel and report headcount to TEC during a job-site or building evacuation
- Contractor personnel must be trained in these procedures
  - Discuss site specific procedures with the Contract Supervisor
  - Big Bend Station has designated Evacuation Assembly Areas, please review the Emergency Response Map
- Personnel may not leave the plant/site during a job-site or building evacuation unless specifically given permission to do so by the Incident Commander
Polk Power Station

- Site Specific Safety Requirements

PSM – Polk

- Polk falls under the OSHA Process Safety Management (PSM) standard for the following covered processes:
  - Syngas
  - Propane
  - Anhydrous Ammonia

- Purpose is to prevent or minimize the consequences of a catastrophic release of highly hazardous chemicals

Syngas Production – Polk

NFPA 2113 Flame Resistant Garments Requirement

- Syngas is a flammable
- Production of syngas presents flash fire risks
- Arc Thermal Performance Value (ATPV) garments of at least 8 cal/cm² are required in natural gas or syngas process areas during syngas production and prior to purging gas systems:
  1. Above ground level in Gasifier
  2. Inside Slurry Building
  3. Inside Coal Silos
  4. In Combustion Turbine compartments
  5. When performing tasks on flammable gas piping

- Examples of ATPV clothing are a long sleeved shirt with pants or coveralls
- Each piece of clothing must be rated for at least 8 cal/cm²

Syngas – Polk

- All piping, vessels and valves associated with syngas from the point of production in the gasifier to the point of consumption in the combustion turbine are covered by PSM
  - This also includes the flare system
- Composition
  - Carbon monoxide, hydrogen, carbon dioxide, hydrogen sulfide
- Carbon monoxide is highest concentration component, therefore we use CO monitors for detection
Propane – Polk
- All piping, valves and vessels from the point of storage (30,000 gal. tank) to all points of consumption – gasifier, acid plant & flare
- We use LEL monitors for detection

Anhydrous Ammonia – Polk
- The ammonia storage and vaporization system is designed to supply anhydrous ammonia vapor to the SCR skids
- The end use of the ammonia is for NOx control in the HRSG
- The ammonia storage system is located east of CT 2
- The 2 storage tanks have a total capacity of 192,500 lb. of ammonia

Anhydrous Ammonia – Polk
- Colorless gas that is a liquid under pressure
- Anhydrous ammonia is very soluble in water
- Vapor has strong odor detectable at very low levels
- Irritating to eyes, nose, throat and skin
- Liquid will burn skin, eyes, etc. causing frostbite
- Higher concentrations may cause pulmonary edema

Continuous Air Monitoring – Polk
- Approximately 100 stationary monitors in the plant are continuously monitoring air quality
- Single gas monitors for CO, LEL, SO₂ and H₂S
- Audible plant alarm sounds automatically at alarm set-point
  - This is the gas monitor or “4-blast” alarm
- Sends alarm to control room
Access Control & Accountability for Personnel – Polk

- Hazards of process demand a system to provide for access control to all plant areas.
- Access control includes a system for accounting for all personnel in the plant area.

Restricted Access Areas – Polk

- Polk Unit 1 Restricted Access Areas (RAA):
  - Designated on the following map by a blue dashed line
  - Must sign out in control room to enter the RAA
  - All work in the RAA requires control room approval
  - Permits must be issued for the following:
    - Hot Work
    - Confined Space Entry

Special Safety Precautions – Polk

- Smoking is allowed in approved smoking areas only
  - East or west side of the administration building
  - Open areas of maintenance shop
  - Immediately outside the warehouse
  - Outside in contractor laydown areas
  - Outside in contractor areas on the west side of the site
  - Outside Project Management office and trailers
  - Other areas: As needed if approved by Polk Power Station management
  - Absolutely No Smoking in the RAA

Special Safety Precautions – Polk

- Note: Gas does not know boundary lines, no smoking during evacuation/assembly

Special Safety Precautions – Polk

- Escape air packs (10 minute bottles) or a plant operations radio are required anytime you travel above ground level in Unit 1 RAA, one pack per person
- Carbon monoxide (CO) monitors are required as a minimum for a workgroup in Unit 1 RAA
  - One monitor per workgroup in same area
- A Polk station radio is required with any work group above grade in the RAA
Special Safety Precautions – Polk

- Four gas (O₂, H₂S, CO, LEL) monitors are required as a minimum for hot work, confined space work and line breaking
- Contractors are required to provide their own 4-gas monitor
- These requirements are the minimum, but remember, gas does not stay within boundary lines
- Consider appropriate protection/precautions outside of the RAA

Important Locations – Polk

- The control room is located on the northwest side of the administration building
- Safety Data Sheets (SDS) are available through the 3E online system
- Contact your Tampa Electric point of contact for assistance accessing SDS for Tampa Electric materials

Additional Safety Information – Polk

- PSM does not cover all hazards at the Polk Power Station
- Other hazards
  - Coal dust
  - Moving equipment
  - Sulfuric acid
  - Ammonia vapors
  - Heat and hot surfaces
  - Radiation sources
  - Cryogenics
  - Natural Gas
  - Hydrogen Sulfide
  - Nitrogen

Emergency Preparedness – Polk

- An emergency response plan has been developed and is in place for the Polk Power Station
- Four major components of the plan
  - Reporting of incidents
  - Evacuation of plant process areas
  - Emergency response of incidents
  - Investigation of incidents
Personal Emergency Preparedness – Polk

- Have required safety equipment and understand how to use it
- Sign-out on the control room board when entering the RAA
- Know the location of
  - Nearest phone found mostly in enclosed buildings
  - Easily seen wind sock
  - Exit route(s) from your location to assembly areas
- Understand alarms

Incident Reporting – Polk

- All incidents or suspected incidents must be reported to the control room immediately
- Examples
  - Gas release (or suspected gas releases)
  - Fire
  - Explosion
  - Injury or illness
  - Health related emergency
  - Chemical or hazardous material spill
- Report as much information as possible to the control room at Ext. 39132 or 863-428-1405

Personal Incident Response – Polk

- Do not attempt rescue or emergency response yourself
- Report incidents to control room, they will initiate response and call for outside resources (i.e. 9-1-1)
- All calls to 9-1-1 shall be made by the control room. Site access and escorts will be coordinated to guide EMS personnel to the location of the emergency.
- If it does not put you at risk, stay in the area to direct personnel

Evacuation Alarms – Polk

- Broken tone repeating 4-blast
  - Gas monitor alarm: Known as the 4-blast alarm
  - Sounds automatically over designated horns
    - Note this alarm may sound longer or shorter than 4-blasts, it is a “repeating” 4-blast alarm
    - This alarm signals a gas leak has been detected and the RAA needs to be evacuated
    - Only the RAA needs to be evacuated

- Continuous tone whopping:
  - Manually activated, sounds over PA system
  - Site-wide evacuation to designated assembly areas
- A continuous beeping tone signifies the “All-Clear” alarm

Contractor Evacuation Procedures – Polk

- When alarm sounds:
  - Shut down all electrical & mechanical devices in the affected area
    - For the 4-blast alarm this means the RAA
    - For the site wide evacuation alarm this means anywhere on site
  - Move to the primary assembly areas
    - It is always preferred to move to the primary assembly areas, however if wind direction creates an unsafe condition in reaching the primary assembly area go to the alternate assembly area to the north east of Unit 1
Contractor Evacuation Procedures – Polk

- When alarm sounds:
  - Note: Evacuation to the north of Unit 1 is not safe due to the flare, acid plant and terrain
  - Contractors must take a headcount and report to the TEC Supervisor
    - The TEC Contract Supervisor should be informed of any work groups signed out on the RAA board that have not been completely accounted for
  - Standby for further instructions
    - Stay off the plant operations radio channel
    - Any necessary information will be broadcast over all frequencies

Evacuation Information – Polk

- Check-in for headcount
- Stand-by and wait for further instructions
- Do not leave the site without permission from person taking headcount
- Entrants will be held at the gate during a facility evacuation
- Control room will sound the “All Clear” alarm and make an announcement when appropriate
- If the regular evacuation area is not safe, there will be an announcement to tell you to report to a secondary evacuation area

Headcount at Evacuation Assembly Area – Polk

- All personnel on site will report to their company representative
- Contract company representative reports to TEC Contract Supervisor

Bayside Power Station

Site Specific Safety Requirements
- Dock Safety

Bayside Power Station

- Hearing protection is required only in the high noise areas of Bayside Power Station
- Bayside falls under the OSHA Process Safety Management (PSM) standard because of the quantity of anhydrous ammonia
  - Note: Very large quantities of ammonia are also located across Port Sutton road
- The purpose is to prevent or minimize the consequences of a catastrophic release of highly hazardous chemicals

Ammonia System – Bayside

- The ammonia storage and vaporization system is designed to supply anhydrous ammonia vapor to the SCR skids
- The end use of the ammonia is for NOx control in the HRSG
- The ammonia storage system is located at the east end of the station next to the large water tank
  - The 2 storage tanks have a total capacity of 168,000 lbs of ammonia
Ammonia System – Bayside

- The ammonia is piped along the south flood wall to each unit where it is injected into the HRSG
- The ammonia piping is painted yellow and is labeled

Ammonia – Bayside

- Colorless gas that is a liquid under pressure
- Vapor has strong odor detectable at very low levels
- Irritating to eyes, nose, throat and skin
- Liquid will burn skin, eyes, etc. causing frostbite
- Higher concentrations may cause pulmonary edema

Ammonia Exposure Limits – Bayside

- ACGIH TLV – 25 ppm
- ACGIH STEL – 35 ppm
- OSHA PEL – 50 ppm
- IDLH – 300 ppm
- Odor threshold is 2-5 ppm

Ammonia Detectors – Bayside

- There are 10 fixed location ammonia sensors located around the ammonia storage tanks
- The monitors are monitored in the station control room
- Local displays are also on the panels at the storage tanks
- Contractors should supply their own portable monitors - when needed

Emergency Preparedness – Bayside

- Bayside’s emergency response plan consists of 4 major components:
  - Incident reporting
  - Station evacuation
  - Emergency response
  - Incident investigation

Ammonia System – Bayside

- An ammonia release will activate an audible alarm
- Bayside station also has station wide emergency alarms
  - “Short, fast blast - evacuate fast”
  - “Long, slow pace - shelter-in-place”
  - An extended tone signifies “All Clear.” It is safe to return to the area.
Shelter In Place – Bayside

- In the event of a toxic vapor release (such as ammonia) you may be instructed to immediately “shelter in place”
- Contractor companies and non-Energy Supply groups are responsible for educating their personnel on the closest shelter in place facility and for ensuring that adequate shelter in place facilities are available for their personnel
  - Provide their own shelter, or
  - Coordinate the use of a plant facility shelter with the TEC Contract Supervisor

Reporting of Incidents – Bayside

- Any person discovering an emergency should contact the Bayside control room by calling 155 on any plant phone, 813-627-2911 by cell phone or by radio on the Bayside Operations frequency
- Radios will be available for contractor personnel working at Bayside
- Use the station phones and dial 155 to initiate 9-1-1 emergency response

Evacuation Procedures – Bayside

- Evacuations and other emergencies will be announced via radio on the Bayside operations frequency
- Upon notification of an evacuation contractors will proceed to the primary assembly point which is the old Gannon assembly building
- Escape packs are located throughout the station for use in an emergency

Emergency Response – Bayside

- TEC Bayside personnel will provide confined space rescue service for all Bayside confined spaces
- TEC personnel are also trained for incipient fire fighting, basic first aid, CPR and use of an AED
- A nurse will be at the station part time
Headcount After Evacuation – Bayside
- Contractors will keep an accurate account of personnel on site
- Contractors will conduct a headcount in the assembly area
- Company representatives will report to the Bayside control room the status of their personnel via radio

Safety Information – Bayside
- PSM does not cover all hazards at Bayside
- Other hazards:
  - Natural gas
  - Hydrogen
  - Sulfuric acid
  - Caustic
  - Heat and hot surfaces

Restricted Activity Locations – Bayside
- Restricted Activity Area is controlled via gates
- Restricted Activity Area Access requirements are in effect only when gates are closed
- Requirements are:
  - No smoking beyond gates
  - Each time, prior to entering the RA Area with a vehicle, the atmosphere shall be monitored with a 4-gas monitor that will remain with the vehicle
  - Vehicles in the area are not to be left unattended with the engine running
  - Normal Hot Work permitting to be followed, however a signature of the SPO or SPO Planner is required on the permit

Restricted Activity Locations – Bayside
- Steam Turbine Building (Old Gannon Station)
  - Area around hydrogen containing equipment and piping will be marked with red lines
  - No smoking inside the lines
  - Hot work needs permission of manager before proceeding

Dock Safety
- A Personal Flotation Device (PFD) shall be worn when an individual may be pulled into the water or where a hazard of falling into the water exists
- PFDs must be United States Coast Guard (USCG) approved pursuant to 46 CFR part 160 (Type I, II, III or V)
- At Bayside personnel who enter the dock area are required to have minimum PPE and a PFD
  - Hard hat, safety glasses with side-shields, steel-toed shoes, long pants and personal flotation device

Big Bend Station
- Ammonia
- Dock Safety
Ammonia System – Big Bend Station

- The Big Bend ammonia storage system and vaporization system are designed to supply anhydrous ammonia to the SCR and SO$_2$ mitigation skids for NOx control and SO$_3$ mitigation
- The ammonia storage system is located at the east end of the station
- The ammonia piping is painted yellow and is labeled
  - Contact Station Operations to ensure proper identification of the piping

Alarm System – Big Bend Station

- Big Bend Station has station wide emergency alarms
  - "Short, fast blast - evacuate fast"
  - "Long, slow pace - shelter-in-place"
  - An extended tone signifies "All Clear."
  - It is safe to return to the area.

Shelter In Place – Big Bend Station

- In the event of a toxic vapor release (such as ammonia) you may be instructed to immediately "shelter in place"
- Contractor companies and non-Energy Supply groups are responsible for educating their personnel on the closest shelter in place facility and for ensuring that adequate shelter in place facilities are available for their personnel
  - Provide their own shelter, or
  - Coordinate the use of a plant facility shelter with the TEC Contract Supervisor

Ammonia System – Big Bend Station

- There are 10 fixed ammonia sensors
- Sensors are monitored in the control room as well as on the instruments local displays
- An ammonia release will activate an audible alarm
- Emergency stops are located on the control panels of major equipment (vaporization area and each skid)
- Escape respirators will be located throughout the ammonia system for use in an emergency

Big Bend Station

Plant Evacuation & Assembly Areas

Shelter In Place – Big Bend Station

- To provide shelter, the place must allow for complete isolation from toxic vapors
- Doors, windows and ventilation systems must be able to be closed and secured
- Upon hearing a shelter in place alarm personnel should report to the closest shelter location.
- Report your location to your supervisor
- Supervisors are to report the status of their employees to a TEC Contractor Supervisor
- Remain calm and wait for further instructions
Dock Safety

- A Personal Flotation Device (PFD) shall be worn when an individual may be pulled into the water or where a hazard of falling into the water exists
- PFDs must be United States Coast Guard (USCG) approved pursuant to 46 CFR part 160 (Type I, II, III or V)
- At Big Bend personnel who enter the dock area are required to have minimum PPE and a PFD
  - Hard hat, safety glasses with side-shields, steel-toed shoes, long pants and personal flotation device

Dock Safety

- The Stevedoring Supervisor on-duty will provide appropriate approvals and/or permits for work activities on and around the dock. These include, but are not limited to:
  - Hazardous Energy Control – LO/TO
  - Hot Work Permits
  - Confined Space Permits

Security – Big Bend & Bayside Power Stations

Maritime Transportation Security Act

- 33 CFR 105.215 Requires all vendors to receive security awareness training
- You are our best defense against unauthorized individuals on site

Background

- Maritime Transportation Security Act (MTSA) of 2002, 33 CFR 105
- International Ship and Port Facility Security (ISPS) Code
- Development of a Facility Security Plan

Big Bend and Bayside Power Station Security

Coast Guard 33CFR Part 125 [USCG-2006-24189]

- Security regulations issued by the Coast Guard apply
- Transportation Worker Identification Credential (TWIC) rules are in affect
Port Security Requirements

- Personnel working at the docks must:
  - Possess a Transportation Workers Identification Credential (TWIC) card, or
  - Be escorted by someone with a TWIC card at all times, while in a TWIC designated area

Big Bend and Bayside Power Station Security Coast Guard 33CFR Part 125 [USCG-2006-24189]

- Failure to satisfactorily clear this process will result in a denial of access onto plant facilities
- If any discrepancies are indicated, there is an appeal process that may be available to you
- Should you have any questions, direct your inquiries to the Facility Security Officer (FSO) for Big Bend or Bayside

Facility Security Plan

- Details, policies and procedures related to the security of the plant
- Defines roles and responsibilities
- All individuals working on site at Big Bend or Bayside Power Stations must provide their complete name and birth date to their employer
- All non United States citizens must also submit their alien ID numbers to their employer to obtain their safety card

Security Responsibilities

- Company Security Officer (CSO)
  - Al Perotti – Director Corporate Security
  - Stephanie Kilborn – CSO
- Facility Security Officer (FSO)
  - Chris Chambers – Big Bend
  - Terry Booth – (Alternate-FSO)
  - Joe Tuzzolino – Bayside
  - Ben Willoughby – Polk

MARSEC Levels

- Security levels set by Coast Guard in accordance with the Homeland Security Alert System
  - MARSEC 1
  - MARSEC 2
  - MARSEC 3

MARSEC 1

- Always at least at this level
  - Signage
  - Random vehicle screenings
  - Periodic perimeter inspections
MARSEC 2

- Impact
  - Increased search frequencies
  - Increased perimeter inspections
  - Suspend non-essential station tours
  - Random checks within the facility from security personnel
  - Requires declaration of security prior to vessel discharge
  - May be standing (Max. 30 days)

MARSEC 3

- Impact
  - All vehicles and belongings searched
  - Automated entry systems deactivated
  - Increased perimeter inspections
  - No visitors
  - No deliveries from outside sources unless approved by FSO
  - Requires new “Declaration of Security” prior to each vessel discharge – subject to Captain of the Port (COTP) orders

Recognizing Suspicious Devices

- Package’s feel and balance
  - Uneven, lopsided, bulkier than normal
- Oily stains, discoloration, strange odors
- Sloshing sounds
- Evidence of electrical wire, tin, foil, protruding wires, excessive wrapping
- Sounds such as buzzing/ticking

Discovery of Suspicious Package

- Do NOT approach the item
- Secure the scene
- Call Ext. 155 and alert the SPO
- Alert appropriate ATO:
  - Big Bend Security ATOs - Ext. 48593
  - Bayside Security ATOs - Ext. 35309
  - Central Monitoring Station - Ext. 25139

Discovery of Suspicious Package

- Do not tamper with device
- Do not use radio or cell phone within 300’ feet
- Beware of secondary devices
- Remain calm

Recognizing Suspicious Persons

- Inappropriate attire
- Unusual group attending event
- Obvious shaking, sweating or biting lips
- Swallowing repeatedly/excessively
- Fidgeting/nervous hands or scratching
- Hesitancy or inability to answer questions
- Stalling/avoiding questions
- Stuttering or shaky voice
- Subject turning pale or blushing
### Notification of Suspicious Person or Activity
- Call Ext. 155
- Alert security
- Alert appropriate ATO:
  - Big Bend Security ATOs - Ext. 48593
  - Bayside Security ATOs - Ext. 35309
  - Central Monitoring Station - Ext. 25139
- Monitor movements from safe distance
- Take care to observe features and details for later identification

### Remember
- You are our best defense
- Stay alert for any suspicious activities both inside and outside of the plant perimeter
- Use your common sense and judgment to determine if that person belongs in that area
- Report any suspicious packages or persons to your supervisor or security
- Anti-Terrorist Officers or ATOs are located at all Tampa Electric Energy Supply facilities

### Commitment to Employee Safety
- Ensure successful completion of this Energy Supply “Safety Orientation” for all employees
- Ensure each employee receives site specific hazard identification
- Ensure each employee understands emergency evacuation procedures
- Contact the TEC Contract Supervisor with any hazards found while on site

### Commitment to Employee Safety
- Enter names of those completing this orientation into the Security Database
- Submitted data shall include:
  - Name & signature of trainee
  - Trainee date of birth
  - Non US citizen’s alien ID numbers
  - Date of training
  - Name of company
  - Name of trainer

### Tampa Electric Energy Supply Site Access Control
- No contractor employee shall be allowed access to any TEC Energy Supply site for the purpose of performing contract work without successfully completing the “Energy Supply Safety & Security Orientation”
- All contractor employees shall have in their possession, to access a site, a current completion card
- All contractors shall have on record all names of trained employees

### Safety Staff Phone Numbers
<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Mobile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlie Hill</td>
<td>Big Bend</td>
<td>813-277-4944</td>
</tr>
<tr>
<td>Christine West</td>
<td>Bayside</td>
<td>813-309-0858</td>
</tr>
<tr>
<td>Joe Tuzzolino</td>
<td>Bayside (Alternate)</td>
<td>813-695-4464</td>
</tr>
<tr>
<td>Rosa Webster</td>
<td>Eng. &amp; Proj. Mgmt.</td>
<td>813-310-9185</td>
</tr>
<tr>
<td>Tracy Mortellaro</td>
<td>Env. Health &amp; Safety</td>
<td>813-466-0457</td>
</tr>
<tr>
<td>Ben Willoughby</td>
<td>Polk</td>
<td>813-918-3262</td>
</tr>
<tr>
<td>Christine West</td>
<td>Support Services</td>
<td>813-309-0858</td>
</tr>
</tbody>
</table>
"Energy Supply Safety & Security Orientation 2017"

Copyright © 2017
Tampa Electric Company
All rights reserved.

- Remember to submit the names of your employees into the Security Database to verify course completion and complete the attached test, which your company must keep on file.

**Menu**

- Review
  - Bayside Site Specific Safety
  - Big Bend Site Specific Safety
  - Big Bend & Bayside Security
  - Polk Site Specific Safety
  - Safety Staff Phone Numbers
  - Trainer’s Responsibility
  - Other Sections

- Full orientation
- Security Database
- Test
- Slide Handouts (.pdf)

**Section Review**

- Blasting & Explosives
- Compressed Gas Cylinders
- Confined Space Entry
- Cranes & Rigging
- Electrical Safety / Shock & Flash
- Emergency Notification & Response
- First Aid & Bloodborne Pathogens
- Hazard Communication (Right to Know)
- Hazardous Energy Control (LO/TO)
- Hot Work (Cutting & Welding)
- Housekeeping
- Ladders
- Personal Protective Equipment (PPE)
- Power Plant Basics
- Pre-Job Briefings
- Radiography & Radiation
- Radon & Electronics
- Scaffolds
- Signs
- Smoking Policy
- Tools & Equipment
- Vehicles
- Walking & Working Surfaces
- Work Area Protection
- Zero Tolerance Policy