Constellation Nuclear

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Constellation Nuclear Industrial Safety Pocket Guide 2024

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This Pocket Guide of commonly used safety practices is not a complete list and does not replace or supersede the current site safety procedures. In addition, human performance tools, fundamental behaviors, and injury prevention techniques that are key to preventing events and injuries, and select safety practices from other functional area procedures that are often commonly referred to "in the field," are also included. The practices described in this guide are derived directly from the source documents referenced in the section title or are applications of those requirements. Refer to the referenced procedure(s) for complete guidance. For those items that are derived from Best Practices but have no source procedure, the Pocket Guide T&RM, SA-AA-0301, is the source document.

"In order to continuously improve, every employee must believe that all accidents and injuries are preventable and unacceptable!"

CONSTELLATION NUCLEAR COMMITMENT

Constellation Nuclear is committed to occupational safety and health. The Pocket Guide is a selection of commonly used safety practices captured in one convenient location for immediate reference in the field. The Industrial Safety Pocket Guide is intended for use by Constellation Nuclear Employees.

INTRODUCTION

Your life and the lives of your coworkers depend on making safe decisions on the job. This safety pocket guide has been established for your safety while you work, and for the safety of others around you. Safety includes recognizing hazards connected with your work and with the work of others around you. Habitual safe practices are your best insurance against injury. Basic safety rules should be followed every day; before, during and after every job – for your own protection. You are responsible for your personal safety; however, all of us must cooperate to protect other personnel and the public from hazards that may result from Company work. If you should notice that another worker is in a dangerous position, or appears to be working in an unsafe manner, warn them of the danger (the worker may **not** be aware of it). If the worker does **not** heed your warning, notify the person in charge immediately. The person in charge is authorized to take any employee off the work assignment if that worker persists in working in an unsafe manner. If you notice any conditions that may be hazardous to others in the working area, inform the person in charge immediately.

RESPONSIBILITIES

EMPLOYEES: Employees are responsible for maintaining a wholehearted, genuine safety culture using all aspects of the industrial safety and health program including compliance with rules and regulations, and for continuously practicing safety while performing their duties.

MANAGERS / SUPERVISORS: Managers / Supervisors are responsible for developing and maintaining the proper attitudes toward industrial safety and health in themselves and in those they supervise, and for ensuring that all operations are performed with the utmost regard for the safety and health of personnel involved, including themselves.

"Our work is never so urgent, nor our schedule so important, that work cannot be performed safely"

BEHAVIORS – SA-AA-11

The majority of personal injuries in the workplace are due to at risk behaviors, **not** the work environment. Taking unnecessary risks while performing tasks will eventually lead to injury or loss of life.

Excellence in human performance is more likely when people embrace the following underlying principles as the bases for desirable behaviors.

1. Constellation Nuclear employees understand that the majority of injuries are the result of at-risk behaviors.
2. Existing human performance tools are applied to optimize hazard recognition.
3. The synergy between nuclear and industrial safety is optimized.
4. Hazard recognition is built into employee development, certification, and skills based training.
5. Safety performance is measured and reflects a continuously improving safety trend.
6. Supervisors at all levels influence the personnel for whom they are responsible to work safely.
7. Station personnel confront their peers regarding safety violations.
8. Both safe and unsafe behaviors elicit appropriate responses.

FUNDAMENTAL BEHAVIORS IMPORTANT TO SAFETY

At-risk behaviors are significant contributors to workplace injuries. At Constellation Nuclear, the same fundamental behaviors that have been established to support safe, reliable, and event-free plant operations also keep employee's injury-free by discouraging at-risk behaviors and encouraging hazard identification and correction to prevent accidents before they occur. The best way to achieve and sustain excellence in all facets of nuclear power plant operations, including industrial safety, is to effectively institutionalize and reinforce fundamental behaviors. Fundamental behaviors that are key to avoiding accidents, and preventing events and injuries, include:

- **BE RESPONSIBLE** for your own safety.
- **STOP** and **CORRECT** unsafe behaviors or conditions.
- **STOP** and **REPORT** equipment abnormalities.
- **ENSURE** equipment is in a safe condition prior to starting work.
- **NEVER** proceed when faced with uncertainty. Always **STOP** work and place equipment in a safe condition. **SEEK** guidance and assistance from supervision, qualified technicians, technical staff or system managers.
- **ADHERE** to safety postings and barriers.
- **COMPLY** with chemical MSDS or SDS requirements.
- **REVIEW** lessons learned and **OPEX** when planning and preparing work
- **USE** the appropriate PPE for the work to be performed.
- **KNOW** your personal limits both physically and mentally.
- **USE** installed safety equipment.
- **DO NOT** bypass required safeguards.
- **REPORT** all injuries.
- Be **AWARE** of your surroundings and changing conditions.
- **MAINTAIN** a safe clean work area.
- **KEEP** eyes focused on path (i.e., watch where you are going).
- **KEEP** eyes focused on task (i.e., watch what you are doing).

Error likely situations are predictable, manageable, and preventable. Use Constellation Nuclear Human Performance and Error Prevention Tools to help prevent events and injuries!

SAFETY BIG 5 PROGRAM – SA-AA-116-2125

- The purpose of the Safety "Big 5" program is to prevent fatalities and serious injuries in the workplace by:
  - Highlighting certain work activities that, based on the potential hazards and operating experience, could most likely result a serious injury or fatality.
  - Defining key standards and behaviors to help maintain safety when performing such activities.
  - Triggering increased oversight and/or resources to help prevent serious injury or fatality.
- Reinforce the Safety "Big 5" during department/group meetings and pre-job briefs, and during key meetings (Plan of the Day meetings, Daily Plant Status Meetings, MRM's, daily calls, etc.), when applicable.

HUMAN ERROR PREVENTION – HU-AA-101

USE the following Constellation Nuclear human performance and error prevention tools to promote safe, error-free operation:

- **2-Minute Drill @ The Job Site** -
  - **PERFORM** a "2 Minute Drill @ the Job Site" for tasks requiring a pre-job brief immediately prior to beginning the task or re-commending the task after a break.
  - **REVIEW** the front of the card to ensure conditions are what you expected.
  - **REVIEW** the "Energy Wheel" hazard assessment tool on the back of the card to check for, understand, and eliminate or mitigate sources of energy on or near the job site that pose a risk of injury.
  - **If** the review determines that conditions are not what you expected such that a plan change is warranted, **then CONTACT** your Supervisor and resolve the situation prior to proceeding with the task.

- **Self-Check (STAR)** - STOP, THINK, ACT, REVIEW, (STAR) is a Human Performance tool that includes distinct thoughts and actions designed to enhance an individual's attention to detail. STAR is an expected, undocumented standard of performance for personnel at all times during their daily work activities. An individual must be 100 percent sure that the action to be taken is correct before manipulation of any equipment. The following Self-Check (STAR) actions are expected to be observable:
  - Stop.
  - Point at or touch the equipment.
  - Read the identification tag.
  - Compare to the controlling document.
  - Hesitate for a second or two, followed by:
  - Manipulate the equipment.
  - Verify actual system response.

- **Outside of Procedures, Parameters or Processes (OOPs)** – OOPs is an acronym for a human performance tool that can be used effectively when faced with uncertainty. If you find yourself Outside of Procedures, Parameters or Processes – **STOP** – **and CONTACT** your supervisor.

- **Peer Check** – Peer check is the act of checking the correct component identification and discussing subsequent component manipulation prior to action being taken. Unlike Concurrent Verification, peer check may involve audio and/or visual cues. When required by the supervisor or controlling document, a Peer Check may be documented. Peer Check is not required when utilizing CV or IV.

- **First Check** - The act of an individual establishing verbal communication with the dispatching facility or First Line Supervisor to ensure the first component manipulation for a specific task is performed on the proper unit and train. First check consists of the following actions:
  - Prior to the performance of the first manipulation of in-field evolutions, as determined by the Pre-Job Brief, excluding Operator rounds, **VERIFY** the proper step intended to be performed, proper unit, proper train, and component using self-check techniques.
  - **CONTACT** the dispatching facility to validate component label information against information.

- **REPEAT** these checks and communications for subsequent field actions as determined by the pre-job brief.

- **Concurrent Verification (CV)** - The act of two qualified individuals verifying the correct component identification and performing subsequent component manipulation, which, if performed incorrectly, would cause an irrecoverable condition with immediate adverse consequences to plant operation. Concurrent Verification is documented upon completion.

- **Independent Verification (IV)** - The act of verifying a component's position or condition, independent of the activities which established that condition. A second qualified individual who has not witnessed the activity that established the desired condition performs the Independent Verification. Independent Verification is documented upon completion.

  Note: Flagging/Robust Operational Barriers does not substitute for proper self-check utilizing equipment labeling as the indication that the correct component is being manipulated or monitored. Nor does it substitute for proper verification requirements determined by this procedure. It is intended to provide an additional barrier so that when an individual is met with a distraction, they return to the right component prior to continuing work.

- **Flagging/Robust Operational Barriers** – Flagging is a distinct form of marking that is used to identify components to be worked or manipulated, to ensure that workers do not work on or manipulate wrong components that are similar in location or appearance. Robust Operational Barriers consist of marking or covering of components not being worked on that are within close proximity to similar components being worked or manipulated, to ensure that workers are not diverted to and subsequently manipulate the incorrect component.

RECOGNIZNG & AVOIDING "LINE OF FIRE"

"Line of Fire" refers to a risk of injury from a moving object that impacts the body depositing energy. This energy can be from motion of the object or motion of the body, and often results from gravity or a sudden release of tension.

Common examples of energy being deposited from the motion of the body include:

- A worker's hand slips from a wrench, or the wrench slips off a nut, causing the hand to impact a hard or sharp object in close proximity.
- A sudden release of tension occurs when cutting through an object with a sharp hand tool, causing the tool to strike the other hand of the worker that happened to be placed in the "line of fire."

Common examples of energy being deposited from the motion of moving object include:

- A hammer falling from scaffold, hitting a worker's shoulder.
- An object being carried is dropped, striking the workers toes.
- A vehicle strikes a worker who has placed their body in the path of the vehicle travel.

"Pinch Points" are special line of fire hazards in that the mechanism of injury involves motion of an object and a body part. The motion of the body involves placing a body part in the pinch point. The motion of the object causes the size of the opening to reduce, creating a trapping or crushing type of injury. Common pinch point hazards include drawers, hinged parts (e.g., doors, lids, and tools such as pliers or grabbers), lifts, elevators and jacks.

The line separating safety from danger is sometimes quite small. To avoid crossing that line, we must 1) always be aware of the hazards around us; 2) understand the equipment, machines, tools and operations in our work areas; and 3) take the time to think about the possible consequences that may result from where we place our bodies or the actions we perform. When we do this, we can avoid suddenly finding ourselves in the "line of fire."

HAND INJURY PREVENTION

Hand injuries are one of the greatest challenges to industrial safety at Constellation Nuclear. All of the hand injuries experienced by Constellation personnel have one thing in common . . . they were all preventable! In order to prevent hand injuries:

- Assess and re-assess your work. Use the 2 Minute Drill @ the Job Site. Step back and ask yourself:
  - "Where am I about to put my hands?"
  - "What risk is involved placing my hands here?"
  - "What could possibly slip or move while I am performing my work?"

  - "What is best body position and motion to prevent my hand from striking an object should a slip or other sudden release of tension occur?"
- Visualize the task and attempt to identify and avoid sharp objects and potential pinch points.
- Always use the right tool for the job (do not use your hands as a tool). **If** you are not sure what the right tool is, **then** consult with your Supervisor.
- Wear appropriate hand protection. Select gloves in accordance with the "Hand Selection Protection Matrix" provided in SA-AA-116, Personal Protective Equipment. **If** the hazard / task is not bounded by the matrix, **then** conduct a workplace hazard assessment in accordance with SA-AA-116 to determine the appropriate glove.
- **FOCUS** on the task at hand and do not hurry.
- **If** you are using a cutting tool with a sharp blade, **then** hold the tool properly and cut away from your body.
- **NEVER** grab the edge of a door or other hinged surface. **ALWAYS** use the door knob or handle provided.
- **Do not** place your hand (or any other part of your body) in the **"Line-of-Fire."**

DOOR USE

After passing through a door:

- **ALLOW** the door to close (or stop moving) on its own without touching the door.
- **KEEP** your hands clear of the space between the edge of the door and the door frame.
- Fully **CLOSE** and/or **CHALLENGE** the door using the handle (or by pressing on surface of the door if a handle is not provided).
- **WATCH** where you are placing your hands (i.e., do not reach back without looking at the door).

PROCEDURE USE AND ADHERANCE – HU-AA-104-101

As of this revision there are **no** procedures referred to as source documents that are Level 1. Those that are Level 2 are noted under the Section Heading. **USE** this Safety Pocket Guide in conjunction with, **not** instead of, Level 2 Procedures.

Level 1 – Continuous Use: Reading each step of the procedure prior to performing that step, performing each step in the sequence specified and placekeeping each step before proceeding to the next step.

Level 2 – Reference Use: Referring to a procedure periodically during the performance of an activity to confirm that all procedure segments of an activity have been performed, performing each step in the sequence specified and, where required, signing appropriate blocks to certify that all segments are completed. The procedure shall be at the work location and placekeeping shall be applied as required by HU-AA-104-101.

Level 3 – Information Use: An activity may be performed from memory, but the procedure is available, **not** necessarily at the work location, for use as needed to insure the task is being performed correctly and for training.

ACCIDENTS – SA-AA-123

In case of an injury, illness or near-miss:

- **STOP** work immediately.
  - **PLACE** equipment in a safe, stable condition.
  - **If** in an unsafe environment, **MOVE** to a safe location.
- **If** injured**, PROCEED** to Site Nurse (and/or First Aid Responders) for evaluation **or CONTACT** site emergency number for medical response (including off-site if necessary), as necessary based on the severity of the injury.
  - **NOTIFY** immediate supervisor.
  - **NOTIFY** RP if open wound in RCA (Supv).
  - **If** the Site Nurse is not available, **then** contact via phone or pager.
- Supervision shall ensure the Control Room is notified if employees are taken off-site for medical treatment and that the supervisor or management designee accompanies the injured individual for the initial visit.
- Do **not** restart work until:
  - Supervision has been notified;

  - The safety event is fully understood;
  - Preventive measures are in place.
- **COMPLETE** the Preliminary Report of Injury and Illness form and FORWARD (e-mail or hard copy) to the Site Safety Professional (Supv).

Bloodborne Exposure Reporting

- All bloodborne contaminations, including clothing contaminations, shall be reported by the employee to their supervisor.
- The supervisor shall complete and submit to Site Safety and site Occupational Health Services SA-AA-123, Attachment 2 whenever an injury involves the non-incidental release of blood or other potentially infectious material.
- Site medical will determine if the contamination event is an exposure incident as defined by the regulation.
- Personal clothing shall be cleaned or laundered or disposed of as regulated waste.

ASBESTOS – SA-MA (MW, GI, NM)-119 & ISPP-4.3 (@JAF)

- Only workers or supervisors who have specific asbestos training may abate Asbestos Containing Material (ACM) or Presumed Asbestos Containing Material (PACM).
- Asbestos awareness level training is required to work in areas containing ACM.
- Any insulating material that is **not** identified as being Non-Asbestos shall be treated as ACM.
- ACM may be encountered when working on or around plant components. Some examples are:
  - Thermal System Insulation
  - Sprayed on or troweled on surfacing material
  - Insulated gaskets on various components
  - Gaskets
  - Flooring
  - Fire Barriers
  - Electrical cable and panel partitions
  - Roofing materials and building walls or siding
- The primary hazard of asbestos is inhalation or ingestion into the body. To minimize personal exposure at work:
  - Do **not** disturb any insulation

  - **STAY** out of asbestos regulated areas (marked with signs or safety tape)
  - **CONSIDER** any insulation to contain asbestos unless marked otherwise
  - **STAY** away from asbestos dumpsters
  - **If** you see a spill of material that you suspect contains asbestos, immediately **LEAVE** the area **and NOTIFY** the person in charge
  - **NOTIFY** the person in charge if you believe you have been exposed to asbestos at work.
- **If** damaged ACM/PACM is observed, or a fiber release event occurs, **PLACE** equipment in a safe condition **and immediately LEAVE** the area **and INFORM** the person in charge/supervisor. **PREVENT** other personnel from entering the area by flagging off the area. The person in charge will then coordinate identification and abatement with appropriately trained workgroups. Do **not** reenter the area without consent of supervision.

BLOODBORNE PATHOGENS SA-AA-120

- **If** blood or other potentially infectious bodily secretions are observed, immediately **REPORT** it to the Control Room **and SECURE** the area until trained and qualified personnel arrive.
- Raw sewage is **not** normally considered a Bloodborne pathogen. However, exposure to raw sewage through an open wound or ingestion must be reported to medical.

CHEMICALS/CONTROLLED MATLS - EN-AA-501

- **ADHERE** to the requirements in OP-AA-201-009, Transient Combustible Control.
- Only approved chemicals and controlled materials with an approved MSDS or SDS shall be used.
- All product users must know the hazards associated with the products they are working with or to which they may be exposed. It is your “RIGHT TO KNOW”. This is accomplished by a review of the Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS). This document includes information on the product hazards, permissible exposure levels, protective equipment requirements, handling, storage, and disposal requirements. **KNOW** where MSDS’s or SDS’s are located on your site.

- Chemicals/Controlled Materials must be properly labeled in accordance with site requirements identifying that the product is permitted to be used on site.
- Be familiar with label requirements on your site. **If** you do **not** understand MSDS, SDS, or label information, **SEEK** assistance from your supervisor. Do **not** proceed until you do understand.
- **UNDERSTAND** storage, handling, and disposal requirements prior to use.
- Always **MINIMIZE and CONTROL** the production of waste. When a product becomes a waste, i.e. **no** longer usable, it must be disposed of in accordance with site requirements.
- **DISTINGUISH** hazardous waste from radioactively contaminated hazardous waste to ensure proper handling. **IDENTIFY** mixed hazardous/radioactive wastes as such.
- **UNDERSTAND** what disposal restrictions apply to the chemical or Controlled Material. Do **not** throw anything into general trash unless you are certain it is permissible to do so. Disposal restrictions may apply to rags, empty containers, or nearly empty containers, brushes, absorbent pads, and so forth that have been soiled by the product. These soiled materials must be treated as hazardous waste until determined as otherwise.
- Waste shall be taken to a hazardous waste staging area. Chemical waste shall be labeled in accordance with site requirements. The following information should be included: identity of product, group, supervisor or contact name, contact person's phone number, and work activity number.

CLEARANCE & TAGGING - OP-AA-109-101

- The primary purpose of the Clearance & Tagging Program is to protect personnel from being injured while working in, on or around equipment.
- When it is necessary to work on equipment, the equipment shall be isolated from all sources of energy using the Clearance and Tagging Program. These sources include but are **not** limited to: electrical, chemical, mechanical, pneumatic, fluid and gas, hydraulic, thermal, pressurized water, and gravity.
- Only trained personnel are permitted to apply or remove tags.
- **CONTACT** the Control Room if any discrepancy is discovered regarding Clearance and Tagging.
- **CONTACT** the Control Room if a tag is found detached.

CLOTHING – SA-AA-129 / SA-AA-116

- Workers exposed to sparks, flame, or electrical arc hazards shall **not** wear clothing such as acetate, nylon, polyester, or rayon, that upon ignition could increase the extent of injury.
- In contaminated work areas, flame resistant anti-C's shall be worn for hot work.
- In non-contaminated areas, approved flame resistant coveralls shall be used over scrubs or non-flame resistant work clothing when at risk.
- Long-sleeve flame resistant or 100% natural fiber shirts with sleeves rolled down shall be worn when working near potential ignition sources or hot surfaces (i.e., when exposed to surfaces greater than 130°F, when welding, electrical arcing, grinding, etc.).
- When working with chemical compounds that warrant added protection due to their hazard such as corrosives, irritants, and carcinogens, long-sleeve shirts with the sleeves rolled down or equivalent (i.e., lab coat) shall be worn.
- Loose and ragged clothing shall **not** be worn around moving parts of machinery or equipment.
- Exposed rings, watches, bracelets, neckties, and other such objects shall **not** be worn around moving parts of machinery or exposed electrical conductors. **If** necessary, **then** reposition dosimetry in accordance with RP-AA-210, "Dosimetry Issue, Usage and Control."
- Any employee with long hair shall keep their hair contained while working around machinery or equipment with moving parts.

COMPRESSED GAS CYLINDERS – SA-AA-122

Definitions

Approved Storage Area: An area designated and posted to store compressed gas cylinders that are **not** in-use.
In-Storage: Compressed gas cylinders are considered in storage when **not** in-use and when placed in an approved storage area with regulators removed and valve caps installed (when provided).
In-Use: A compressed gas cylinder is considered "in use" when a gas is flowing from the container, when the container is maintaining pressure in a supply line, when the container is connected for use, or when the container is in standby or staged during and between operations utilizing gas.
Segregate: Segregation of cylinders means to sort and group according to like status.

Example (1): Empty cylinders shall be segregated (i.e., grouped together but **not** intermingled with) full cylinders.
Example (2): Nitrogen cylinders need **not** be separated from argon cylinders, but shall be segregated within the same storage area.

Separate: Separation means to provide an effective barrier between oxidizer and fuel-gas compressed gas cylinders or combustible materials by one of the following methods:

1. **MAINTAIN** a distance of at least 20 feet, or,
2. **PROVIDE** a non-combustible barrier at least 5 feet high having a one-half hour fire resistant rating.

Labeling

- Containers shall have a legible label identifying the contents.
- Do **not** use unlabeled compressed gas cylinders.

General Storage Requirements

- **MAINTAIN** valves closed and valve protection caps, where cylinders are designed to accept a cap, in-place, and hand-tight **except** when in-use.
- **POST** approved storage areas with the hazard class or the name of the gases stored. **POST** "No Smoking" signs where appropriate.
- Do **not** store compressed gas containers so that they are exposed to corrosive chemicals or vapors.
- Do **not** store compressed gas containers, of any kind, in areas that contain plant safety related equipment unless storage is done in accordance with site procedures.
- **STORE** compressed gas containers only in approved storage areas.
- **SEPARATE** compressed gas containers in storage, according to hazard class and compatibility of the gasses they contain.
- **POST** warning signs in cylinder storage areas for the hazards of the gas stored (i.e., Flammable Gas, No Smoking, Open Flame, or Sparks, etc.).
- Do **not** allow compressed gas container, storage area temperatures to exceed 125°F, or subject cylinders to artificially created low temperatures.

NOTE: It is acceptable to have empty cylinders (marked as such) in the same storage location with full cylinders of the same gas type. Empty cylinders shall be segregated from full.

- **SEGREGATE** containers by gas type and empty or full status of the container.

- **STAGE** compressed gas containers so they will **not** obstruct exit routes or other means of egress.
- **DESIGN** storage areas to accommodate gas container types required.
- Do **not** store handheld propane gas cylinders in flammable liquid storage lockers.

Handling Compressed Gas Cylinders

- Do **not** lift compressed gas cylinders by the cap, valve, or with magnets.
- Do **not** drag or slide compressed gas cylinders
- Do **not** roll cylinders on their sides.
- **HAND ROLL** cylinders into position by tilting the cylinder and rolling them along their bottom edges.
- Do **not** use slings, ropes, or chains to handle compressed gas cylinders, unless retrofitted with appropriate lifting attachments.
- Do **not** weld lifting attachments to cylinders.
- **REMOVE** regulators **and INSTALL** valve protection caps (when provided) prior to moving cylinders **unless** a special truck or cart designed for moving cylinders is used **and** the work activity specifically requires movement of an in-use cylinder.
- **If** transporting cylinders by vehicle, **then CLOSE** valves, **INSTALL** protective caps (when provided), **and SECURE** in an upright position.
- **USE** hand-trucks, cylinder carts or motorized trucks when transporting cylinders.
- Do **not** handle compressed gas cylinders with oily or greasy gloves or hands.

Additional Storage/Handling Requirements

- **ADHERE** to the requirements in OP-AA-201-009, Transient Combustible Control.
- **STORE** all compressed gas cylinders in an upright and secure position unless specific container design allows for other storage orientation (e.g., liquid propane fuel cylinders for fork trucks). In such instances, the manufacturer's recommended practice shall be followed.

- **SECURE** all compressed gas cylinders, including empties, by one of the following options to prevent cylinders from falling while in use, being transported, or in storage. **POSITION** the securing device above the center of gravity (e.g., about 1/3 down from top), in front of or around the cylinder(s), using:
  - 1/4-inch wire cable, or
  - a substantial chain, strap, or rope
  - or devices part of a manufactured system

  Note: Plastic rope (i.e., radiation rope, safety rope, etc.) should not be used because it has a low tensile strength and tends to degrade when exposed to sunlight.

- **SECURE** compressed gas cylinders to substantial supports. Examples of components that should **not** be used are instrument lines, conduit, and plant safety related components. Cylinder carriers or racks that are manufactured for the purpose of cylinder storage and meet station seismic requirements are considered to be substantial supports.
- **MARK** as "Empty" **and SEGREGATE** empty cylinders from full cylinders.
- **STORE** Liquefied Petroleum (LP) Cylinders vertically with LP regulators removed and plugs installed.
- Do **not** place compressed gas cylinders near highly flammable substances such as oil and gasoline.
- Do **not** place cylinders where they might become part of a "live" electrical circuit.
- **If** placing compressed gas cylinders inside any building that is not a separate stand alone building dedicated to the storage of compressed gas cylinders, **then**:
  - **PLACE** compressed gas cylinders in a well-protected, well-ventilated, dry location **and SEPARATE** from highly combustible materials such as oil, accelerant or sawdust.
  - **PLACE** flammable compressed gas cylinders away from elevators, stairs, or gangways and in areas where they will **not** be knocked over or damaged by passing or falling objects or subject to tampering by unauthorized personnel.
- Do **not** place compressed gas cylinders in unventilated enclosures or areas such as lockers, cabinets, or below ground level.

CONFINED SPACE PROGRAM- SA-AA (MA)-114

LEVEL 2 PROCEDURE

- A 'Confined Space' (CS) means a space that:
  - Is large enough and so configured that a worker can bodily enter and perform work; and
  - Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and
  - Is not designed for continuous employee occupancy.
- **No** person shall enter a confined space without proper authorization and training.
- Attendants shall **not** enter the confined space to perform a rescue. Instead, after making appropriate notifications during a confined space emergency, the attendant may initiate non-entry rescue procedures.
- **VERIFY** that the confined space permit is current (within the allowable duration period for which it is authorized).
- **If** clearance and tagging is used to eliminate or mitigate a hazard, **then LIST** the clearance number(s) in the appropriate section(s) of the permit.
- Horizontal entry into a Permit Required Confined Space requires the use of a non-entry retrieval line, unless retrieval equipment would increase the overall risk of entry or would not contribute to the rescue.
- Vertical entry into a Permit Required Confined Space >5 feet deep requires that prior to entry, non-entry rescue equipment (including a mechanical retrieval lifting device) shall be available at the space.
- Battery operated lighting shall be readily available in locations where electrical failure might cause a loss of normal lighting. Lighting shall be rated for atmospheres in which they may be used.
- Cylinders of compressed gases shall be prohibited in a confined space unless otherwise approved by site safety personnel. All cylinders used in Permit-Required Confined Spaces shall be annotated in the CS permit. *Exception: Emergency equipment in use by the fire brigade, self-contained breathing apparatus (SCBA) or resuscitation equipment.*
- Welding hoses shall be isolated from the cylinder when not in use.
- If an unexpected condition such as odors, colored gases, hissing sounds, etc., occurs, entrants shall immediately exit the space and notify the entry supervisor.

CRANES & RIGGING - MA-AA-716-021

Emergency Stop Signal for Cranes	
An emergency stop signal may be given by anyone in the area and shall be obeyed	
	*Both arms extended, palms down, move arms back and forth horizontally.*

General Requirements

- Pre-use and operational check of rigging and lifting equipment shall be performed.
- The use of personnel platforms to hoist personnel to elevated worksites shall be conducted in accordance with MA-AA-716-024, “Use of Personnel Platforms,” and only be used when no other safe method is available to access the elevated worksite.
- Work shall **not** be performed on or under a suspended load unless approved in accordance with MA-AA-716-021.
- **PREVENT** personnel from passing below or standing under suspended loads.
- **EXERCISE** care when rigging around electrical wiring or equipment.
- **WEAR** protective (e.g., leather) gloves when handling rigging.
- **KEEP** hands, feet, arms, and legs clear of pinch points.
- **AVOID** shock loading of rigging equipment.

- **REMOVE** rigging or lifting equipment from load prior to performing arc welding or meet the precautions provided in MA-AA-716-021 to prevent crane chain or wire rope from becoming a path for current flow.
- **TAG and REMOVE** from service damaged or defective lifting, rigging, and special equipment.
- **USE** only rigging and lifting equipment identified, inspected, and issued in accordance with approved procedures.
- Loads shall be maintained balanced and/or level.
- Do **not** swing loads.
- Rigging equipment shall **not** be loaded above its rated capacity.
- Do **not** place a side, back or tip load on hooks. Rigging shall be centered in hook.
- Swivel hooks shall rotate freely 360^{o}.
- Hooks shall be positioned over the center of gravity of the load to minimize swinging.
- Only qualified personnel wearing a bright colored vest or other apparel being clearly identifiable (i.e., bright colored hard hat, etc.) will be allowed to give hand signals using only approved hand signals when raising or lowering a load. Signaling will be his/her only duty while a pick is in motion.

Mobile Cranes

- A signalman who is clearly identifiable shall be present when using a mobile crane.
- The safe travel path should be walked down when required to ensure it is clear of obstacles and personnel hazards. When a spotter is supporting the operator of a mobile crane, then the spotter and the operator shall have a clear understanding of the crane travel path.
- **ENSURE** observation of the load and pedestrian safety throughout the lift and move. This may involve additional personnel to safely conduct the task.
- High winds will reduce crane capacity refer to manufacturers recommendations.
- Always **MAINTAIN** adequate clearance when working near energized equipment.
- When mobile cranes are in the pick and carry mode, the load shall **not** be steadied by personnel walking in the path of the crane. A tag line shall be used or the load shall be tied off to the front of the crane.

- The use of a crane or derrick to hoist workers is prohibited, except when a hazard assessment allows for it. **VERIFY** acceptability and limitations prior to commencing this activity at your site.
- Mobile cranes should **never** have less than ½ tank of fuel.
- Equipment or machines without insulating barriers to prevent line contact shall **not** be operated in proximity to power lines unless the following clearance requirements are met:

Note - The values in the following table were derived from OSHA 1910.333(c)(3)(iii)(A) requirements as follows: Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines shall be operated so that a clearance of 10 ft. is maintained. If the voltage is higher than 50kV, the clearance shall be increased 4 inches for every 10kV over that voltage. Any reduction in the clearances below would have to be considered an exception and in accordance with OSHA exceptions. If the vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. (1.22 m). If the voltage is higher than 50kV, the clearance shall be increased 4 in (10cm) for every 10 kV over that voltage.

Operation Near High Voltage Power Lines		**In Transit (No Load and Boom / Mast Lowered)**	
Normal Voltage, kV (Phase to Phase)	Minimum Required Clearance ft.(m)	Normal Voltage, kV (Phase to Phase)	Minimum Required Clearance ft.(m)
to 50	10 ft (3.05m)	to 50	4 ft (1.22m)
100	11ft 8 in (3.56m)	100	5 ft 8 in (1.73m)
150	13 ft 4 in (4.06m)	150	7 ft 4 in (2.24m)
200	15 ft (4.57m)	200	9 ft (2.74m)
350	20 ft (6.10m)	350	14 ft (4.27m)
500	25 ft (7.62m)	500	19 ft (5.79m)

Rigging Equipment Requirements

- Slings shall **not** be loaded beyond capacity indicated on manufacturer's tag for hitch being used.
- Slings shall **not** be pulled from under a load when load is resting on sling.
- **TWISTING and KINKING** of slings shall be avoided.
- Slings shall **not** be shortened with knots, bolts, rope clips, or other unapproved methods.
- Temporary repairs to slings are **not** permitted.
- Multiple part slings or chains shall **not** be twisted around each other.
- Loads shall **not** be lifted with unused sling legs dangling loose.

- A single sling shall **not** be used as a bridle to lift a load by hanging it over the hook, if the sling can shift over the hook/shackle.
- A single sling with spliced eyes shall **not** be used alone to lift a load.
- Longest sling(s) possible shall be used to provide maximum angle to load.
- Slings used in a choker hitch shall be of sufficient length to assure choking action is on webbing.
- Nylon, Polyester, and Polypropylene slings shall **not** be used where acid or caustic conditions exist.

CRYSTALLINE SILICA - SA-AA-142

- Crystalline Silica is a commonly found mineral in sand, concrete, and mortar.
- Work Practice Controls when cutting, grinding, or drilling into concrete include:
  - Local exhaust ventilation
  - Using water to control airborne dust
  - Using tools equipped with HEPA vacuums or water delivery systems
- Use non-silica containing materials for abrasive blasting.
- PPE Requirements may include disposable clothing and respiratory protection.
- The work area must be controlled through the use of DANGER signage and flagging indicating: “DANGER – Silica Dust Hazard. Exposure to Crystalline Silica Dust Can Cause Cancer or Silicosis. Avoid Breathing Dust” (or similar wording).

DRINKING WATER

- With the exception of inside Radiological Controlled Areas (RCA’s), adequate supplies of potable or bottled drinking water should be provided in all locations. This includes temporary office trailers, outage support facilities that are manned continuously during Refueling Outages, or at other locations designated by Management and based upon operating conditions.
- Potable drinking water containers should be capable of being tightly closed and equipped with a cap.
- Where single service cups are supplied, a trash container should be placed nearby.

- Bottled water is not chlorinated and, as such, should not be stored in direct sunlight for prolonged periods of time. **If** it is necessary to store bottled water outdoors, **then** it should be placed in racks and covered. Empty containers should not be used as collection devices for waste.
- When lifting large water bottles, keep the bottle as close to your body as possible and avoid lifting overhead.

ELECTRICAL SAFETY SA-AA-129

Batteries

- Do **not** disconnect battery system leads while batteries are under load.
- Only personnel involved in the battery maintenance or battery test shall be in the battery room when battery maintenance and battery testing activities are being conducted. Security personnel are exempt if briefed by qualified personnel prior to entry.
- **WEAR** appropriate PPE per SA-AA-116 for battery acid when working on and testing batteries. Do **not** use protective gear intended for electrical switching.
- Do **not** contact battery terminals or bus bars with metallic objects unless the metallic objects are part of approved testing/metering equipment.
- Prior to beginning battery work, **LOCATE** quick drenching/flushing facilities for emergency use within the immediate work area.
- **ASSURE** ventilation systems are operating and used when charging batteries.
- When charging batteries, vent caps shall be kept in place to avoid electrolyte spray. **ASSURE** that vent caps are functioning.
- Smoking, open flames, and spark generating activities are prohibited around batteries or in battery rooms.
- When preparing electrolyte for storage batteries, always **POUR** acid into the water, never the reverse, as the reverse may cause acid splattering.
- **AVOID** contact with skin; if acid contacts skin or eyes, **FLUSH** with water **and SEEK** medical attention. Flush eyes for approximately 15 minutes.
- **USE** insulated, non-sparking tools when maintaining batteries.
- **REMOVE** conductive metal that could cause a short circuit.

Control of Temporary Power – SA-AA-129-2118

- Flexible cords and cables are **not** permitted for continuous use as permanent wiring. If an action is routine (example – annually installing portable heating units throughout the winter months to prevent freezing of water lines) consideration should be given to installation of a permanent power source.
- Temporary electrical power and lighting installations shall be permitted for a period **not** to exceed the duration of the task.
- Flexible cords and cables (extension cords) shall be approved (e.g. UL Listed) and suitable for conditions of use, load rating, location, and length
- Extension cords and temporary power cables may be interconnected in series, or "daisy chained," provided their voltage rating, current rating, and/or manufacturer's limitations (i.e., number of cords that can be connected in series) are not exceeded.
- Surge protectors and power strips shall be used in accordance with the manufacturers requirements, shall not be interconnected in series (i.e., "daisy chained), and shall **NOT** be overloaded
- Extension cords must be inspected prior to use to ensure the cord, plug, and receptacles are free of damage.
- A GFCI shall be used at the power source on all 120-volt A/C receptacle circuits when:
  - Using portable electrical tools, cords, and temporary lighting
  - In wet environments
  - Used outdoors
  - Used inside confined spaces

Electrical Grounding

- When installing or removing grounds, approved safety glasses & face shield, long sleeved clothing of flame retardant material, and approved/tested protective rubber gloves shall be worn when working on or near possibly energized circuits.
- **APPLY** grounds while maintaining the Minimum Approach Distances for the installation and removal of grounding clusters.
- Circuit breakers shall **not** be used to complete a safety-ground circuit.
- After removal of grounds, conductors shall be considered energized and treated as such.

- When doing work on equipment normally energized at or below 600 Volts phase to phase, grounding is **not** required.
- When doing work on equipment normally energized above 600 Volts phase to phase, grounding is required.
- **CONDUCT** a final check. **REMOVE** all grounds before putting grounded equipment back in service.
- **REFER** to SA-AA-129 for guidance on hazardous induced voltages into de-energized circuits or equipment.

Key Items in Electrical Safety

- Work on exposed energized lines or equipment may be performed only by qualified individuals. De-energize whenever feasible.
- When voltage is indicated and the testing device is proven to be functioning properly, **no** work shall be performed or ground installed until the reason for the voltage indication has been identified and removed, or proven to be due to induction.
- Except for fuse replacement or other necessary access by qualified persons, the guarding of energized parts within a compartment shall be maintained during operation and maintenance functions to prevent accidental contact with energized parts and to prevent tools or other equipment from contacting energized parts.
- Escorts accompanying unqualified personnel or visitors or in the vicinity of electric equipment or lines shall be qualified to safeguard the people in their care, and ensure that the safety rules are observed.
- Where an unqualified person(s) is (are) working at or close to the minimum approach distances, the person in charge of the workspace where the electrical hazard exists shall cooperate with the person in charge of the unqualified person(s) to ensure that all work can be done safely. This shall include advising the unqualified person(s) of the electrical hazard and warning them to stay outside of the minimum approach distances.

Electrical Safety Protection

- Workers **SHALL NOT** wear any metal jewelry, such as rings, watches, belt buckles, earrings, and piercings, even those worn for medical purposes (e.g., medical identification bracelets, nitroglycerine necklaces, etc.), or lanyards with metal parts or components (e.g., clips, keys, etc.), when:
  - Working on or near exposed normally energized equipment, even if the equipment is de-energized.

- Breaking the plane, and/or working inside any electrical panel or enclosure containing exposed normally energized equipment, even if the equipment inside is de-energized.
- Working on a battery system.

This means that all conductive articles of jewelry and clothing must be removed regardless of whether or not it is "covered" by electrical safety PPE (i.e., gloves, hoods, flash suits, FR clothing, tape, etc.). Conductive articles of jewelry and clothing that must be removed include metal watches, belt buckles, bracelets, rings, earrings, key chains, and necklaces, metalized aprons, metal headgear, and/or glasses with metal frames, etc.

Exceptions:

1. Jewelry or electrically conductive objects may be worn while passing through a battery room (i.e., not working on battery systems).
2. Incidental metal on clothing such as snaps and buttons on pants, eyelets on shoes, and small metal screws in plastic frame glasses, etc., that are not in direct contact with the skin are considered low risk and, therefore, are not required to be removed.

- Other items containing metal that are not worn but commonly used in the field, such as pens, metal-lined rulers, or steel tapes, should be handled in a manner that prevents accidental contact with live parts.
- **Test before touch**. Always **ASSUME** a circuit is energized until proven de-energized by performing a Zero Voltage Test with a test device that is suitable for the equipment being tested (in accordance with SA-AA-129-1001). PRIOR to performing work activities on exposed de-energized equipment that is normally energized; the WORKER shall VERIFY the equipment that will be worked on is DE-ENERGIZED by performing a Zero Voltage Test immediately BEFORE each or any of the following:
  - Initial work starts.
  - Re-starting work after returning to the work location following a break, lunch, or similar work stoppage.
  - Re-starting work at the start of a new day or shift.
  - Re-starting work following clearance boundary manipulations; including those in which the safety isolations did not change (i.e., multiple clearance orders hanging providing the same protection and one or more of them changed).
  - Re-starting work after signing on to or back on to a Worker Tracking List or clearance order.

- **INSTALL** barriers, when guards are removed from energized equipment at 150 volts or greater, around the work area to prevent employees who are **not** working on the equipment, but who are in the area, from contacting the exposed energized parts.
- **If** signs and barricades do **not** provide sufficient warning and protection or are **not** practical based on job site conditions, **then STATION** an attendant to warn and protect personnel.
- **WEAR** appropriate class insulated rubber gloves (**SEE** Insulated Glove Table).

Insulated Glove Table		
Class	**Max. Use Voltage**	
	AC	**DC**
00	500 volts	750
0	1000 volts	1500 volts
1	7500 volts	11,250 volts
2	17000 volts	25500 volts
3	26500 volts	30000 volts
4	36000 volts	54000 volts

Switchyard Clothing

- Minimum flame retardant clothing requirements for general area inspections and tours in the switchyards are specified in SA-AA-129-2130. However, when working on or near exposed energized electrical equipment located in the switchyard, the clothing requirements contained in SA-AA-129 also apply.

ENVIRONMENTAL SPILL PREVENTION – EN-AA-103-0003

This table highlights the requirements of protection required to mitigate the risk of a release to soil, groundwater and surface water. The table indicates the risk area, a brief description and the required protective actions.

Risk Area	Description	Required Protective Actions
1 **High**	Areas within 25 feet of a water of concern **OR** within 25 feet of a structure/feature (i.e., open drain) that leads to a water of concern. This includes areas covered with both impervious and non-impervious surfaces.	Secondary containment is in place **AND** the responsible work group inspects the area to verify no equipment leakage **AND** splashguards to prevent hose rupture sprays **AND** a spill response kit shall be staged in this area. Manage standing water and debris in Containments per Section 4.1.4 of EN-AA-103-0003.
2 **Moderate**	Areas located within a distance greater than 25 feet to 50 feet of water of concern or structure/feature that leads to a water of concern **AND** is covered with an impervious surface **OR** any location on site that leads directly to the soil, surface water or groundwater that is **NOT** covered with an impervious surface.	Engineering controls are in place to prevent or contain releases **OR** the responsible work group periodically inspects the equipment, vehicles and area to verify no equipment leakage **AND** a spill response kit shall be staged in this area (See Section 4.1.5 of EN-AA-103-0003). Manage standing water and debris in Containments per Section 4.1.4 of EN-AA-103-0003.
3 **Low**	Areas > 50 feet away from water of concern **AND** is covered with an impervious surface to prevent chemical (i.e., controlled material) or oil from reaching the soil, surface water or groundwater.	Engineering controls in place to prevent or contain releases **OR** the responsible work group periodically inspects area to verify no equipment leakage. Manage standing water and debris in Containments per Section 4.1.4.

OTHER CONDITIONS TO CONSIDER:
If a weather event is expected, **then** consider additional protective measures to prevent residual petroleum or chemical runoff. Additional protective measures may include, relocating vehicles or equipment to protect from weather, replacing installed protection such as visqueen, containments or absorbents, and covering exposed equipment.

EXCEPTIONS:
Mobile equipment that is in use and under constant supervision while in use does not require secondary containment but must comply with all other required protective actions as specified for the risk area. A vehicle used to perform operation rounds, security rounds, chemistry sampling, routine non-controlled material delivery activities or other similar temporary activities must comply with the requirements of this procedure while in a high-risk area. These vehicles are exempt from the requirements while in use in Risk Areas 2 and 3, provided the vehicle has been inspected for leaks and the vehicle is not left unattended for periods of time in excess of 30 minutes.

- At a minimum, Mobile Equipment (including vehicles) shall be inspected prior to use, after breaks, and at the end of shift for the following:
  - No puddles or spilled materials exist beneath or on equipment.
  - No visible problems with coupling interface or attachments (e.g., fitting not cross threaded, no weeping from hoses, etc.)
  - No cuts, cracks, abrasions, gouges, on exposed surfaces on hoses or equipment
  - No hose stiffness or hardness that could lead to cracking
  - No kinks, pinches, blisters or flat spots that could lead to cracking
  - Hoses are not rubbing on bolting or other equipment surface
  - Hoses are not gummy or soft
  - No evidence of corrosion to fitting or equipment
  - No globs of grease hanging that could fall from the equipment
  - Batteries are secured and show no evidence of cracking

- Equipment containment: no hoses, fittings or other potential source of leak are hanging over the edge of containment device without being protected. If a weather event is in the forecast, ensure protective measures are adequate.

EXCAVATION, TRENCHING & SHORING – SA-AA-117

LEVEL 2 PROCEDURE

- **ENSURE** that any excavation within a “tolerance zone” is conducted by hand, air suction (vacuum truck), pressurized air, and/or pressurized water. The tolerance zone is the horizontal and vertical space within 24” of the outside wall or edge of a line or facility.
- **If** employees are to enter a trench or excavation, **then** the extracted soil and equipment shall be located **no** closer than 2 feet from the side of the hole and prevented from possible collapse back into the hole.
- **PROVIDE** stairways, ladders, ramps, or other safe means of egress for all excavations and trenches 4 feet deep or more. The maximum distance between any worker and a ladder shall **not** be more than 25 feet.
- **TEST** the atmosphere before permitting employee entry into excavations greater than 4 feet in instances where oxygen deficiency or a hazardous atmosphere exists or could reasonably be expected to exist. **CONDUCT** testing as often as necessary to ensure the atmosphere remains safe.
- **PROVIDE** protective systems such as a shoring system, safe sloping of the ground, or equivalent means of protection such as a trench shield or

boxes on all sides of excavations, which measure 5 feet, or more in depth.

- Excavations, adjacent areas and protective systems shall be inspected daily by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres or other hazardous conditions.
- Adequate barricades shall be provided at all excavations. An individual designated to prevent access may be used in lieu of a physical barricade.
- All wells, pits, shafts, etc., shall be barricaded or covered.
- **NOTIFY** RP prior to excavating in the Plant Protected Area.

FIRE PROTECTION

Reporting of Fire

- **NOTIFY** the Control Room whenever you observe a fire event that results in visible flaming (or the discovery of any evidence of prior flaming or charring).

Classes of Fire

- Fires are classified according to the material involved. The method used to put out a fire coincides with the fire classification.
  - **CLASS A -** Fires involving wood, paper, rubbish. **FIGHT** with water or A or ABC extinguisher.
  - **CLASS B -** Fires involving flammable liquids such as gasoline, naphtha, oil, grease. **FIGHT** with B, BC or ABC extinguisher.
  - **CLASS C – F**ires involving electrical equipment. **FIGHT** with BC or ABC extinguisher.
  - **CLASS D -** Fires involving combustible metals such as magnesium, titanium, sodium. **FIGHT** with dry powder (special compound), dry dirt, sand, or D extinguisher. **NEVER USE WATER ON THIS TYPE OF FIRE!**

- When directing the discharge from a carbon dioxide type extinguisher, **USE** the handle on the discharge horn. Do **not** touch the horn itself.
- Do **not** enter areas where large quantities of carbon dioxide or halon have been discharged. **WAIT** until the area has been checked for oxygen content. Only trained Emergency Response personnel with personal protective equipment are allowed to enter these areas.
- If a fire breaks out on or near energized electrical equipment, it shall be extinguished by trained Emergency Response personnel only.

Cardox And Halon Fire Protection Areas

- Cardox and Halon protected areas are specifically identified at each station. Be aware of these areas prior to entry. **If** a Cardox/Halon system alarms, **then immediately EVACUATE** the area.
- Special attention to housekeeping and egress are mandatory in Cardox/Halon protected areas.
- Pre-discharge alarms are provided, as a minimum, on systems that exceed the maximum safe levels for employee exposure. The purpose of a pre-discharge alarm is to alert personnel and allow safe egress from the area being protected prior to the system discharge.
- If a pre-discharge alarm is provided and it will take longer to exit an area than the time provided by the pre-discharge alarm, the system shall be blocked. A Job Hazard Analysis is recommended.
- Manual actuation of the injection system is immediate. **No** delay time exists **and no** prior warning is given.

Transient Combustibles (OP-AA-201-009)

- Unless otherwise allowed by OP-AA-201-009, all transient combustible material that is required for work in Safety Related Buildings and not stored in a designate shall staging location shall be either:
  - Constantly Attended OR
  - Removed from the work area at the end of the shift OR
  - Have a Transient Combustible Permit (TCP) for all the combustible material that will be needed for the work activity OR
  - Contained in closed metal containers with closed metal lids/openings (cabinets, tool boxes, gang boxes, metal drums, metal drums with flame tamer lids, etc.) that are in good repair.

- **UNPACK** equipment or supplies shipped in untreated combustible packing containers outside of safety related areas whenever possible. **If** the equipment must be staged and/or unpacked in the safety related area for valid operating reasons, **then** approval from the Fire Marshal/Designee in the form of a TCP is required. The combustible materials should be removed from the safety related area immediately after unpacking.
- **OBTAIN** a TCP prior to staging exposed combustible/flammable metals (Class D material) in Safety Related Buildings.
- **OBTAIN** a TCP from the Fire Marshal/Designee prior to staging a combustible/flammable gas cylinder inside a Safety Related Building.

FOREIGN MATERIAL EXCLUSION (FME) – MA-AA-716-008

- **MAINTAIN** Foreign Material Exclusion (FME) integrity by preventing the introduction of foreign material into systems, structures or components.
- Foreign material is any material (physical or chemical) not part of the system or component as designed or modified. This includes unexpected dirt and debris, tools, equipment, combustible materials, machine tailings, grinding particles, trimmed pieces of lock wire and electrical wire, paint chips, leak sealing compounds, unapproved chemicals, or any other item or residue which if left inside the system, could adversely affect its operation, components or chemistry.
- Foreign material that enters systems can cause equipment degradation or inoperability, fuel cladding damage, or high radiation and contamination levels that are spread throughout the plant. FME practices shall not interfere with safe work practices and shall not override radiation protection requirements.
- Glasses, dosimetry, hearing protection, hard hats and other such items shall be adequately secured in such a manner as to prevent them from inadvertently entering a system, component or process.
- FME Zone/Area (FMEZ/FMEA) is a work Zone or area that requires specific controls to prevent the introduction of FM into systems, equipment, or components during maintenance, modification, test, or inspection activities.
- FME Zone Boundary is a physical boundary around an area or task, generally consisting of a rope and a sign visibly identifying a specific area as a FME ZONE. Boundaries may consist of existing structure and components, rope, fabric curtains, walls, fencing, tape, markers, or other similar materials.

- FME Zone 1 (High Risk) - The highest level of FME control imposed on a system or component, where a final visual inspection of internal cleanliness prior to system closure is not possible due to configuration, ALARA concerns or other circumstances. Additionally, a FME Zone-1 should be considered when a loss of FME integrity could result in, nuclear fuel failure, reduced safety system or plant availability, outage extension, or significant cost for recovery and risk to systems and components for which the introduction of FM could be irreversible.
- FME Zone-2 (Standard Risk) - A Zone/area established for breaches that do not meet the requirements for FME ZONE-1 but that need some form of foreign material exclusion boundaries and work practices applied. This Zone is established in situations where a final visual internal inspection is possible prior to system closure.

GENERAL MATERIAL HANDLING & STORAGE – MA-AA-716-027

Note: **RELOCATE** Heavy Detector Shields (HDS) in accordance with SA-AA-121-1000. A HDS is a shield (> 500 pound) designed to reduce the influence of background radiation on a detector. This includes HpGe shields, frisker caves and small article monitors (SAM).

Manual Lifting and Carrying Material

- **PLAN** the work in advance. **CONSIDER** the size, shape, and weight of materials to be handled **and DETERMINE** the most efficient and safest method to accomplish the task.
- **SELECT** employees' assignments to match the worker to the job in terms of knowledge and physical abilities.
- **KNOW** personal limits **and AVOID** overexertion.
  - **DO not** lift anything in excess of 50-pounds without assistance.
  - **When** performing team lifting activities, **then** the weight of the load shall **not** exceed 50-pounds per person performing the lift.
  - **ASK** for assistance with heavy or awkward loads, even if the gross weight is less than 50-pounds.
  - **AVOID** temptation to “manhandle” heavy or awkward loads **and CONTACT** Supervision for alternative methods.
- **INSPECT** material for slivers, jagged edges, burrs, and rough or slippery surfaces.
- **USE** manufacturer recommended equipment, tools, and/or techniques when moving large material (i.e., cabinets, gang boxes, tool boxes, furniture, etc.). **If** unfamiliar with the manufacturer's recommendations, **then** contact Supervision.

- **ENSURE** proper tools are available for the work to be performed, **CONSIDER** alternate methods to reduce the risk of injury.
- **REVIEW** unusual or high risk operations to ensure that hazards are mitigated.
- **ENSURE** proper personal protective equipment is available **and** worn as prescribed in SA-AA-116, Personal Protective Equipment.
- **AVOID** hazards such as sharp edges, greasy or slippery surface loads, odd sizes or shapes of loads, hazardous or fragile material, uneven weight distribution, and obstructed routes of travel while lifting and carrying.
- Whenever possible, **USE** mechanical help such as wheeled hand trucks, equipment carts or other equipment, in order to prevent injuries.
- **OPERATE** truck lift gates in accordance with MA-AA-716-027.
- Arrange stacked material in a secure manner.
- Safe lifting techniques should be used for manual material handling:
  - Lift with legs.
  - Keep back straight.
  - Ensure firm grip and footing.
  - Maintain adequate control over the load.
  - Avoid twisting the body.
  - Reposition the body by using the feet.
  - Avoid manually lifting heavy objects overhead.
  - Consider getting assistance.
- When more than one person is involved in lifting:
  - One person should coordinate the operation, give instructions, and/or give the signal to lift (i.e., be in charge of saying when and where to move the load).
  - **DECIDE** on signals for changing directions, stopping, putting the object down, etc.
  - **LIFT** at the same time in an attempt to keep the load level.
  - **KEEP** in step with each other and move materials in unison.
  - **BE** ALERT for what others are going to do and when.
  - **COOPERATE** so efforts of everyone are applied and no undue strain is thrown on one or more workers.

Non-powered Equipment for Material Handling

- Equipment in this category of material handling includes, but is **not** limited to pry bars, lever trucks, jacks, rollers, dollies, skids chain falls, come-alongs, cable pullers, wheel hoists hand trucks, wheel barrows, hand operated fork lift, and floor cranes with manual hoisting apparatus.

- **ENSURE** that employees are familiar with the selected equipment before the work begins. Instructions should be clear, concise and complete, and terminology understood.
- **ENSURE** that adequate clearances are observed so that employees can readily avoid being struck, caught, or pinned by moving loads or material handling equipment.
- **INSPECT** material handling equipment for obvious defects/deficiencies that may impact the safe execution of the work. **RETURN** defective equipment to the point of issue for repair/disposal.
- **POSITION** hand trucks and hand-operated forklift trucks a safe distance from personnel in the area prior to lowering the load.
- **ADHERE** to rigging/hoisting equipment capacities.
- **REMOVE**, whenever possible, jack handles when **not** in use. Jacks shall be level and set on firm footing.
- **AVOID** manually lifting heavy objects overhead. Materials should generally be stacked to approximately waist height.
- **ENSURE** the load is properly secured when transporting any material or equipment utilizing handcarts. This will avoid any load shifting and possible personnel injury or equipment damage.
- **ENSURE** all carts are labeled with the max load rating before use.
- **DISCUSS** transport of loads greater than 250 pounds in pre-job briefs.
- **OBTAIN** Supervisor approval via completion of MA-AA-716-F-01, Material Handling Safety Checklist, prior to handling or transporting loads greater than 500 pounds to assure appropriate safety rigor is applied.

Storage

- **ENSURE** that both temporary and permanent storage are neat and orderly.
- **ENSURE** that material/equipment is placed in a stable, secure manner so as **not** to fall or become inadvertently displaced where it could cause personnel injury. This is especially important when positioning tools/material/ equipment in overhead areas where personnel are working below.
- **ENSURE** that materials are stored with the following safe distances:
  - Outdoors
    - ✓ For lines and equipment energized at 50 kV or less, the minimum storage distance is 10 feet (305cm).

  - ✓ For lines and equipment energized at more than 50 kV, the minimum storage distance is 10 feet (305cm) plus 4 inches 10cm) for every 10 kV over 50 kV.
- Indoors
  - ✓ Maintain 25 feet to exposed energized equipment.

- **MAINTAIN** 18 inches clearance under sprinklers.
- **ENSURE** that automatic sprinkler system controls and electrical panel boxes are **not** obstructed.
- **ENSURE** that unobstructed access to fire hoses and extinguishers are maintained and that exits and aisles are kept clear.
- **ENSURE** proper storage is facilitated and hazards are reduced through the use of bins and racks.
- Do **not** use damaged racks for storage. Employees shall **not** be allowed to climb racks.

HAZARD AWARENESS

- Workers shall take action to stop unsafe jobs and unsafe behaviors as they are observed in the plant.
- **HAVE** a questioning attitude **and PEER COACH** when:
  - Poor housekeeping is noticed.
  - Unsafe work practices are observed.
  - Procedures are **not** being followed.
  - Hazards are unnoticed by the work crew.
- Workers shall be vigilant for error-likely situations and hazardous conditions in their work area and take measures to control risk.
- **USE** the “2 Minute Drill @ the Job Site” card in the field prior to the start of the task to review the work and your surroundings. Use this time to check for, understand, and eliminate or mitigate hazards associated with the activity.
- **If** the review determines that conditions are not what you expected and/or a plan change is needed, **then CONTACT** your Supervisor and resolve the situation prior to proceeding with the task.

HEAT STRESS - SA-AA-111

LEVEL 2 PROCEDURE

Note: The use of heart rate monitors in accordance with SA-AA-111-1001 may be used in lieu of establishing of action and recovery times required by SA-AA-111.

- **OBTAIN** a wet bulb globe temperature to determine if a possible heat stress environment exists by use of the Heat Stress Action Time Limit Chart contained in SA-AA-111 (also inserted below).
- Complete a Job Evaluation Worksheet (SA-AA-111 Attachment 4) and use it during Pre-Job Brief to ensure heat stress concerns are properly addressed at the job site.
- Whenever possible, workers shall pre-hydrate prior to entering hot environments.
- Use extreme caution when **not** acclimated to hot environments.
- **Immediately EXIT** a heat stress area if experiencing any heat stress symptoms:
  - Heat Stroke: Hot, dry skin with a red or flushed appearance; extremely high body temperature >104°F; there may be dizziness, nausea, headache, rapid pulse, and/or unconsciousness.
  - Heat Exhaustion: Pale clammy skin, profuse sweating, and extreme fatigue or weakness. The body temperature is normal or slightly elevated. There may be headache, extreme lassitude, faintness, fatigue, and nausea.
  - Heat Cramps: Muscle cramps in arms, legs, or stomach.
  - Heat Rash: Pinpoint redness and general skin irritation with itchiness, pain, and/or burning sensation.

Heat Stress Action Time Limits

WBGT °F	Work Clothes/Scrubs			Cloth Coveralls (Single PC's)			Cloth Coveralls + Scrubs (Single PC's + Scrubs)			Double Cloth (Double PC's)			Cloth Coveralls or Work Clothes + Plastics		
	Work Rate			Work Rate			Work Rate			Work Rate			Work Rate		
	Low	Mod	High	Low	Mod	High	Low	Mod	High	Low	Mod	High	Low	Mod	High
115	20	X	X	X	X	X	X	X	X	X	X	X	X	X	X
113-114	25	15	X	15	X	X	X	X	X	X	X	X	X	X	X
111-112	25	20	X	20	X	X	15	X	X	X	X	X	X	X	X
109-110	30	20	X	20	X	X	20	X	X	15	X	X	X	X	X
107-108	40	25	X	25	15	X	20	X	X	20	X	X	X	X	X
105-106	50	25	15	25	20	X	25	15	X	20	X	X	X	X	X
103-104	60	30	15	30	20	X	25	20	X	25	15	X	15	X	X
101-102	75	35	20	40	25	X	30	20	X	25	20	X	20	X	X
99-100	90	35	20	50	25	15	40	25	X	30	20	X	20	X	X
97-98	110	40	25	60	30	15	50	25	15	40	25	X	25	15	X
95-96	135	45	30	75	35	20	60	30	15	50	25	15	25	20	X
93-94	165	55	35	90	35	20	75	35	20	60	30	15	30	20	X
91-92	195	65	45	110	40	25	90	35	20	75	35	20	40	25	X
89-90	240	90	55	135	45	30	110	40	25	90	35	20	50	25	15
87-88	NL	120	75	165	55	35	135	45	30	110	40	25	60	30	15
85-86	NL	180	90	195	65	45	165	55	35	135	45	30	75	35	20
83-84	NL	240	120	240	90	55	195	65	45	165	55	35	90	35	20
81-82	NL	NL	180	NL	120	75	240	90	55	195	65	45	110	40	25
79-80	NL	NL	240	NL	180	90	NL	120	75	240	90	55	135	45	30
77-78	NL	NL	NL	NL	240	120	NL	180	90	NL	120	75	165	55	35
75-76	NL	NL	NL	NL	NL	180	NL	240	120	NL	180	90	195	65	45
73-74	NL	NL	NL	NL	NL	240	NL	NL	180	NL	240	120	240	90	55
71-72	NL	NL	NL	NL	NL	NL	NL	NL	240	NL	NL	180	NL	120	75
69-70	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	240	NL	180	90
67-68	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	240	120
65-66	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	180
63-64	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	240

NL = No limit X = Action Time less than 15 minutes, cooling garment required unless exempted per SA-AA-116

REQUIRED Recovery Time: Recovery Time = (Actual Work Time / Action Time) x 60 minutes

COOLING GARMENTS: Action times may be extended through the use of cooling garments

HOUSEKEEPING – MA-AA-716-026

- **CONTROL** transient combustible material in accordance with OP-AA-201-009.
- Combustible materials such as oil-soaked and paint-covered rags, waste packing, and other rubbish shall **not** be allowed to accumulate on benches, floors, or yards, but shall be stored in areas or receptacles designed for them and appropriately identified.
- All workers shall maintain their workplace in a safe and orderly condition, in good repair, and free of obstructions.
- Where wet processes are used, drainage shall be maintained; false floors, platforms, mats, or other dry-standing places should be provided.
- Storage areas and rooms shall be kept free from unnecessary accumulation of materials that create hazards from tripping, fire, explosion, or pest harborage. Vegetation control shall be exercised when necessary.
- Floors and platforms shall be kept free of oil, grease, water, and other slipping and tripping hazards.

HYDROGEN

- When performing repair and maintenance activities on a gaseous hydrogen system, work shall be conducted utilizing the buddy system.
- When performing repairs or maintenance on a gaseous hydrogen system, workers shall wear clothing made of 100% cotton (including long-sleeve shirts), or Flame-resistant (FR) cotton fabrics, or Nomex. Synthetic materials subject to melting, such as Acetate, Nylon, Rayon, and Polyester, shall not be worn.
- **USE** spark proof tools when working on hydrogen systems until the component being worked has been verified as being purged of the product.
- Should a leak occur during bulk delivery operations which cannot be immediately corrected by the carrier, leave the area and immediately contact the Control Room. Stand-by to warn others until the Emergency Response team arrives.
- There are various systems that contain hydrogen. Aside from the Main Generator(s) Hydrogen Seal Oil Systems, hydrogen could present fire and explosion hazards should spark producing equipment be utilized during the system maintenance. The Station Fire Marshal should be consulted prior to commencement of any work on these systems.

- Every effort should be made to isolate the leakage prior to repair based upon operating conditions. **If** isolation is not feasible, **then** a JHA should be conducted for the repair.

JOB HAZARD ANALYSIS - SA-AA-116-2124

- The Job Hazard Analysis is the standard methodology for identifying industrial safety hazards.
- The Job Hazard Analysis Form should be utilized to break down the steps of the job, the potential hazards, and the recommended actions.
- **LIST** potential hazards for each step of the job by identifying the hazardous conditions that could potentially lead to an accident.
- **REVIEW** all work in the area and adjacent areas to determine how each job or evolution affects workers in the area.
- The Job Hazard Analysis Potential Hazard Checklist should be used as a guide for determining what actions are necessary to prevent or minimize the hazards associated with the job. This list is **not** all-inclusive. A supervisor should consider all possible factors that may influence safe execution of the task (e.g., burn hazards from hot piping or components, fall hazards, chemical hazards, etc.).
- A Job Hazard Analysis shall be conducted (or have been conducted) for work that is considered potentially hazardous, high risk, or complex.

  Exception: If the results of a previously conducted JHA have been incorporated into a routine procedure or work package and is considered by the Supervisor to still bound the work activity, **then** a new separate JHA is not required.

- Jobs that should be considered potentially hazardous, high risk, or complex and, therefore, warrant the conduct of a JHA include:
  - Any work conducted within 3 feet of a fence constructed with razor mesh or razor coil material that is not protected with a permanent barrier to prevent inadvertent contact.
  - Work with potential exposure to harmful chemicals (i.e., bulk chemical off-loads, etc.).
  - Hydrogen or steam leak investigations.
  - Work in extremely high temperature environments.
  - Work on “in-service” high-energy systems (i.e., water, steam, hydrolazing, air, pneumatic, etc., systems pressurized greater than 150 psig, draining systems with fluids greater than 120^0F, etc.).
  - Work on chlorine systems.

  - Work near (i.e., within arm's reach) or on unguarded operating rotating equipment.
- Job Hazard Analysis' should also be considered for:
  - Newly established jobs: where, due to lack of experience in these jobs, hazards may not be evident or anticipated.
  - Modified jobs: where new hazards may be associated with changes in job procedures.
  - Infrequently performed jobs: where workers may be at greater risk when undertaking non-routine jobs, and a JHA provides a means of reviewing hazards.

LEAD MGMT & EXPOSURE CONTROL - SA-AA-124

- **LEAD** awareness training is required for any work place or task in which there is a potential for exposure to airborne lead at any level.
- Workers exposed to airborne lead above the action level must receive additional initial and annual training.
- **TREAT** all materials, if suspected of containing lead, as lead until determined to be lead free.
- Chemical Strippers that contain Methylene Chloride are **not** permitted.
- There are several potential sources of lead, including the following:
  - Lead based paint
  - Leaded steel
  - Galvanized steel
  - Settled dust from prior activities
  - Pipes
  - Solder/Plumbing
- Activities that may generate airborne lead particulate include, but are **not** limited to:
  - Applying or removing lead based paints with torches, heat guns and sanding
  - Handling lead contaminated waste
  - Cutting lead shielding material
  - Welding or flame torch cutting on lead-containing base metals
  - Abrasive blasting of surfaces containing lead based paints
  - Paint removal using Powered Emery Flap Wheels
  - Housekeeping activities involving settled dust from prior activities
  - Soldering activities

- To limit the potential for contamination and an inhalation / ingestion hazard from handling lead bricks or sheets:
  - Workers shall wear rubber or leather gloves (and dispose after use) when handling lead bricks or sheets, and wash all exposed skin surfaces after handling.
  - Lead storage areas shall be segregated from other materials and identified with notice signs.
  - Uncoated bricks in storage shall be covered with fire resistant tarps or sheeting to prevent disturbance and generation of lead containing dust, and protected to preclude with water (to prevent accelerated oxidation).

LIGHTNING

- Watch for signs of a storm, like darkening skies, lightning flashes or increasing wind.
- If a severe thunderstorm warning is issued, take shelter in a substantial building or in a vehicle with the windows closed.
- If you can hear thunder, you are close enough to be in danger from lightning. You should stay inside for at least 30 minutes after the last thunder clap.
- If you are outside and cannot reach a safe building, avoid high ground, water, tall-isolated trees and metal objects such as fences or bleachers.

MEDICAL AND EXPOSURE RECORDS

- There are many hazards we can be exposed to when working in an industrial environment.
- Information regarding this potential exposure can be critical in the detection, treatment, and prevention of occupational diseases.
- Each employee has the right to access medical and exposure records in accordance with OSHA Standard 1910.1020.
- Employee exposure and medical records are maintained by Constellation.
- You may at any time request a copy of your medical record(s) by asking your Supervisor, HR/OHS, and/or Safety.

NUCLEAR FUEL HANDLING

- **BE** aware of posted areas.
- **ESTABLISH** communications with the refueling operator in the area **before** entering during refueling operations.

- **LISTEN** for **and OBEY** warning lights and alarms during refueling operations.
- All loose items must be taped or otherwise secured inside the designated FME zone.
- **NOTIFY** supervision if anything drops into the reactor cavity, spent fuel pools, or dryer/separator pit
- If safety glasses are worn, they should be secured.
- **BE** aware of the location of life saver rings and other safety devices to rescue someone from the water.
- A safety harness and lifeline must be used where the potential exists for personnel to fall through an unguarded opening or access hatch where **no** safety railing exists. **No** one shall work alone under these circumstances. A safety attendant shall be present during these circumstances.

OFFICE SAFETY – SA-AA-2110

- All employees should know the location of emergency exits in their area.
- Electrical cords should be visually inspected for damage before use.
- **ENSURE** file cabinets are secured from tipping.
- Desk file drawers and file cabinet drawers shall **not** be left open when **not** in use.
- Bulky objects shall **not** be carried in such a way as to obstruct the view ahead.
- Water, coffee, and other liquids spilled on floors present a slipping hazard and shall be cleaned up immediately.
- **ENSURE** workstations are ergonomically sound.
- **KEEP** aisles clear of tripping hazards.
- **USE** ladders or stands provided to reach material on high shelves.
- Most office injuries occur while lifting. See **LIFTING** for guidelines to prevent injury.

PARKING LOT SAFETY

- **OBSERVE** posted speed limits.
- **OBEY** all stop signs and roadway markings.
- **USE** turn signals.
- **FOLLOW** designated traffic patterns; do **not** cut across empty parking spaces (except when pulling forward when leaving a non-angled parking space).
- **YIELD** right-of-way to pedestrians.
- **USE** extra care when backing into or pulling out of parking spaces.

- **WALK** in plain view; **AVOID** walking between parked vehicles.
- **ENSURE** clear and adequate visibility from ice/snow, etc. **prior** to moving vehicles.
- During wet or icy conditions, **EXERCISE** caution when exiting plant/vehicles.

PERSONNEL LIFTS – SA-AA-115

- Personnel lifts include bucket trucks, scissor-lifts, elevated platforms, etc.
- **REFER** to the Operations Manual for specific operating instructions.
- **Never** exceed the safe load limits of the equipment.
- **DO NOT** operate in high winds (i.e., >= 30 mph or above those recommended by the manufacturer, whichever is lower).
- Personnel lifts are to be operated by qualified personnel only.
- A pre-use inspection shall be conducted at the beginning of each shift.
- **WEAR** a body harness and a lanyard attached to the boom or basket. However, a body harness and a lanyard are not required for a scissors lift that has a work platform that is protected by a guardrail system provided the worker has at least one foot on the platform at all times.
- Controls shall be clearly marked and shall return to neutral when released.
- Emergency lowering means shall be readily accessible from ground level. If **not**, then operators of vehicle mounted elevating and rotating work platforms shall be trained and qualified to use a descent device (i.e., sky-genie). A device shall be available for use.
- **Never** move bucket truck while someone is in the bucket.
- **FOLLOW** all existing rules for working on or near energized equipment. This includes rules on safe body clearances and the use of rubber gloves and protective devices. These rules also apply when you work in a lift.
- Always extend outriggers and vertical jacks before raising the lift. **PLACE** pads under outriggers and vertical jacks when conditions require it.
- **Always GROUND** lift devices when working on or near exposed energized equipment.
- **MAINTAIN** safe body clearance when working from a lift. This means the distance between the bucket, work platform, and any energized conductors or equipment.

- **Never** climb into or out of an elevated lift. Climbing in and out of elevated lifts is dangerous. Only the person in charge can suspend this rule. **If** you must climb in or out, **USE** Company approved fall protection.
- **Always STAND** firmly on the floor of the basket or platform. Do **not** sit or stand on the edge of the basket or platform. Do **not** use planks, ladders or other devices for work position.

PORTABLE SPACE HEATERS (& HEAT GENERATING APPLIANCES) OP-AA-201-006/RE-AC-11

- At Constellation Nuclear Generating Stations, **USE** portable space heaters in accordance with OP-AA-201-006, "Control of Temporary Heat Sources."
- At all other Constellation Nuclear facilities (i.e., Cantera, Kennett Square, Standardized Training Facility, Power Labs, etc.), **USE** portable space heaters in accordance RE-AC-11, "Personal Use of Portable Space Heaters and Heat Generating Appliances."
- The use of portable space heaters and heat generating appliances is **PROHIBITED** when such use violates the rules and regulations established by the owner of an Constellation leased facility.
- Portable space heaters used for office applications shall have the following minimum safety features:
  - Automatic thermostat
  - Automatic tip-over/shut-off function
  - Reset button
  - Convection / non-radiant heating element with protective covering
- Portable space heaters and heat generating appliances must be approved by a nationally recognized laboratory (i.e., UL, FM, Intertek-ETL, etc.), in good operating condition, and free of any damage or deterioration.
- At all Constellation Nuclear facilities, use of personal heat generating appliances, such as hot plates (other than coffee warmers), toasters, toaster ovens, microwave ovens, broiler ovens and similar devices is **PROHIBITED** within offices, cubicles and other work areas and is restricted to designated common areas such as cafeterias, break rooms, office kitchens and refreshment areas.

POWERED INDUSTRIAL TRUCKS/MOTOR VEH. - SA-AA-127

Forklift Operator Responsibilities

- **IF** operator is not familiar with path of travel or path is susceptible to degraded conditions (i.e., gravel path), **then WALK DOWN** intended path of travel to **CHECK** for potential hazards (i.e., bumps, holes, weakness, excessive ramps or slopes, arrow aisles, overhead obstructions, or other restrictions, etc.) prior to operating forklift. **If** the path contains hazards that could cause the load to shift, **then MITIIGATE** hazard or **FIND** alternate route.
- Walk down is only required once per day if repeat / constant travel in that path is expected.
- **LOWER** forks, **NEUTRALIZE** controls, **SHUT-OFF** power, **and SET** brakes whenever leaving forklift unattended.
- **EVALUATE** overhead hazards and equipment such as sprinkler heads, piping and walls to avoid inadvertent contact.
- Do **not** park forklifts or powered industrial trucks on an incline.
- Do **not** fill or replace fuel tanks while the engine is running.
- **DON** seat belts on equipment fitted with belts.
- **Never** allow any Constellation employee or contract personnel to stand or pass under the elevated portion of any forklift, whether loaded or unloaded.
- **PERFORM** Forklift Daily Inspection Checklist. **If** inspection identifies safety or operability concerns, **then** immediately correct the identified concern or take the forklift out of service pending resolution (i.e., vendor repair, issue report, service request, etc.). For concerns that do not affect safety or operability of the forklift, document the concern(s) in the comments section of the inspection checklist until resolution is reached.

Powered Industrial Trucks – Handling and Positioning Loads

- **HANDLE** only loads that are within the rated capacity of the powered industrial truck or forklift.
- **CENTER** loads on the forks and as close to the mast as possible.
- **PLACE** forks as far under the load as possible **and TILT** backwards to cradle the load.
- **UTILIZE** a spotter or **VERIFY** appropriate clearances when driving a forklift in a tight area or where the load being carried obstructs the view.
- **EXERCISE** care when tilting loads forward or backward, especially when loads are stacked and shifting can occur.

- **UTILIZE** a pallet whenever materials being transported are shrink-wrapped or load binders are used.
- Loads transported on pallets should be made as **STABLE** as possible before moving: they should be cross-stacked for greater stability. **If** practical, **then** shrink-wrap pallets or add banding, strapping, or netting to provide greater safety when transporting, handling, or storing.
- **CONSIDER** all attachments as part of the load. **EXERCISE** care when securing, manipulating, positioning, and transporting loads and attachments.
- Re-position the load as needed if any part of the load (including attachments) could be damaged during transport.

Powered Industrial Trucks – Traveling and Transporting Cargo

- **OBEY** all traffic rules in force.
- **AVOID** sudden stops.
- **MAINTAIN,** when traveling, the load at the lowest possible position.
- **USE** seat belts at all times, if so equipped.
- **DRIVE** at a safe speed. **MAINTAIN** a safe distance from other vehicles.
- **KEEP** truck under positive control **and OBSERVE** all established traffic regulations.
- **SLOW** down **and SOUND** horn at cross aisles and other locations where vision is obstructed.
- **AVOID** unstable ground.
- **AVOID** travel on any truck surface unless the surface has been verified to withstand the maximum intended load.
- **DRIVE** forklifts with the forks as low to the ground as possible.
- **DRIVE** the forklift in reverse with the load upgrade, when traveling down a grade greater than 10%.
- **LOOK** in the direction of travel **and** do **not** move the powered industrial truck until certain all persons are clear.
- **KEEP** body parts inside the forklift while driving.
- **If** driving a loaded truck on grades in excess of 10 percent, **then DRIVE** with the load upgrade.
- **ASCEND or DESCEND** grades slowly.

Loading & Offloading Trucks /Trailers with PITs

- **INSPECT** the flooring for breaks or structural weaknesses prior to driving into trucks and trailers.
- **REMOVE** keys, **SET** brakes, **and CHOCK** wheels of trailers prior to driving onto them.

- **Never** load trucks in excess of their rated capacity.
- **ENSURE** that loaded vehicles are **not** moved until loads are secured.

Motor Vehicle Operation

- **UTILIZE** a spotter(s) when the driver or operator does not have a full view of the travel path.
- Do **not** use cellular phones while vehicle is in operation, unless using a hand free device.
- **OBEY,** at all times, traffic regulations, laws and ordinances.
- **REPORT** all accidents and traffic violations incurred while in the course of company business to supervisors immediately.
- **TURN OFF** ignition, **REFRAIN** from smoking, **and FOLLOW** relevant safety procedures when refueling vehicles.
- **DON** seat belts at all times when in Company vehicles or in personal vehicles used for company business.
- **ENSURE** vehicles used to transport personnel have an adequate number of secure seats and functioning seat belts.
- **SHUT-OFF** engine and **REMOVE** keys whenever leaving vehicles unattended outside the protected area.
  - Vehicles used inside the Protected Area **must** remain under positive control and the keys removed or the vehicle otherwise disabled, when not in use. When the driver exits a vehicle in the Protected Area; **SHUT-OFF** the engine, **REMOVE and CONTROL** the vehicle keys upon exiting the driver compartment of the vehicle.
- **SET** parking brake if you have to leave the vehicle with the engine running or the vehicle has a manual transmission.
- **SECURE** cargo, prior to travel, when hauling material on any vehicle.
- **ATTACH** a warning flag, in accordance with applicable state laws, to the end of all protruding material which projects out beyond the body of the vehicle.
- **MAINTAIN** awareness of surroundings prior to initial operation of and during operation of all motor vehicles used for company business.

Personnel Platform for Forklift Trucks

- Only devices designed, approved, and authorized to lift personnel via a forklift truck, shall be used.
- The platform shall be visually inspected for any damage or defects prior to use.
- The forklift shall **not** be left unattended, for any reason, while someone on the platform is elevated.

- The forklift shall **not** be relocated when personnel are on the platform.
- The forklift operator must be at the controls and ready to shut off power to the forklift, whenever personnel are on the platform.

PPE - SA-AA-116

Eye and Face Protection

- **WEAR** eye and face protection when machines or operations present potential eye or face injury
- All safety eyewear must meet the performance standards of ANSI Z87.1.
- All safety eyewear must have side shields or wraparound lens protection.
- Appropriate protective eye equipment shall be required in all areas where eye injury potential exists.
- Contact lenses should only be worn under appropriate protective eyewear and only after evaluating all risks.
- Do **not WEAR** eyeglasses or safety eyewear with exposed metal parts when working within arm's length or within the Minimum Approach Distance specified in SA-AA-129, whichever is more restrictive, of exposed energized equipment.
- **Always WEAR** zero-tint (clear) eye and face PPE in an indoor work environment unless tints are required for the work (e.g. tinted welding lenses) or are prescribed for a medical condition and authorized by a professional. Photo gray lenses are permitted provided they return to clear.
- **REFER** to the following Protective Eyewear Selection Matrix when selecting eye and face protection.

Protective Eyewear Selection Matrix		
OPERATION	**HAZARDS**	**PROTECTION**
Acetylene burning, cutting or welding	Sparks, flying particles, optical radiation, molten metal	Face Shield over Welding Goggles, or Face Shield with Built-In Googles, or Welding Hood
Battery Acid	Splash, burns	Face Shield over Goggles or Approved Face Shield with built-in chin protection and extended top-of-head coverage over Safety Glasses with Side Shields
Work inside Boiler Rooms (and other dirty / dusty areas that	Dust, particles	Spoggles (i.e., Foam Lined Safety Glasses) or Goggles

Protective Eyewear Selection Matrix		
OPERATION	**HAZARDS**	**PROTECTION**
have the potential for creating airborne particles)		
Chemical Handling	Splash, burns, fumes	Face Shield over Goggles or Chemical Hood
Chipping, chiseling, riveting	Flying particles	Face Shield over Safety Glasses Severe Exposure: Face Shield over Goggles or Spoggles (i.e., Foam Flanged Safety Glasses)
Drilling	Flying particles	Safety Glasses Severe Exposure: Face Shield over Goggles or Spoggles (i.e., Foam Flanged Safety Glasses)
Electric (arc) Welding	Sparks, optical radiation, molten metal.	Welding helmet over Safety Glasses
Furnace Operations	Optical radiation, heat, molten metal	Face Shield over Welding Goggles
Grinding	Flying particles	Face Shield or Welding Helmet, over Goggles or Spoggles (i.e., Foam Flanged Safety Glasses)
Laboratory	Chemical splash, broken glass	Safety Glasses Severe Exposure: Face Shield over Goggles
Machining	Flying particles	Safety Glasses Severe Exposure: Face Shield over Safety Glasses or Spoggles (i.e., Foam Flanged Safety Glasses)
Metal cutting or sawing	Flying Particles	Safety Glasses Severe Exposure: Face Shield over Goggles or Spoggles (i.e., Foam Flanged Safety Glasses)
Scaffolding	Flying particles, dust	Goggles or Spoggles when building or dismantling (i.e., Foam Flanged Safety Glasses)
Woodworking	Flying particles, dust	Safety Glasses Severe Exposure: Goggles or Spoggles (i.e., Foam Flanged Safety Glasses)

Foot Protection-General Guidelines for Safety Footwear

- Safety-toe footwear for employees shall meet or exceed the requirements in ASTM F2413 for impact, compression resistance, and electric hazard resistance.
- Composite (non-metallic) toe shoes are highly recommended.
- Steel toe shoes are acceptable; however, personnel may have to leave these shoes in their locker or remove them while passing through metal detectors.
- Soles shall be slip-resistant and shall protect against penetration hazards. The upper portion of the shoe shall be made of sturdy materials capable of protecting against lacerations or abrasions.
- Safety footwear must have a defined heel and/or anti-skid soles when climbing ladders.
- Employees may receive a medical waiver from wearing safety toe footwear. Occupational Health must approve this waiver. Those employees must wear serviceable work shoes whenever the use of safety toe footwear is typically required and should **not** be assigned work where there is a danger of foot injury.
- Each employee must wear protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where such employee's feet are exposed to electrical hazards. The below listed job classifications must wear shoes or boots meeting ANSI Standard Z41-1991 Class 75 for impact and compression while at work. Personnel, while assigned to the control room, need not wear safety shoes. Safety shoes must be available for immediate use should there be the potential for assignment outside the control room.
  - Mechanical Maintenance
  - Utility (including janitors)
  - Instrument and Control
  - Electrical Maintenance
  - Warehousing
  - Transportation
  - Radwaste
  - Radiation Protection
  - Operations
  - Chemistry
  - Radiological Instruments
  - Tool Room
  - Field Supervision for the above
  - Professional staff (e.g., Engineering, Maintenance Planners, etc.) as determined by their management

- Employees performing work activities such as, inspections, system walk downs, routine travel through plant areas, or other similar functions where there is a low risk of exposure to foot hazards, shall wear serviceable work shoes.
- Serviceable work shoes are defined as follows:
  - Soles shall be slip-resistant and shall protect against penetration hazards. The upper portion of the shoe shall be made of sturdy materials capable of protecting against lacerations or abrasions.
  - Shoe types which are not permitted include but are not limited to: Athletic shoes, canvas sport shoes, clog style shoes, open toed shoes, deck shoes, moccasins, high heels > 1", sandals and/or other extreme style shoes.
- General footwear may be worn while in office areas, classrooms, locker rooms, lunchrooms, and company medical facilities unless posted otherwise. An exception to this rule applies to workers performing maintenance, construction or training, which may present a hazard.
- General footwear is defined as:
  - Shoes in good repair,
  - No thongs, flip-flops
- Dress shoes for men and women that have leather or smooth soles or high heels do **not** provide protection from slipping, particularly during wet or icy conditions.

Use of Gloves

- **WEAR** gloves when engaged in maintenance and operational work activities or other physical work activities (e.g., lifting, pushing, fabricating, using hand held power tools, etc.) in nuclear generation station industrial areas. Climbing scaffold, ladders, and on plant equipment, as permitted by station procedures, is considered a work activity. Maintenance and operational work activities do **not** include tours, system walk-downs, routine transits in industrial areas, or the manipulation of controls, computers, or while data logging.
- **USE** the following Hand Protection Selection Matrix as a guide for selecting the proper hand protection.

Hand Protection Selection Matrix				
Hazard (Exposure To)	**Gloves Required**		**Activity Examples**	**Glove Type to Protect**
	Yes	**No**		
Battery Acid	**X**		Refer to Section 4.7.5.1 of SA-AA-116	Butyl Rubber Acid Resistant gloves
Biological Hazards	**X**		Cleaning activities, medical activities, etc.	Latex or vinyl glove Non-permeable glove
Chemical Hazards	**X**		Refer to Safety Data Sheet (SDS) for appropriate glove recommendations. Refer to Attachment 5 for Bulk Chemical Off-Loads	Nitrile (heavy duty) Nitrile (slip resistant) Natural Rubber Neoprene
Cold / Freezing Work Processes	**X**		Freeze seal activities, liquid CO2 unloading activities, etc.	Cryogenics glove Leather glove
Crush / Impact	**X**		Using hand held tools, manually operating valves, and moving equipment & materials in tight quarters that warrants impact protection to the back of the hand(s).	Impact Resistant or Anti-Impact Gloves
Cuts and Lacerations	**X**		Handling glass, handling light bulbs, using knives or tools with sharp blades that <u>are not</u> guarded to prevent contact with the blade edge, handling material with sharp edges. **Note:** A device with a self retracting blade is not considered guarded.	100% Kevlar glove Metal Mesh Leather gloves lined with Kevlar (or similar cut resistant material) Other “cut resistant” gloves
Hot Work Processes	**X**		Welding, Torch Cutting, etc.	Heavy duty gauntlets / aluminum lined Goatskin Welders glove
Electrical Hazards	**X**		Working on energized or potentially energized equipment	Refer to SA-AA-129
Entanglement		**X**	Lathe, drill press, and milling operations, other rotating machinery and equipment, etc. **Note:** Rotating machinery may present a risk of injury if the glove were to become entangled in the machinery. Gloves **<u>are</u>** required when handling the object being machined while the machine or equipment is off (i.e. wear gloves when positioning object then remove gloves before operating the machine).	N/A
Hot Surfaces (i.e., greater than 130 degrees F)	**X**		Any activities within arms reach of surface	Leather gloves
Punctures	**X**		Heavy construction, handling or dismantling wood crates, structures, pallets, etc.	Leather gloves Other “puncture resistant” gloves

Hand Protection Selection Matrix				
Hazard (Exposure To)	**Gloves Required**		**Activity Examples**	**Glove Type to Protect**
	Yes	**No**		
Non Specific Risk I	**X**		Using hand held tools, handling scaffold components, general material handling, using equipment carts, manual valve operation, carrying buckets, outside maintenance activities.	Pigskin (drivers) glove Cowhide Leather glove Mechanics glove 100% Kevlar glove Gripper gloves Cotton work gloves
Non Specific Risk II		**X**	Handling copy paper boxes, operating desk and file cabinets or other record holding devices, office work, handling and operating small M&TE equipment such as Geiger counters and other Radiation Protection meters, Heat Stress Monitors, Confined Space Gas Monitors, Ohm and other electrical measuring devices, NEO PDA devices, etc.	N/A
Non Specific Risk III		**X**	Threading small screws, working with laptop, desktop, or other computer hardware, working with small gauge electrical wire, etc.	N/A

Head Protection

- Head protection of workers from impact and penetration from falling objects and from limited electrical shock and burn, shall meet the requirements and specifications established in American National Standard Safety Requirements for Industrial Head Protection, Z89.1.
- Hard Hats Are Required In:
  - Areas posted "Hard Hats Required".
  - Industrial Areas (except in maintenance shops and where posted otherwise)
  - Other work areas, inside and outside the protected area, where falling or flying objects, overhead structures, energized conductors, equipment, or other materials create an overhead hazard.

NOTE: Should an overhead hazard be created in the following areas, head protection would be required.

- Hard Hats Are **Not** Required In:
  - Office Areas, Control Rooms, and Lunch Rooms
  - Locker, Change Rooms and covered hallways
  - Inside the cabs of vehicles, or mobile equipment (e.g. cranes) which have enclosed cabs or some type of overhead protection
  - Laboratories
  - OHS, Medical Facilities
  - Personnel Decontamination Areas
  - Warehouse administrative areas including Issue Counters and/or as determined by a Job Hazard Analysis.
  - Tool Issue Cages
  - Classrooms and Training laboratories unless simulating in-plant conditions.
  - Maintenance Shops
- Care, maintenance and replacement of hard hats.
  - **INSPECT** the hard hat shell and suspension regularly.
  - **CHECK** for cracks, frayed straps, and any sign of damage before donning a hard hat.
  - **RETURN** a hard hat that is damaged to Supply or Site Safety.
  - **CLEAN** only with mild soap and lukewarm water.
- Only those labels authorized by Constellation or its subsidiaries or ventures and label materials approved by the hardhat manufacturer may be applied to hard hats worn by Constellation Personnel.
- Bump caps may be approved for specialized applications through the use of a PPE waiver.
- Do **not** wear bump caps as head protection.
- Hard hats shall be worn with the brim facing forward at all times with the following exception: Hard hats may be worn with the brim facing backwards to improve safety (i.e., during the performance of welding or burning operations if the hard hat design interferes with the welding or burning face shield protection, to improve visibility when climbing ladders, etc.) provided the suspension is reversed to ensure a proper fit.
- Individuals will wear their head protection in radiologically controlled areas unless posted otherwise or exempted.

Hearing Protection - SA-AA-112

- Employees shall comply with site hearing protection requirements when “Hearing Protection Required” is posted.
- Double hearing protection (ear plugs and ear muffs) is required in areas posted as such.
- Engineering controls shall be used, when feasible, to reduce the noise level by controlling the sources of the noise.
- Administrative controls shall be used to limit employee exposure to noisy conditions by limiting employee exposure times in those areas or by changing operating conditions for the equipment.

RADIOLOGICAL SAFETY

- Individual workers are responsible to work in a manner that minimizes their exposure, limits the spread of contamination and keeps overall dose ALARA (As Low As Reasonably Achievable).
- **KNOW** the radiological conditions in your work area and the low dose waiting areas.
- **COMPLY** with the RWP, work order, and pre-job briefing requirements and established postings in the RCA.
- **NOTIFY** Radiation Protection of any change in radiological conditions or any radiological problems encountered.
- Smoking and eating are prohibited in the Radiologically Controlled Area.
- Drinking is permitted in designated areas or with prior RP approval.
- The dosimeter should be worn in the chest area, within a hands width of the DLR.
- Electronic dosimeters should be read every 30 minutes when working in a Radiation Area and every 15 minutes in a High Radiation Area.
- In high noise areas, users are advised to monitor the dosimeter for visual indications of alarm condition.
- Immediately exit the area if receiving a dose or dose rate alarm and notify RP unless directed otherwise as part of the RP brief.

RESPIRATORY PROTECTION - RP-AA-440/442

- Requirements for respiratory protection for industrial and radiological hazards are contained in the on-site Respiratory Protection Program
- Written Exposure Assessments shall be obtained when respirators are required for protection against industrial contaminants such as oil mist, dust, asbestos, or other hazardous vapors or fumes.

- Engineering control measures shall be used when feasible. When effective engineering controls are **not** feasible, or while they are being instituted, appropriate respirators shall be used.
- TEDE-ALARA evaluations are performed to evaluate respiratory use for radiological hazards.
- Administrative control measures shall be employed where permitted by regulation.
- Only qualified personnel may use respiratory protective equipment.

SAFETY SIGNAGE – SA-AA-2115

- **USE** the proper sign for the actual or potential hazards, which may be encountered during various job phases. **UTILIZE** proper safety color codes for safety signs, labels, and tags.
  - Use DANGER signs with red and white (or all red) barricades to indicate an imminently hazardous situation, which, if not avoided, will result in death or serious injury.
  - Use WARNING signs with orange and black or white (or all orange) safety barricades to indicate a potentially hazardous situation, which, if not avoided, could result in death or serious injury.
  - Use CAUTION signs with yellow and black barricades to indicate a potentially hazardous situation, which, if not avoided, may result in a minor or moderate injury. Caution signs may also be used to alert against unsafe practices.
  - Use NOTICE signs with blue or white (or blue and white) barricades to indicate a statement of company policy directly or indirectly related to the safety of personnel or protection of property. This signal word should not be associated directly with a hazard or hazardous situation and shall not be used in place of "DANGER," "WARNING," or "CAUTION."
- **MOUNT** signs so that they are readily visible.
- **POST** signs in areas with safety barricades indicating the type of hazards.
  - Barriers are normally established for short-term duration projects or tasks where additional awareness is required to alert the workforce of the hazard in the area, and to prevent the passage of unauthorized persons or vehicles into the area.
  - Depending on the application, barricades may be either of the fixed nature, such as handrails or guardrails, or temporary, such as flagging or tape.

- When using barricades, ensure that openings are created to allow personnel to enter or exit the area without ducking under or stepping over the barricade. These can be openings in the barricade wide enough to walk through, marked areas where the barrier can easily be opened, or swing gates, etc. Stepping over or ducking under barricades to access an area is **PROHIBITED**.
- **ENSURE** that all sides of **CAUTION**, **WARNING**, and **DANGER** areas are bordered by barricades, and each side is posted, to prevent personnel from entering hazard areas from alternative routes.
- **USE** the correct sign with barricades or barriers to identify the hazard.
- The type of barrier used should be determined based on the danger or hazard present. For example, to prevent a fall through an opening, a fixed barricade of sufficient strength (i.e., handrail, cover, etc.) around the opening eliminates the hazard of someone falling through it, while flagging would not stop someone from falling (it would just warn them of the hazard.). However, if the danger flagging is set up a safe distance away (i.e., at least 15 feet), then it provides plenty of distance to prevent someone from falling into the opening.

- **ENSURE** signs convey a safety alert message, are concise and easily read and understood. **ENSURE** signs are worded such that they indicate a positive, rather than a negative suggestion and are accurate.
- **ILLUMINATE** locations, objects, or safety signs that are color coded, as necessary, to permit positive identification of the color and the hazard or situation that the color identifies.
- **POST** safety instruction signs where there is need for general instructions and suggestions relative to safety measures.
- **ENSURE** that signs are furnished with rounded or blunt corners and are free of sharp edges, burns, splinters, or other sharp projections.
- **LOCATE** the ends or heads of bolts or other fastening devices in such a way that they do **not** constitute a hazard.
- **EVALUATE** need to provide messages in multiple languages, depending on the ethnic background of the workforce.
- **VERIFY**, in all cases, that symbols/pictorials are compatible with word messages.
- Do **not** locate safety signs in areas where they may be removed by the motion of the hazardous device, or rendered ineffective by situational conditions of the hazard.

SCAFFOLDS – MA-AA-796-024

- The Competent Constructor shall ensure the correct scaffold tagging system is used in all phases of scaffold erection and disassembly with complete information available.
- Red Tag – DO **NOT** USE
  - A scaffold bearing a red tag shall **not** be used **except** by competent constructor or qualified inspector.
  - The red tag is installed during erection and left in place until thoroughly inspected for use, or if an existing scaffold has been damaged. **DO NOT USE RED TAGGED SCAFFOLD.**
- Yellow Tag – Caution
  - May **not** meet all procedural requirements, but may be utilized with restrictions as noted on the approval tag.
  - The yellow tag signifies the scaffold is safe for use, but may have missing components. Examples could be missing decking or safety rails because of equipment being moved or fixed plant components obstructing their installation. Extra fall protection may be required as well as other safety requirements as noted on the tag.
  - Extra **CARE** must be taken on yellow tag scaffolds.
  - For other safety hazards that may be present when working on the scaffold (hot piping, low head clearance, etc.), the yellow scaffold tag may **not** be used to identify these hazards. **USE** caution placards per Constellation safety signage requirements to identify other safety hazards
- Green Tag – Meets all procedural requirements.
  - The green tag signifies that all components and structural members are in place. The scaffold is considered safe for use up to its intended load capacity. Although the scaffold is considered safe, care should always be taken when above floor level.
- Scaffold shall **not** be attached to plant equipment without prior approval.
- Consider use of velcro straps to hang temporary cords (rather than routing them across platform surface).

STEAM LEAKS

- Unless signage is posted or personnel are in the area, personnel discovering significant steam leaks should immediately notify the Control Room.
- The area should be flagged off.

- **If** possible, **then** barriers (herculite) should be erected to contain the hazard. Such tasks should not be performed alone. Wear appropriate clothing.
- Every effort should be made to isolate the leakage prior to repair based upon operating conditions. **If** isolation is not feasible, **then** a JHA should be conducted for the repair.
- Site Safety personnel should be contacted for critical jobs where employee safety during the repair process requires additional technical guidance and to assist getting the job done without incident.

TOOL SAFETY (SA-AA-2100)

- **ADHERE** to the management expectations regarding the safe and responsible use of tools, including non-power hand tools (i.e., common hand tools), power hand tools, and mounted power tools / machines established in SA-AA-2100.
- **WEAR** appropriate personal protective equipment for all tasks. Refer to SA-AA-116 for further guidance.
- **AVOID** positioning any part of your body in the “Line-Of-Fire.”
- The use of pocket knives, box cutters, and similar tools to cut or strip cable is **PROHIBITED**. Use only tools specifically designed and manufactured for that purpose (i.e., round cable slitter, cable sheath cutter, cable sheath stripper, sheath knife, etc.).
- **DO NOT** use personal knives to perform work at an Constellation Nuclear facility. It is not authorized. **KEEP** your hands and fingers away from moving parts.
- **ENSURE** articles of loose clothing (e.g., sleeves, hoods, draw strings, etc.), long hair, jewelry and lanyards are properly secured and kept away from moving parts.
- **OPERATE** power tools or machines in accordance with manufacturer’s instructions. **IF** you are not familiar with the proper operation, **THEN** contact your Supervisor.
- **ALWAYS** use the proper tool for the job.
- **OPERATE** and **MAINTAIN** power actuated tools according to the manufacturer's written instructions.
- **USE** tools correctly and only for their intended purpose.
- **If** a tool is found to be defective, **then**:
  - Immediately **REMOVE TOOL** from service.
  - **TAG** tool as defective.
  - **RETURN** defective tool to the tool room.

- **DISCONNECT OR SHUT OFF** the source of power to power tools when changing attachments or when servicing the tool. The triggering device (control switch) shall **NOT** be considered an appropriate shut off. **If** the power source is not under the direct observation and control of the operator, **then** the equipment shall be tagged out in accordance with the requirements of OP-AA(MA)-109-101.
- **MAINTAIN** good balance and footing when using tools.
- **SECURE** work with clamps or a vise whenever possible, to free up both hands to operate the tools.
- Lawn Mowers & Trimmers:
  - Prior to any mowing operation, **INSPECT** the area to be cut for debris and remove any found.
  - When operating lawn mowers/trimmers, eye protection, hearing protection and safety shoes shall be worn.
  - When using push mowers, mow banks sideways and not up and down.
  - When using a riding mower, mow up and down the slope. Never put yourself in a position where the mower could roll over.
  - While personnel are transiting in the area, the operation of mowers/trimmers shall be terminated until personnel are a safe distance away.
  - **NEVER** fuel while the engine is running. Allow time for the engine to cool down before refueling.

WALKING SAFETY

Walking-related injuries are usually the result of not paying attention to where we are going. To continue to improve our performance and drive our injury rates toward zero, it is essential to apply the same focus and attention to detail while walking that we do when performing our work, as follows:

- **BE RESPONSIBLE** for your own safety, **BE AWARE** of your surroundings and changing conditions and **KEEP** eyes focused on path.
- **WEAR** footwear with slip resistant soles to maintain traction.
- **PLACE** your full attention to the surface you are walking on and the path you are traveling, particularly at transition points from one walking surface to another (metal to concrete, concrete to blacktop, blacktop to gravel).
- **DO NOT** read while walking. **STOP** to read.
- **USE** designated pathways, even if this means taking a longer route.

- **WATCH FOR** and **AVOID** potential hazards like spills, pipes, conduits, ropes, cable trays, plant equipment, columns and beams. **ENSURE** things you are carrying or pushing do not prevent you from seeing obstructions or spills.
- **FAVOR** the center of sidewalks and pathways. **AVOID** parallel edges.
- **SLOW DOWN**, particularly in industrial or congested areas.
- **WALK,** don't run. **DO NOT** be in a hurry.
- **HOLD** handrails when using stairs and ramps.
- **MAINTAIN** 3-point contact while climbing up and down ladders.

In addition, it is important to:

- **DISCUSS** the importance of focusing on safety while walking to and from the job-site during pre-job briefs in addition to discussing the work being performed at the job-site.
- **CONDUCT** management observations and peer checks of personnel walking from one location to another, including routine rounds.
- **REPORT** and **CORRECT** any unsafe conditions, such as steps that are not uniform, worn or missing non-skid surfaces, spills, missing guardrails, unprotected head knockers, poor housekeeping and obstructed/unlit pathways.
- **USE** suitable protection (i.e., linebackers or similar protector covers) to **ENSURE** personnel safety is maintained when running temporary cables or hoses, etc., on the floor through pedestrian walkways.
- **USE** barricades, barriers or warning systems for short-term duration projects or tasks where additional awareness is required to alert the workforce of a hazard to **IDENTIFY** such things as slip, trip, overhead bump, obstruction and other hazards (Refer to SA-AA-2115, Safety Signage).

WATER HAZARDS – SA-AA-116

NOTE: A personal flotation device (PFD) need **not** be worn if guardrails or fall protection systems protect the worker.

- **WEAR** a U.S. Coast Guard-approved PFD when working over or near water where the danger of drowning exists. The PFD must be the type that is worn over or around the shoulders to ensure it will keep the users head above water with no user interaction. All inflatable PFD's must inflate automatically. Manual only inflatable PFD's are prohibited.
- **PROVIDE** ring buoys with 90 feet of line for emergency rescue operations. For indoor locations, the line may be shorter.
- **INSPECT** PFD's and ring buoys, etc., for defects prior to and after each use. Defects may include cuts or tears that would alter buoyancy.
  - **If** the PFD is an inflatable type, **then** ensure the inflation source (e.g., CO2 cartridge, etc.) is fully inserted and that the indicator on the PFD shows the inflation device is ready to use (per manufacturer's instructions). Typically, a green indication is required to proceed with use.
  - **TAG** defective equipment **and REMOVE** from use.
- **RETURN** personal flotation devices to the appropriate storage area after each use.

- Basic Boating Safety
  - Never load a boat with passengers or cargo beyond its safe carrying capacity.
  - To prevent capsizing the boat, hand equipment to someone in the boat; don't carry the equipment aboard.
  - When loading, stow all equipment securely and out of the way.
  - Personnel should stay seated at all times. **If** it is necessary to change positions, **then** reduce speed and come to a full stop. When changing positions, keep low in the boat and hold on to both sides to maintain balance.
  - Ensure boat operations are performed by a knowledgeable individual familiar with the specific boat and conditions to be encountered.

WELDING SAFETY – CC-AA-501-1027

- **PERFORM** work in accordance with OP-AA-201-004, Fire Prevention for Hot Work.
- **WEAR** clothing made from 100 percent natural materials, such as cotton or wool, welding leathers, or fire resistant clothing.
- **If** work involves overhead welding or burning that generates hot slag, **then WEAR** welding jackets or welding leathers (e.g., coat and chaps), etc., as necessary to protect body.
- **USE** eye protection and **WEAR** appropriate gloves (i.e., heavy duty gauntlets/aluminum lining, goatskin welder's gloves, etc.) selected in accordance with SA-AA-116 Personal Protective Equipment.
- **SUPPLY** special protection against electric shock when arc welding in wet conditions, or under conditions of high humidity.
- **If** welding, cutting and grinding work is performed on any metal containing chromium (e.g., stainless steel, chrome moly steel, and Inconel, etc.), or if the work involves stick welding activities conducted with welding rods that contain chromium, **then** the requirements of SA-AA-141 also apply to the activity.
- **If** normal room ventilation is **not** adequate **then PROVIDE** adequate mechanical ventilation.

WINTER SAFETY - SA-AA-2114

Encountering Hazardous Conditions

- Pathways or other surfaces covered with ice and/or snow that must walked on to perform assigned work activities **shall** be reported in accordance with site specific reporting policies so they can be properly cleared and treated prior to proceeding with the task. **If** clearing and treating a surface prior to performing a task is not a viable option (i.e., alarm response, emergent priority activity, etc.), **then** employees **shall** wear foot traction devices (i.e., spikies, yaxtrax, grips, etc.).
- **REPORT** hazardous conditions, such as ice-covered walks and large icicles located directly above doors or pathways, etc., to supervision so they can be corrected.

Cold Stress

- Temperatures < 40^{o}F should be considered a potential cold stress environment.
- Cold stress disorders include hypothermia and frostbite, among others. Most cases of hypothermia occur at air temperatures between 30-50^{o}F.

- Frostbite can occur without hypothermia.
- Individuals shall immediately exit a cold stress area if experiencing any cold stress symptom and immediately inform Supervision and the Control Room.
- **CONSIDER** providing a heated warming shelter when continuous work is conducted at temperatures less than or equal to 20ºF.
- Continuous exposure of exposed skin should **not** be permitted when the air speed and temperature results in an equivalent chill temperature of Minus 25ºF. Superficial or deep local tissue freezing may occur at temperatures below Minus 30ºF regardless of wind speed.

Wind Chill Chart

Wind (mph) \ Temperature (°F)	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	29	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times — 30 minutes — 10 minutes — 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

Walking When Snowy and/or Icy Conditions Exist

WARNING

Snow removal equipment, sand, and chemical melters will be used as much as possible to reduce slip and fall hazards. However, it is important for employees to recognize the hazards of slippery walks, roadways and parking lots, and adhere to the expectations and guidance outlined in this T&RM to reduce the risk of falling when slippery conditions exist.

- **TREAT** all surfaces used for normal access and those that require access to conduct work or plant related activities, with salt, sand, or similar products just after clearing surface with snow removal equipment (i.e., plows, snow blowers, shovels, and picks, etc.).
- **WEAR** shoes, boots, or overshoes with clean grip soles.
- **USE** the clearest, salted and/or sanded pathways whenever available, even if this means taking a longer route.
- **PRACTICE** safe walking skills when conditions are slippery.
  - **SLOW DOWN. WALK** don't run.
  - **PLACE** your full attention to the surface you are walking on. Focusing on anything else while walking on a slippery surface is dangerous.
  - **TAKE** short steps.
  - **POINT** feet outward (like a duck).
  - **MAKE** wide turns.
  - Be **ALERT** for icy patches underneath snow, black ice or hazards caused by frost.
  - **DO NOT** walk on ice covered surfaces without wearing Foot Traction Devices. **Exception:** Foot Traction Devices <u>are not</u> required if the ice is covered (e.g., sand, gravel, etc.) in order to eliminate the hazard.
  - **DO NOT** be in a hurry.
  - **DO NOT** walk with your hands in your pockets. Walking with your hands in your pockets reduces the ability to use your arms for balance if you do slip.
  - **DO NOT** carry heavy loads or objects that require two-handed carries, such as large boxes.
  - **DO NOT** swing loads, such as cases or purses, which may cause you to become off balance when you are walking.

- **AVOID** curbs with ice on them.

- **WEAR** foot traction devices (i.e., spikies, yaxtrax, grips, etc.) to improve traction outdoors when:
  - Engaged in snow and ice clearing activities conducted with hand held snow removal equipment (i.e., shovel, picks, snow blowers, etc.).
  - Working / walking on any ground (i.e., turf, grass, gravel, etc.) that is frozen or any surface that is covered with snow or ice.

  Exception: Foot Traction Devices are not required during winter storm conditions when walking in station parking lots or on firm designated pathways (i.e., concrete, asphalt, etc.), or on any ice that has been covered (e.g., sand, gravel, etc.) in order to eliminate the hazard. However, as always, extreme caution (i.e., safe walking skills) must continue to be exercised when walking and working outdoors in winter conditions.

Using Company Vehicles When Snowy and/or Icy Conditions Exist

- **PRIOR** to operating a company vehicle (as applicable):
  - **REMOVE** snow and ice from all windows, mirrors, lights and air intake grill.
  - **CHECK** that headlamps, turn signals, and tail-lights are unobstructed by snow and ice.
  - **ENSURE** windshield wipers are in good shape.
  - **KEEP** gas tank and windshield washer fluid level over half full.
  - **CHECK** tires for good condition.
  - **NEVER** warm up a vehicle in an enclosed area, such as a garage. Carbon monoxide quickly builds up in enclosed areas and it cannot be sensed by your nose.

- **WHILE** operating company vehicle:

> **WARNING**
>
> **Driving in snow, sleet and ice is very treacherous. Even if you maintain control of your VEHICLE, not everyone else will. Don't ever get lulled into a false sense of security. Do everything slowly and gently. Remember, in the snow, the tires are always just barely grabbing the road. Accelerate slowly and gently, turn slowly and gently and brake slowly and gently. To do this, you have to anticipate turns and stops. That means going slowly and leaving plenty of distance between you and other cars. Rapid movements lead to skids and loss of control.**

  - **AVOID** driving when you are tired.
  - **ALWAYS USE** your safety belt.
  - Start out **SLOWLY** and drive **SLOWLY**. **If** there is snow on the ground and the sun is very bright, **then** wear sunglasses to protect your eyes and prevent excessive eye fatigue.
  - **MAINTAIN** a safe following distance between your car and the vehicle in front. It takes a greater distance to stop on ice and snow.
  - **STAY** on designated roadways.
  - **WATCH OUT** for plant equipment.
  - **WATCH** for other vehicles that might just suddenly appear in front of you.

WORK AT HEIGHTS SA-AA-115

Fall Protection General Requirements, Precautions and Limitations

- **PROTECT** each employee from falling four (4) feet or more by the use of one or more of the following fall protection systems:
  - Guardrail System
  - Ladders / Platforms
  - Personal Travel Restriction System
  - Positioning Device System
  - Personal Fall Arrest System
  - Other protections for specific situations as outlined in SA-AA-115.
- **PROVIDE** a stairway, ladder, or ramp, etc., at all personnel access points where there is a break in elevation of 19 inches or more.
- **USE** personal fall arrest equipment only in the manner for which the manufacturer intends it.

- **DO not TIE** 2 lanyards together or fasten two snap hooks together to lengthen a lanyard. Use the appropriate lanyard for the job.
- **DO not CONNECT** a double-locking snap hook to a carabiner because the pieces are incompatible with each other.
  - **If** using the MSA-Rose lanyard **then CONNECT** the carabiner to the round metal ring at the base of the snap hook.
  - **If** using the Manyard lanyard **then CONNECT** the carabiner through the nylon webbing at the base of the snap hook.
  - **If** using another brand /style lanyard **then CONSULT** specific manufacturers recommendation.
- **PROTECT** lanyards and lifelines from sharp edges of beams and other objects.
- **REMOVE** lanyards from the harness **or SECURE** it on the person in such a way as to prevent entanglement when **not** in use.
- **INSPECT** fall protection equipment for visible damage and current inspection tag/marking (as applicable) prior to each use.
- **USE** connecting components that meet the following requirements:
  - **USE** lanyards that have double locking snap hooks. Lanyards without a deceleration device shall be used for fall restraint **or** work positioning only.
  - **USE** the proper length of lanyard to prevent a fall or keep a fall to a minimum.
  - **USE** controlled descent and retractable lanyards made of dielectric or nonconductive material when there is a possibility of contact with energized electrical conductors.
  - **USE** only lanyards designed for tie-back in this manner.
- **ENSURE** workers below work performed at elevated positions are protected from falling tools or debris. **If** there is a danger of tools, materials, debris or equipment falling and striking employees below, **then:**
  - **USE** safety signage in accordance with SA-AA-2115, Safety Signage, to restrict access as needed to protect workers, and/or
  - **USE** barriers such as snow fence, toe boards, temporary roofs, canopies, mesh, screens, or similar to protect workers from falling objects, and/or
  - **USE** drop prevention equipment (i.e., straps, tethers, etc.) to prevent tools and other objects from falling.

Guardrail Systems

- **USE** Guardrail systems as the preferred fall protection method whenever practical to eliminate fall hazards.
- **USE** Guardrail systems that comply with the following requirements:
  - **CONSTRUCT** top rails that are 42 inches (±) 3 inches above the walking/working surface. The top rail shall be capable of withstanding, without failure, a force of at least 200 pounds in any outward or downward direction, at any point along the top rail.
  - When wire rope is used for top rails, **FLAG** it at not more than 6-foot intervals with high-visibility material.
- Frequently **INSPECT** wire, manila, plastic or synthetic rope being used for top rails as necessary, to ensure it continues to meet strength requirements.
- **INSTALL** mid-rails midway between the top rail and the walking/working surface. The mid-rail shall be capable of withstanding, without failure, a force of at least 150 pounds applied in any outward or downward direction, at any point along the midrail.
- **USE** screens and mesh, when deployed, that extend from the rail to the walking/working surface and along the entire opening between top rail supports. The screen or mesh shall be capable of withstanding, without failure, a force of at least 150 pounds applied in any outward or downward direction at any point along the mid-rail.

Ladders & Platforms

- **INSPECT** ladders for visible defects prior to and/or during use and after any occurrence that could affect their safe use. **If** inspecting a fixed ladder, **then INSPECT** as much of the ladder as feasible before climbing and continue the inspection while climbing the ladder.
- **FACE** the ladder when ascending or descending.
  Note: Maintaining three-point contact is not required while the worker is stationary (i.e., not moving up or down) on a portable ladder or an inclined fixed ladder (i.e., ship's ladder or stairs).
- **MAINTAIN** three-point contact:
  - When progressing up or down a ladder.
  - At all times on a vertical fixed ladder, unless a fall protection system is used to prevent falls.
- **DO not** hand carry any objects while ascending or descending a ladder.
- **SET** up straight / extension ladders such that the base is placed at a distance from the vertical wall equal to about one-fourth the working length of the ladder.

- **ASSURE** that ladder rungs, cleats, and steps are parallel, level, and uniformly spaced when the ladder is in position for use.
  Note: There is **no** requirement for fall protection when working from a portable ladder at any height.
- **If** the physical limitations of the work area (i.e., tight spaces, etc.) requires a ladder to be positioned such that the workers center of gravity cannot be maintained well within the rails of the ladder (i.e., ladder cannot be set up to face the work), **then** consider the use of a "step box" in lieu of a ladder.
- **USE** a positioning device or personal fall arrest system when working from a portable ladder under the following conditions:
  - The worker is in a position facing away from the ladder.
  - The worker is reaching such that the worker's center of gravity does **not** remain well within the rails of the ladder.
- **SECURE** extension ladders and platforms to prevent them from becoming accidentally dislodged.

Personal Travel Restriction System

Note: The purpose of a Personal Travel Restriction System is to eliminate the potential for an individual to fall from an edge or hole; thus, devices used as part of a personal travel restriction system will **NEVER** be subjected to a shock load. Equipment used to limit travel need not be rated for a shock load.

- When feasible, **ELIMINATE** the potential for an individual to fall into a hole, from an edge, or side by the use of a Personal Travel Restriction System.
- **SECURE** body harness to a substantial structure using rope, lanyards, or such that is capable of completely stopping the individual before reaching the edge of the hole or side.
- **ENSURE** anchor point, lanyard / rope, and any connecting devices are capable of sustaining 200 pounds of force to keep the person from reaching the edge.

Positioning Devices Systems

- **USE** positioning device systems rigged to **LIMIT** the free fall distance to a maximum of 2 feet. **SECURE** it to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 3,000 pounds, whichever is greater, as determined by Engineering.

Personal Fall Arrest Systems

- **USE** lanyards for fall arrest that have a deceleration device
- **USE** personal fall arrest systems, when stopping a fall, that:
  - **LIMITS** the maximum arresting force on an employee to 1,800 pounds. A combined worker and tool weight of less than 310 pounds will meet these criteria. **REFER** to the manufacturer's weight requirements for the specific equipment being used.
  - **ENSURE** that employees can **neither** free fall more than six feet **nor** contact any lower level.
  - **BRING** an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet.

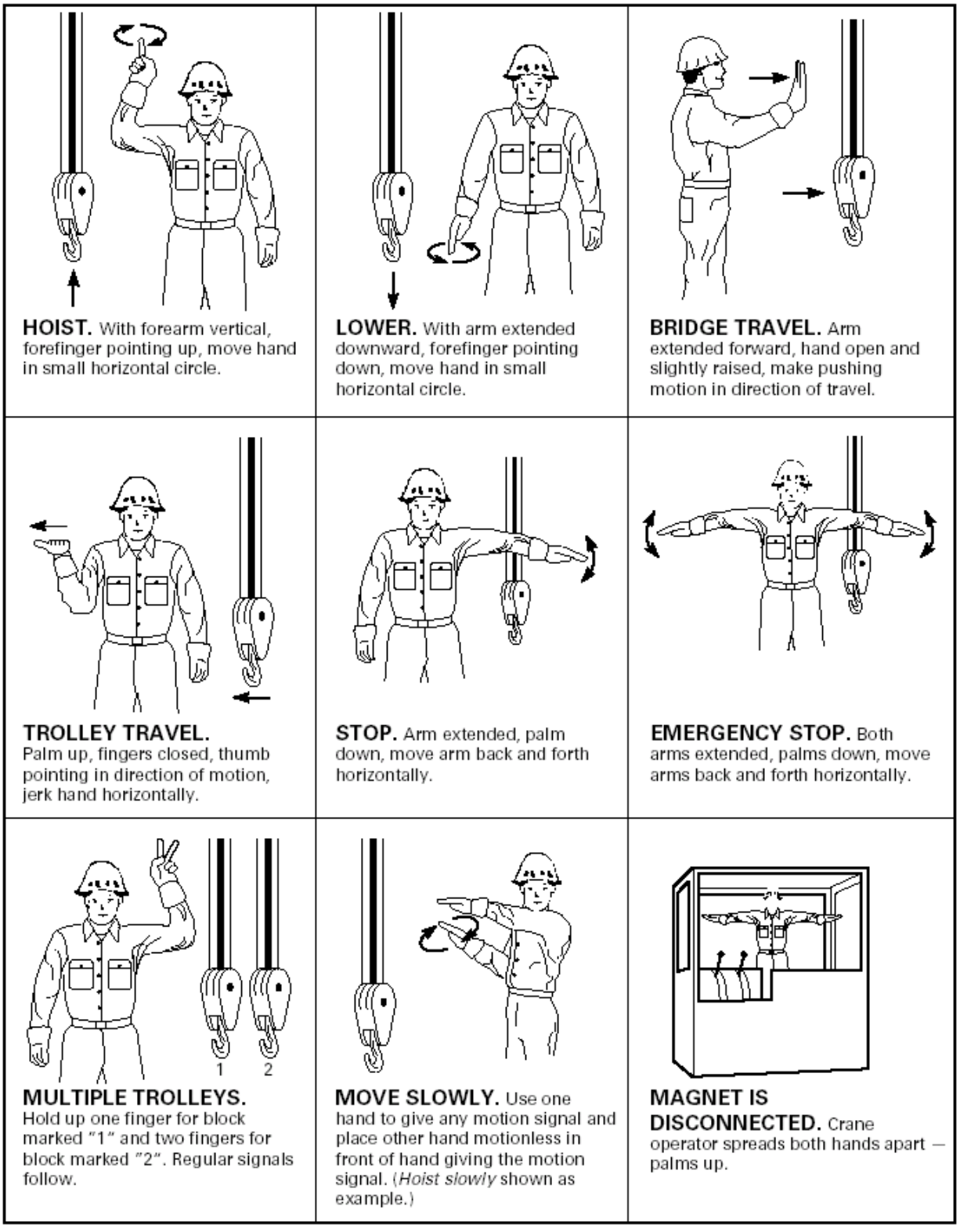
Holes / Wall Openings / Temporary Floor Openings / Covers

- **PROTECT** each employee on walking/working surfaces from falling through openings by the use of a guardrail system, cover, or personal fall arrest system.
- **USE** a Guardrail System at a hole that is erected on all unprotected sides or edges of the hole or provided with a gate or chain (at access points such as ladderways), or is so offset that a person **cannot** walk directly into the hole

POCKET GUIDE REVISION REQUEST

The Safety Pocket Guide will be updated periodically. Revision requests can be documented by creating an Assignment using the Passport process on Action Request #131095.

BRIDGE CRANE SIGNALS



HOIST. With forearm vertical, forefinger pointing up, move hand in small horizontal circle.

LOWER. With arm extended downward, forefinger pointing down, move hand in small horizontal circle.

BRIDGE TRAVEL. Arm extended forward, hand open and slightly raised, make pushing motion in direction of travel.

TROLLEY TRAVEL. Palm up, fingers closed, thumb pointing in direction of motion, jerk hand horizontally.

STOP. Arm extended, palm down, move arm back and forth horizontally.

EMERGENCY STOP. Both arms extended, palms down, move arms back and forth horizontally.

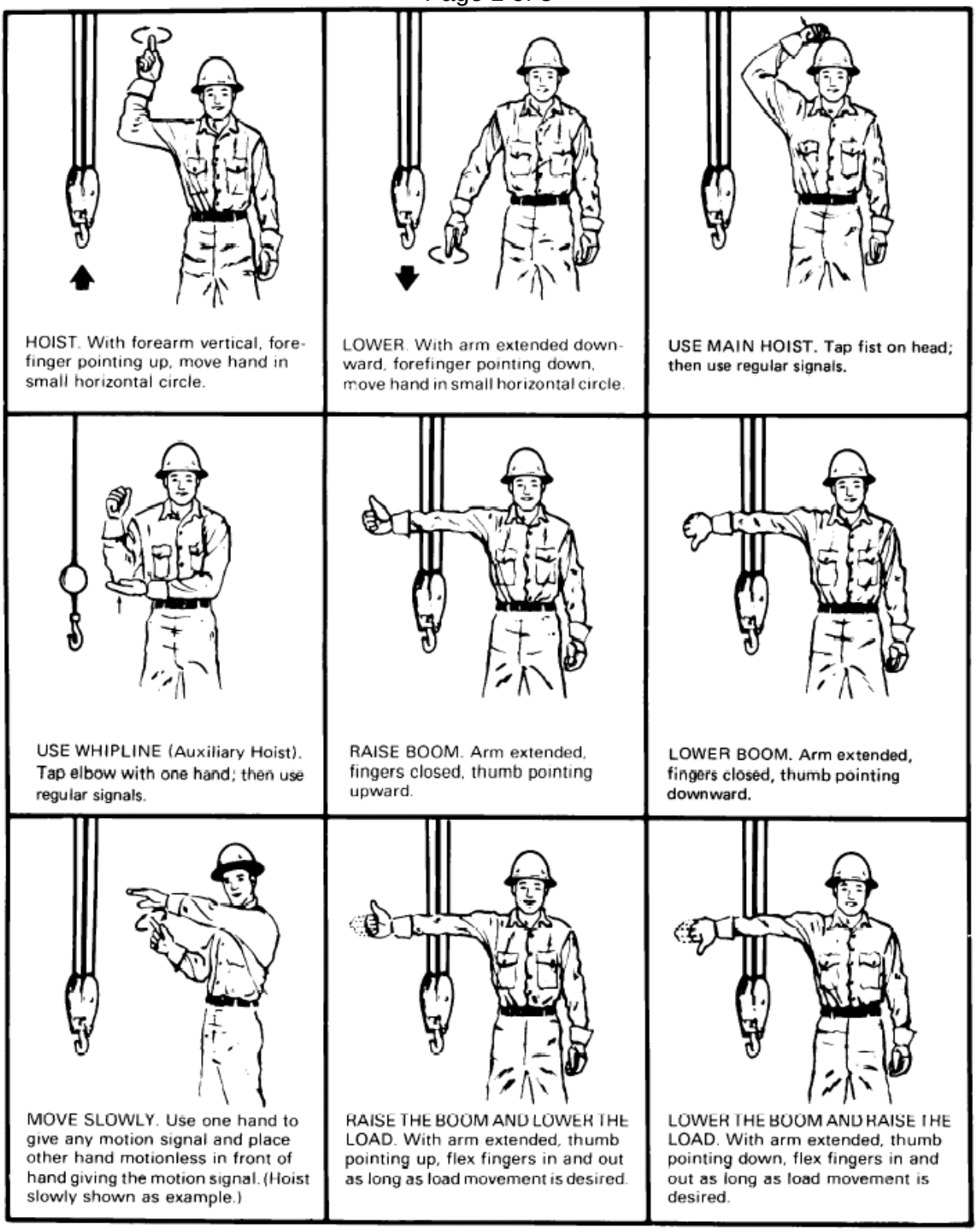
MULTIPLE TROLLEYS. Hold up one finger for block marked "1" and two fingers for block marked "2". Regular signals follow.

MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal. (*Hoist slowly* shown as example.)

MAGNET IS DISCONNECTED. Crane operator spreads both hands apart — palms up.

MOBILE CRANE SIGNALS

Page 1 of 3



HOIST. With forearm vertical, forefinger pointing up, move hand in small horizontal circle.

LOWER. With arm extended downward, forefinger pointing down, move hand in small horizontal circle.

USE MAIN HOIST. Tap fist on head; then use regular signals.

USE WHIPLINE (Auxiliary Hoist). Tap elbow with one hand; then use regular signals.

RAISE BOOM. Arm extended, fingers closed, thumb pointing upward.

LOWER BOOM. Arm extended, fingers closed, thumb pointing downward.

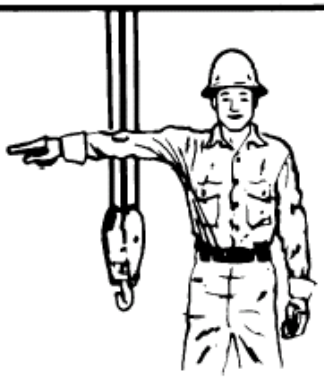
MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal. (Hoist slowly shown as example.)

RAISE THE BOOM AND LOWER THE LOAD. With arm extended, thumb pointing up, flex fingers in and out as long as load movement is desired.

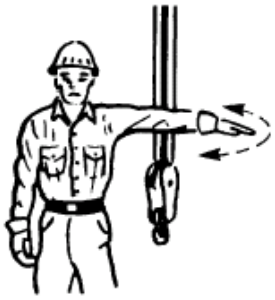
LOWER THE BOOM AND RAISE THE LOAD. With arm extended, thumb pointing down, flex fingers in and out as long as load movement is desired.

MOBILE CRANE SIGNALS (CONTINUED)

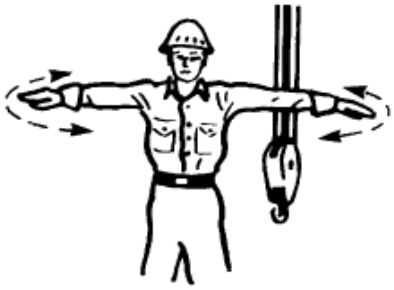
Page 2 of 3



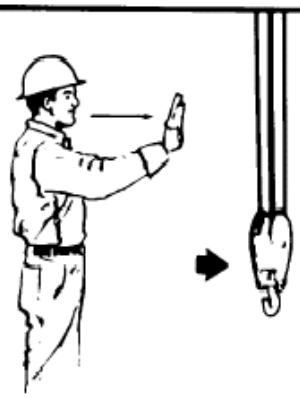
SWING. Arm extended, point with finger in direction of swing of boom.



STOP. Arm extended, palm down, move arm back and forth horizontally.

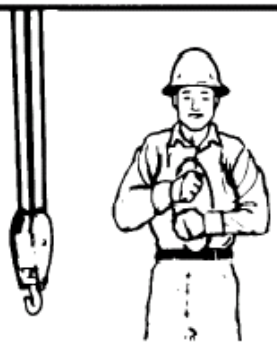


EMERGENCY STOP. Both arms extended, palms down, move arms back and forth horizontally.



TRAVEL. Arm extended forward, hand open and slightly raised, make pushing motion in direction of travel.

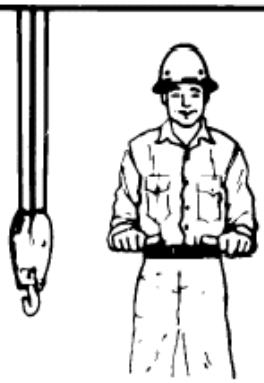
DOG EVERYTHING. Clasp hands in front of body.



TRAVEL (Both Tracks). Use both fists in front of body, making a circular motion about each other, indicating direction of travel, forward or backward. (For land cranes only.)

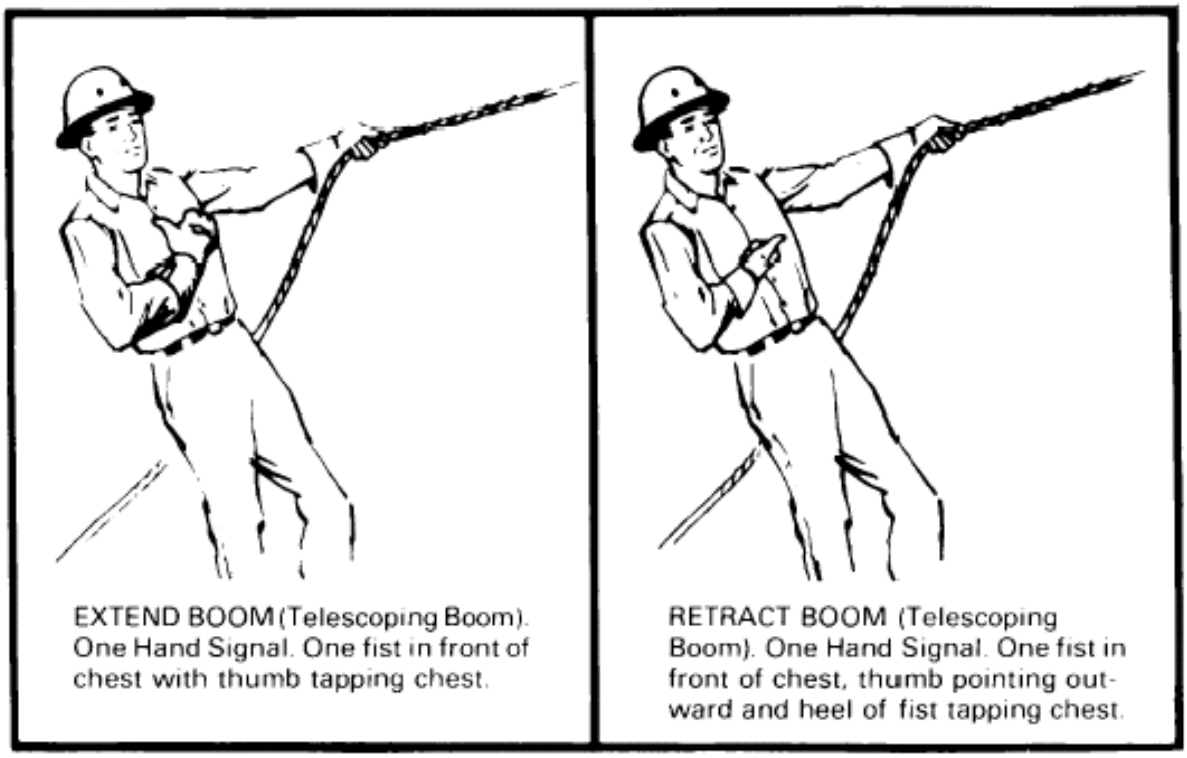
TRAVEL. (One Track) Lock the track on side indicated by raised fist. Travel opposite track in direction indicated by circular motion of other fist, rotated vertically in front of body. (For land cranes only.)

EXTEND BOOM (Telescoping Booms). Both fists in front of body with thumbs pointing outward.



RETRACT BOOM (Telescoping Booms). Both fists in front of body with thumbs pointing toward each other.

MOBILE CRANE SIGNALS (CONTINUED)



EXTEND BOOM (Telescoping Boom). One Hand Signal. One fist in front of chest with thumb tapping chest.

RETRACT BOOM (Telescoping Boom). One Hand Signal. One fist in front of chest, thumb pointing outward and heel of fist tapping chest.

Time Tracker								
Week	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**	**Sun**	**Total**
1/1/2024								
1/8/2024								
1/152024								
1/22/2024								
1/29/2024								
2/5/2024								
2/12/2024								
2/19/2024								
2/26/2024								
3/4/2024								
3/11/2024								
3/18/2024								
3/25/2024								
4/1/2024								
4/8/2024								
4/15/2024								
4/22/2024								
4/29/2024								
5/6/2024								
5/13/2024								
5/20/2024								
5/27/2024								
6/3/2024								
6/10/2024								
6/17/2024								
6/24/2024								
7/1/2024								
7/8/2024								
7/15/2024								

Time Tracker								
Week	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**	**Sun**	**Total**
7/22/2024								
7/29/2024								
8/5/2024								
8/12/2024								
8/19/2024								
8/26/2024								
9/2/2024								
9/9/2024								
9/16/2024								
9/23/2024								
9/30/2024								
10/7/2024								
10/14/2024								
10/21/2024								
10/28/2024								
11/4/2024								
11/11/2024								
11/18/2024								
11/25/2024								
12/2/2024								
12/9/2024								
12/16/2024								
12/23/2024								
12/30/2024								
1/6/2025								
1/13/2025								

January

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

2024

February

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

2024

March

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

2024

April

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

2024

May

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sa*
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

2024

June

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23 / 30	24	25	26	27	28	29

2024

July

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
	1	**2**	**3**	**4**	**5**	**6**
7	**8**	**9**	**10**	**11**	**12**	**13**
14	**15**	**16**	**17**	**18**	**19**	**20**
21	**22**	**23**	**24**	**25**	**26**	**27**
28	**29**	**30**	**31**			

2024

August

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

2024

September

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

2024

October

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	39	31		

2024

November

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

2024

December

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

2024

January

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

2025