THE NATION'S URANIUM PROCESSING FACILITY

UPF JOB HAZARD ANALYSIS

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JHA NO.:	**JHA-00741**	**REV:**	**1**	**ISSUE DATE:**	**12-20-2024**
JHA TITLE:	**Electrical Supports Installation**	**WORK PACKAGE NUMBER:**	**N/A**	**SPECIFIC LOCATION:**	**N/A**

Activity	Sub-Activity	Hazard	Control
Hand & Power Tools	Hand, Air and Electrical Tools	Improper Use of Tools/Equipment Laceration/Grinding Wheel Failure Fire Electric Shock Inhalation of Carbon Monoxide, Nitrogen Dioxide, and/or Other Combustion Gases, Chemical Asphyxiation Struck-by Abrasion	Review the applicable work activities and implement the associated work controls listed in **JHA-00721,** *Hand and Power Tools*
Grinding Activities	Grinding Activities on Uncoated Metal	Flying Particles (Debris) Grinding Wheel Failure Loss of Tool Control - Laceration (Grinding Activities) Burn Fire (Hot Work)	· Reference ML-SH-801768-A002, UPF Eye and Face Protection List. · Ensure the grinding wheel is rated for higher revolutions per minute (RPM) than the grinder. Ensure the guard is on the grinder. · Use the tool handle(s) to maneuver the grinder · Hand-held grinders shall be equipped with a constant pressure switch · Wear a shirt, jacket (or equivalent) made from heavier materials (e.g., heavy cotton, denim) that overlap footwear to prevent spatter from entering · Wear pants/trousers made from heavier materials (e.g., heavy cotton, denim) that overlap footwear to prevent spatter from entering · Wear clothing that is free from pockets, hoods, or cuffs that can trap sparks or slag. Keep sleeves and collars buttoned · Ensure the material being cut is secured via approved methods (i.e., bench vise, c-clamp)

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			NOTE: *Never hold the material that is being cut!*
			NOTE: *Pockets that are covered or equipped with closeable flaps are acceptable. If not in a Designated Hot Work Area, contact the Permit Authorizing Individual (PAI) for a Hot Work Permit and follow the permit requirements.*
Portable Band Saws	Portable Band Saws	Laceration	All portions of band saw blades will be enclosed or guarded, except for the working portion of the blade between the bottom of the guide rolls and the table Band saw wheels shall be fully encased.
			Always adhere to the following requirements:
			· Keep hands away from cutting area and blade.
			· Always keep both hands on the tool handles.
			· Always keep your hands out of the line of the band saw blade.
			· Ensure the material being cut is secured via approved methods (i.e., bench vise, c-clamp).
			NOTE: Never hold the material that is being cut!
			· Always wait until the motor has reached full speed before starting a cut.
			· Prevent unintentional starting. Ensure the switch is in the off position before connecting to power source and/ or battery pack, picking up or carrying the tool.
			· Remove any adjusting key or wrench before turning the power tool on.
			· Do not overreach. Keep proper footing and balance at all times.
			· Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from moving parts.
			· Do not force the power tool. Use the correct power tool for your application.
Manual Material Handling	Pallet Jack Use	Muscle Strain/Sprain	· Do not overload the machine. Be aware of dynamic loading! Sudden load movement may briefly create excess load causing product failure

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		Ergonomics Pinch Points Crushed By Struck By Caught Between	· Use as intended only. Do not use machine to support personnel
			· Always load the machine evenly and centrally
			· Keep clear of fork and load while raised
			· Only use on flat, level surface able to withstand weight of machine and load
			· Never leave a loaded machine unattended the load must always be lowered when not in use
			· Inspect before every use do not use if parts are loose or damaged.
Manual Material Handling	Manual Material Handling	Muscle Strain/Sprain Ergonomics Pinch Points	· Supervisors will be trained in the basics of manual material handling, hazards and basic controls, and conducting basic risk assessments for material handling work
			· Where manual handling is unavoidable, the supervisor will conduct an informal risk assessment as part of the FLHA process and follow up with employees before work starts
			· Inspect for shifted loads, stored energy, or loose items prior to unloading
			· Keep hands and arms clear when stacking material
			· Remove/protect sharp edges with "softeners" prior to lifting
			· To understand safe lifting limits during manual material handling, refer to OT-SH-801768-A128, *UPF Ergonomics Lifting Guidelines*
Hazardous Material Use	Hazardous Material Storage	Improper Storage of Hazardous Materials Spill Fire	· Hazardous materials must be stored in containers compatible with the material and in a way that protects human health and the environment from unintended exposure to the hazards associated with the materials
			· A "first in, first out" storage strategy must be used to help Ensure material does not expire and become a waste product
			· Storage must be performed in accordance with the completed UCN-23353 and SDS requirements, paying attention to storage temperatures, to prevent product degradation and thus waste generation

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			· Storage areas must be kept organized so materials can be properly inspected, inventoried, and segregated considering their compatibility
Hazardous Material Use	Labeling of Hazardous Materials	Inadequate Hazard Communication	· Labeling of hazardous materials shall be in accordance with Appendix B, *Container Labeling Instructions*
			· Labels shall have the Product Identifier and words, pictures, symbols, or a combination thereof that can provide employees with the specific information regarding the physical and health hazards of the hazardous chemical
			· Project Personnel may transfer hazardous materials from a bulk container to a suitable portable container for immediate use during their shift only
			· Individual stationary containers (e.g., storage tanks) must have signs, placards, or other appropriate signage attached to them that contain the same information as a manufacture's original label
Hazardous Material Use	Use and Disposal of Hazardous Materials	Contact with Chemicals (adsorption, inhalation, ingestion, Asphyxiation) Improper Disposal of Hazardous Materials	· Contact IH or ES&H Representative if UCN-23353 SDS Evaluation Form is not completed for the specific chemical/product that you are working with
			· Review UCN-23353 and the Safety Data Sheet (SDS) of the chemical/product prior to starting the work
			· Follow the assigned work controls specified in the SDS Evaluation Form
			· Disposal of hazardous materials shall be in accordance with the completed UCN-23353 for the given product/chemical and in accordance with PL-SH-801768- A002, *Construction Waste Management Plan for the Uranium Processing Facility*
Dropped Object Prevention	General Requirements	Dropped Objects	Review the applicable work activities and implement the associated work controls listed in **JHA-00715,** *Dropped Object Prevention*
Personal Protective Equipment (PPE)	Hearing Protection - Noise Levels Between	Noise	· Refer to ML-SH-801768-A011, *Sound Levels of Common Construction Power Tools*
			· Wear approved single hearing protection devices with a minimum NRR of 21

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Activity	Sub-Activity	Hazard	Control
	Eighty-Five (85) and Ninety-Nine (99) dBA.		· Barricade and Signage: o Install caution sign, or caution barricade tape with caution signs or tags requiring hearing protection on the barricade to establish the eighty-five (85) dBA boundary around the work area o Contact Industrial Hygiene to evaluate noise levels for new/changed work activities or when working in enclosed areas.
Personal Protective Equipment (PPE)	Hearing Protection - Noise Levels over One-Hundred (100) dBA	Noise	· Reference ML-SH-801768-A011 Sound Levels of Common Construction Power Tools · At a minimum, wear single hearing protection devices with NRR of 33 (i.e. red, white and blue foam earbuds) AND ear muffs · Contact IH or ES&H Representative if the anticipated noise levels are greater than 114dBA prior to engaging in the activity · Use employee and or job rotation to reduce the time of exposure. When performing activities in enclosed spaces such as enclosed cells, pits, vaults or other similar spaces that may adversely affect noise levels or where multiple noise sources are present contact ES&H for further evaluation · Barricade and Signage: o Install danger barricade tape with danger signs or tags to identify the one hundred (100) dBA boundary area o Identify area outside of danger barricade with caution single hearing protection required signs. Contact IH to evaluate size of these boundaries o Contact IH to evaluate noise levels for new/changed work activities or when working in enclosed areas.
Fire Prevention and Protection	Fire Occurrence	Fire	In the event of a fire, personnel are primarily responsible for evacuating themselves and others safely from the fire area. The discoverer of the fire shall perform or direct the following three immediate actions:

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Activity	**Sub-Activity**	**Hazard**	**Control**
			Step 1 – Yell "FIRE" to notify those in the immediate vicinity.
			Step 2 – Notify the Y-12 Operations Center (OC) by:
			o Activating a fire alarm (pull box), if available
			o Calling 911 from a Y-12 landline
			o Calling Y-12 OC at (865) 574-7172 from a cell phone
			o Contacting the OC via Channel 1 from a Project radio
			o Contacting the supervisor/superintendent and providing any information regarding the fire and its location (to be forwarded to the Y-12 OC)
			NOTE: *Use the phonetic alphabet when calling the OC to avoid confusion identifying the building location.*
			Step 3 – Only after reporting the fire, personnel may voluntarily attempt to fight a small, early-stage fire using an available portable fire extinguisher. This voluntary action should be taken only if personnel believe it is within their capability to safely extinguish or contain the fire, a safe escape route is readily available, and there is no immediate danger.
Barricades and Signs (Life Critical Activity)	General Requirements	Improper Hazard Communication	Review the applicable work activities and implement the associated work controls listed in **JHA-00712,** *Barricades, PPE, FLHA.*
Compressed Gas Cylinder; Liquefied Petroleum Gas; and Liquefied Inert Gas Use	General Requirements	Spills Asphyxiation Muscle Strain Ergonomic Cryogenic Burn Fire	Review the applicable work activities and implement the associated work controls listed in **JHA-00713,** *Compressed Gas, LPG, and Inert Gas.*
Safety Watch	Process	Emergency	In the event of an emergency, individuals performing Safety Watch duties are to discontinue the assignment and respond to the emergency as required (e.g., Take Cover, Evacuation).
Safety Watch	Fire Watch	Fire	A worker assigned as a Fire Watch:

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		Hot Work	· Must wear an orange vest in accordance with UPF-CP-205, Personal Protective Equipment and Safe Work Apparel
			· Directly observes Hot Work activities to Ensure fire safe conditions, as specified in the Hot Work permit, are maintained. Such observations will continue while Hot Work is in progress or until such a time that the assigned Fire Watch is relieved by another qualified Fire Watch
			· Will remain at the work area for at least 30 minutes after Hot Work activities have stopped to Ensure no smoldering embers or slag exist. Fire Watches will watch for fires in all exposed areas and notify supervision and other workers in the event of a fire
			· The Fire Watch ensures that the Hot Work area is barricaded, if required by the permit, and keeps other personnel from entering the barricaded work area
			· More than one Fire Watch is required if:
			o Combustible materials that could be ignited by the Hot Work operation and that cannot be directly observed by the initial Fire Watch are present (e.g., when welding or cutting over grating surfaces adjacent to floor and wall openings)
			o Fire prevention methods are not sufficient to adequately ensure the prevention of fires. The supervisor responsible for the welding and/or cutting activities then requires additional Fire Watches to guard against fires
			o The Fire Watch will have the authority to stop welding and/or cutting work activities if unsafe conditions develop
			In the event of a fire, the Fire Watch:
			· Follow the Fire Occurrence steps outlined above for proper notification
			· May attempt to extinguish the fire
			· The Fire Watch shall notify the ESH-R if any fire extinguishers are discharged so they may be refilled and appropriate clean up and disposal of the material can be completed.

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			Upon completion of the job and after it has been determined that no fires or smoldering materials are present, the Fire Watch returns the fire protection equipment to its original location
Safety Watch	Equipment Watch (Spotter)	Moving Equipment	· The sole purpose of a Spotter is to assist an equipment operator in maintaining adequate clearance between the equipment and hazards. The operator and Spotter(s) will jointly identify and discuss responsibilities, method of communication, location of the Spotter(s), blind spots, and resources needed to execute the task successfully leveraging the Field Level Hazard Assessment (FLHA) process
			· The following practices should be considered when planning the activity:
			o Achieving eye contact and an acknowledgment from the equipment operator before walking near or around heavy equipment
			o Never having Spotters stand within the blind spot of equipment operators or truckers
			o Never allowing personnel to stand within the swing radius of equipment while it is operating
			o Checking around and underneath trucks and equipment for personnel before operating them
Safety Watch	Overhead Safety Watch	Dropped Objects	An Overhead Safety Watch is utilized to protect personnel from hazards created during elevated work. Examples include:
			· Short duration tasks with low-risk for dropped objects or similar hazards (e.g., inspections, moving cords, layout/measurements)
			· Work activities in remote areas that are not heavily populated or congested with pedestrians/personnel and will not be impacted by concurrent work activities (e.g., parking lots, laydown areas, etc.)
			· In conjunction with a barricade for elevated work/overhead hazards (e.g., when 2:1 ratio of barricade cannot be achieved)

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			· Prior to implementing an Overhead Safety Watch, the task/application must be evaluated by the Responsible Superintendent (Discipline Superintendent) and documented on the applicable FLHA for the activity
			· When an Overhead Safety Watch is used, the following will apply:
			o The Overhead Safety Watch must be strategically located to control and restrict all non-essential personnel and vehicular traffic from entering the overhead work area. Multiple Watches may be required for activities with a larger hazard area or work areas with blind spots
			o The Overhead Safety Watch will notify approaching personnel of the overhead hazard and prevent access to areas below overhead work for the duration of the work
			o The Overhead Safety Watch will perform tasks from a safe location and remain clear of line-of-fire hazards created by the elevated work activities
			o If access to a work area below the elevated work is required, the Overhead Safety Watch shall stop the elevated work and have it placed in a safe configuration before allowing workers in the area.
Working with Materials Containing Respirable Crystalline Silica (RCS)	Housekeeping	Inhalation of Particulates (Silica)	· Compressed air cleaning of surfaces or clothing is not allowed unless this method is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air. Workers shall use a ventilation system with a high-efficiency particulate air (HEPA) filter or other approved method to clean surfaces or clothing if necessary
			· Dry sweeping or dry brushing is prohibited where such activity could contribute to applicable project personnel exposure to silica. Use wet sweeping or shoveling, or a HEPA-filtered vacuum cleaner
			· Concrete slurry (e.g., from dust control methods or excess water from concrete

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			cleaning) shall be removed from work areas by wet vacuuming or other similar methods and placed into appropriate concrete washout bins, containers or other locations to prevent accumulation of silica dust on work surfaces
Working with Materials Containing Respirable Crystalline Silica (RCS)	i.e., Drilling into Concrete	Flying Particles	· Reference ML-SH-801768-A002, UPF Eye and Face Protection List
		Inhalation of Particulates (Silica) Environmental Waste	· Fully and properly implement the engineering controls, work practices, and respiratory protection requirements specified for the equipment/tasks in ML-SH-801768-A010. For tasks performed using wet methods, apply water at sufficient flow rates determined by Industrial Hygiene. For tasks using local exhaust ventilation, use the tool and any attachments according to the manufacturer's recommendations
			· For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust. If a respirator is required per Table 2, then a minimum of a half face respirator (APF 10) with P100/HEPA cartridges shall be worn
			· When conducting periodic maintenance of the HEPA vacuums (i.e., changing the bags, filters, etc.) at a minimum wear a half-face respirator (APF 10). Handle parts and components of the vacuum with care not to suspend the material accumulated on the surfaces
			· Barricade and Signage:
			o Install danger barricade tape with completed danger signs or tags around the activity that requires respiratory protection to adequately protect adjacent personnel
			o Transfer silica dust contained by HEPA vacuum or other removal processes to identified "Special Waste" staging area for disposal (posted area next to the BNI concrete washout area)
			o Slurry material generated by wet control methods should be collected with other solid concrete debris and transported/deposited in the BNI concrete wash-out area.
Hot Work	General Requirements	Fire	Review the applicable work activities and implement the associated work controls listed in **JHA-00719,** *Fire Prevention, Protection, Hot Work and Welding*

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Field Level Hazard Assessment (FLHA)	Field Level Hazard Assessment Process	Unidentified and Unmitigated Hazards	· FLHA is a pre-task briefing that must be used daily by crews at the beginning of their work shift or when new tasks are undertaken. It is a process of employee participation to identify and mitigate environmental, safety, and health risks and hazards associated with their planned work that day. The JHA process must not replace, or be a substitute for, the daily FLHA process.
Field Level Hazard Assessment (FLHA)	Implementing Field Level Hazard Assessment	Unidentified and Unmitigated Hazards	Prior to beginning work activities each day or after an extended break or interruption (e.g., shift change, weekend), perform the following:
			· Perform a Walkdown and review the work location with involved personnel
			· Review area hazards to ensure they are identified and hazard controls/mitigations are in place to eliminate/reduce them
			· Ensure there are no new hazards unidentified and uncontrolled by the approved JHA
			Using UCN-23552, perform the following:
			o Conduct a FLHA briefing with the work crew and support disciplines
			o Resolve any issues/concerns with the work crew
			o List and discuss the scope of work, anticipated hazards, and controls/mitigation measures for the work to be performed
			o Ensure personnel document participation in the “Employee” section of UCN-23552
			o Conduct appropriate FLHA briefings when any of the following conditions exist:
			· The work area changes
			· Personnel with different classifications will be working in close proximity
			· Differing types of work are performed in close proximity
			· The work activity changes
			· The Responsible Superintendent deems it necessary

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			· Turn in completed forms (i.e., UCN-23552, UCN-23464, UCN-23544, CFN-1268) as applicable at the end of each shift at the designated collection points. The end of shift review/de-briefing section must be completed before submitting these forms to UPF DMC.
Hoisting and Rigging Work Operations (Life Critical Activity)	General Requirements	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	· Never conduct lifting operations, unless you are an authorized operator with verified competence. Never work under a suspended load
			· Follow the requirements of hoisting and rigging procedures and manufacturer's instructions and guidelines when conducting lifting operations
			· Inspect Rigging equipment prior to use
			· Never hoist loads over other people
			· Never work within a load shadow (i.e., anywhere the load can fall)
			· Never cross a barricade that controls an area with a suspended load, unless you are a member of the lift team and you are authorized to enter the controlled area.
Bull Rigging (Life Critical Activity)	Training and Competent Personnel	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	Persons involved in planning and executing Bull Rigging work operations on construction projects shall be trained and qualified to perform their assigned tasks in accordance with Y17-95-64-900, *UPF Bull Rigger Qualifications*.
Bull Rigging (Life Critical Activity)	Categorization of Bull Rigging Operations	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	In order to prescribe the extent of planning, review, and skilled oversight appropriate to the risk of each Bull Rigging operation, all Bull Rigging operations shall be categorized by the RS/BR PIC as being either "Critical" or "General" based on the operational risk characteristics in accordance with the guidelines contained in Table 1.
Bull Rigging (Life Critical Activity)	Equipment	Loss of Control of Material Tipping	· All rigging shall be used in the manner intended by the manufacturer and within their specifications and/or guidelines

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		Loads Crushing Injuries Falling Material	· All elements of the rigging arrangement shall always be used within their rated capacities after applying appropriate rating reduction factors for the mode of use (D/d ratio, side loading capacity, hitch configuration used, etc.)
			· A qualified rigger shall inspect rigging equipment prior to use and as necessary during its use to Ensure it is safe.
			If a piece of lifting or load restraint equipment is deemed to be defective, an Out of Service tag shall be attached to it and the equipment shall be returned to the Rigging Superintendent or designee for repair or replacement. Defective equipment deemed beyond practical or economic repair shall be rendered unusable and properly disposed of the register of Lifting Equipment shall be updated accordingly.
			· Periodic and annual inspections shall be performed in accordance with Y17-95-64-875, *UPF Control of Hoisting and Rigging Equipment*.
			All lifting and load restraint equipment and accessories must be stored in a controlled area.
Bull Rigging (Life Critical Activity)	Structural Steel Limitations	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	· Suitable structural anchor points shall be chosen for the attachment of rigging those points shall be adequate for the most onerous load condition (magnitude and direction) the rigging will impose
			· Loading of a structural steel member shall not be permitted unless the member is designed to be of load bearing capacity or is designed as a primary pipe and/or mechanical support
			· If a visual assessment by the BR PIC gives any concern regarding the capacity of the proposed anchor point, the BR PIC shall elevate the concern to PFE for review and confirmation. If any potential discrepancies are noted between the capacity of the rigging anchor point and the weight of the load, then the process will be stopped and the Project Field Engineer consulted

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			Steel grating, landscape timbers, scaffolding, conduit, and piping shall not be used as anchor points to support rigging hardware. All anchors shall be verified by Project Field Engineering for proper capacity and suitability for suspended rigging hardware and subsequent loadings.
Bull Rigging (Life Critical Activity)	Temporary Load Support	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	Where a load cannot be installed in its final resting position within one work shift, the BR PIC, in conjunction with the Rigging Superintendent or designee, shall determine the equipment and rigging practices necessary to positively secure and control the load in a temporary supported position prior to the load being lifted
			Temporary rigging, particularly synthetic slings and mechanical lifting devices (e.g., chain hoist), should not be used to hold up, or hold in place, any structural components, material, or equipment for any period longer than the end of the shift in which the use began. For multiple shifts within a 24-hour period, the Bull Rigging being used as a temporary support can be transferred to the next work shift however, mechanical lifting devices and synthetic slings should not remain as a temporary hanger longer than 24 hours
			All loads that will be suspended by a mechanical lifting device and not immediately placed into final position should be properly secured with pipe hangers, pipe shoes, and/or other supports with a known and adequate, working load limit
			A Qualified Bull Rigger must complete the installation of temporary pipe supports under the direction of the Rigging Superintendent or designee
			In all cases where a load is left suspended, the Bull Rigging team shall establish a red danger hard barricade that secures the drop zone hazard area. The barricade shall be equipped with signage indicating the suspended load hazard and entry by authorized personnel only.
Bull Rigging (Life Critical Activity)	Monitoring the Operation	Loss of Control of Material Tipping Loads Crushing	· The BR PIC monitors the execution of the Bull Rigging operation to ensure it remains on track, that conditions remain within established parameters, and no unanticipated hazards are presenting themselves

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Activity	**Sub-Activity**	**Hazard**	**Control**
		Injuries Falling Material	The BR PIC ensures loads and rigging equipment, etc., are always monitored to ensure the operation is progressing as planned and the rigging equipment remains within capacity. This monitoring is particularly important when upending or flipping loads. If any unanticipated shifting of weight occurs, the operation shall be stopped until the reason for the weight shift is adequately understood and the BR PIC and Bull Rigging team are satisfied it is safe to resume operations. If necessary, the assistance of a rigging engineer shall be sought to investigate.
			The BR PIC ensures the load is not completely released from the rigging equipment until it is confirmed that the load is leveled/aligned as required, is stable, and is securely supported.
Work at Heights (Life Critical Activity)	General Requirements	Fall to Elevation Below	Review the applicable work activities and implement the associated work controls listed in **JHA-00717,** *Elevated Work*
Mobile Elevated Work Platforms (MEWPs) (Life Critical Activity)	General Requirements	Contact with Surrounding Structure, Equipment, or Commodities Fire Entrapment Limited Access/Egress Dropped Objects Electrical Shock Fall to Elevation Below	· Never operate any mechanical elevated work platform without documented training
			· Never stand on the toe board, mid-rail, or top rail of the basket
			· Never work from the basket without being tied off to the manufacturer's designated anchor point, even during ground positioning
			· Never exit the basket at height unless prior, documented approval for the deviation has been obtained from Project ES&H personnel
			· Follow the operating requirements defined in UPF-CP-224, *UPF Aerial/Scissor Lift Operations*, which apply to all construction site and support area personnel, including subcontractors
			· Never operate an aerial/scissor lift that has not been inspected by a trained operator, in accordance with the requirements specified in UPF-CP-224. At the beginning of each shift or before each use, a trained operator will visually inspect and functionally test the lift and document the results on an approved form

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Activity	Sub-Activity	Hazard	Control
			· Ensure the lift style in use is appropriate for the work task and location (e.g., indoors versus outdoors)
			· Follow all directions related to adverse weather conditions, including lightning and high wind speeds
			· The operator/safety manual(s) are to be maintained with the equipment provided they can be protected from the elements. If this cannot be accomplished, a hard copy may be stored in a central location as determined by the Project Distributable Superintendent
			· All controls must be plainly marked as to their function
			· All capacity and warning decals will be in place, secure, and legible, at both the platform/basket and ground stations
			· All aerial/scissor lifts must be equipped with an ABC-rated fire extinguisher in the platform/basket. The fire extinguisher shall be secured in a manner as to prevent displacement of the extinguisher. Scissor lifts must be equipped with a fire extinguisher 2.5 lbs. or greater. Aerial (boom) lifts must be equipped with a fire extinguisher 10 lbs. or greater
			· Boom-type aerial lifts must be equipped with anti-entrapment devices
			· Aerial/scissor lifts are to be inspected daily before use or at crew/shift change and documented on a UCN-23248, *Aerial/Scissor Lift Daily Checklist*
Mobile Elevated Work Platforms (MEWPs) (Life Critical Activity)	Operating Requirements	Contact with Surrounding Structure,	Only trained and qualified personnel shall operate aerial or scissor lift devices in accordance with the following:
			· All personnel must wear an approved PFAS in accordance with the requirements of Section 3.0, *Fall Prevention and Protection*

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Activity	**Sub-Activity**	**Hazard**	**Control**
		Equipment, or Commodities Fire Entrapment Limited Access/Egress Dropped Objects Electrical Shock Fall to Elevation Below	· The basket or platform of the aerial/scissor lift will not be loaded in excess of the design lifting load capacity. The weight of personnel, tools, and materials in aerial/scissor lift baskets or platforms will be included as part of the total load capacity. If material cannot be contained inside the aerial/scissor lift basket or platform, obtain approval from the Responsible Supervisor and an ES&H Representative, and document on the FLHA Card before lifting the material
			· Aerial/scissor lift platform or basket will not be secured to any structure for any reason nor be allowed to rest on any structure
			· When aerial/scissor lift equipment is used with outriggers, outriggers shall be positioned on a solid surface
			· Personnel shall stand firmly on the floor of the basket/platform and shall not sit or climb on the edge of the basket/platform or use planks, ladders, or other unapproved devices for work positioning
			· Personnel riding in the equipment should keep their hands off the handrail when raising or lowering the basket use interior grab rail for balance when provided
			· Do not tie electrical cords, welding leads, or hoses to an aerial/scissor lift when operated (traveling horizontally or vertically)
			· When at the work location, the operator should engage the emergency stop function and close the platform mounted control panel cover (if equipped) to prevent accidental movement
Mobile Elevated Work Platforms (MEWPs) (Life Critical Activity)	Exiting Aerial/Scissor Lifts at Elevation	Limited Access/Egress Dropped Objects Electrical Shock Fall to Elevation Below	Aerial/scissor lifts may be used to access elevated work areas or structures by exiting or entering the lift platform under the following requirements:
			· There is no other established safe access to the work area (e.g., stairs)
			· The job must be evaluated to ensure the use of an aerial lift is the safest means to access the elevated area or structure

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· The Responsible Supervisor for the work and an ES&H Representative must approve the activity and document the approval on the FLHA Card
			· Personnel must use the lift manufacturer's access point (e.g., gate, slide bar) when entering or exiting the lift
			· Personnel must ensure 100% tie-off is maintained throughout the transition from the lift to the elevated area or structure, from the elevated area or structure to the lift, and while performing work on the elevated area or structure
Ladders	General Requirements	Fall to Elevation Below Dropped Objects	All portable ladders purchased or used on the Project shall meet minimum specifications, including:
			· Ladders must be vendor-certified as American National Standards Institute (ANSI) Type 1A or greater
			· Only nonmetallic ladders will be purchased and used on the site (fiberglass ladders are recommended)
			· Tripod ladders (ladders with three legs) are prohibited
			· Straight ladders longer than 20 feet are prohibited
			· Extension ladders longer than 36 feet are prohibited
			· Stepladders and platform ladders longer than 12 feet are prohibited
			· All portable ladders will be equipped with nonskid feet
Ladders	Ladder Use	Fall to Elevation Below Dropped Objects	Inspect ladders prior to use to verify:
			· All hardware and fittings are securely attached and the movable parts operate freely without binding or undue play
			· Ladder rungs are free from grease, oil, mud, and other materials
			· Ladder safety feet and other auxiliary equipment are in good condition

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Activity	Sub-Activity	Hazard	Control
			· Ladder does not have any broken or missing steps, rungs, cleats, broken side rails, or any other faulty equipment
			When using a ladder: - Do not use ladders in any manner other than their intended purpose - Two or more people will not work from the same ladder unless it is specifically designed for two people - Place portable ladders on a level and stable surface and secure them or have them held by another person to prevent slipping - Personnel shall face the ladder when ascending or descending and use both hands to grasp the ladder - Do not carry materials or tools in hands while ascending or descending ladders - If working from portable ladders, then remain within the confines (side rails) of the ladder - Prevent unauthorized entry in the area below the ladder with barricades or flagging when overhead hazards are present during ladder use - Do not stand on the platform or top step of a stepladder (i.e., top two steps) - Do not sit on or straddle a stepladder to perform work - When accessing another elevation, extend the top of the ladder 36 inches beyond the upper landing surface. If this is not possible because of the ladder's configuration, install a grab rail(s) 36 inches above the landing to help personnel mount and dismount the ladder
Ladders	Ladder Inspection	Fall to Elevation Below Dropped Objects	· Ladders that do not have the current quarterly color code marking shall be tagged out of service at the point of discovery using a “Do Not Use” tag until inspected and color coded
			· Ladders that are damaged or defective shall be immediately tagged out of service at the point of discovery using a “Do Not Use” tag and returned to the Tool Crib
Ladders	Ladder Storage	Fall to Elevation Below Dropped Objects	· When not in use, store portable ladders to protect them from the elements and direct sunlight store ladders away from excessive heat and in areas with good ventilation

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· Other materials are not to be stored on ladders
Orbital Sanding on Coated Metals	General Requirements	Ingestion Inhalation of Particulates	· Employ good personal hygiene techniques such as washing your hands before drinking, eating, or smoking
			· Use an orbital sander with vacuum attachment with HEPA filtration OR when ventilation is not feasible, at a minimum a half-face Air Purifying Respirator (APF 10) with a HEPA/P 100 filter is required
			· If local exhaust ventilation requirement cannot be met, install danger barricade tape with completed danger signs or tags around the coatings removal activity to adequately protect adjacent personnel
Welding, Cutting, and Brazing	General Requirements	Inhalation of Coating Fume Burns Flying Particles Arc Flash Shock Fire (Hot Work) Ingestion	· Where welding is planned in the open, all coatings shall be stripped back a distance of a minimum of two (2) inches from the area of heat application. This distance shall be increased to a minimum of four (4) inches where welding or thermal cutting is planned in a confined area. The area of heat application means the surface area that the flame or arc contacts and any adjacent surface whose temperature may be appreciably raised by heat transfer. This also includes the backside of the weld joint when it's accessible.
			· Wear a shirt, jacket, or equivalent that meets the requirements of Hazard Risk Category 2 (in accordance with NFPA 2112)
			· Wear pants/trousers made from heavier materials (e.g., heavy cotton, denim) that overlap footwear to prevent spatter from entering
			· Wear clothing that is free from pockets, hoods, or cuffs that can trap sparks or slag. Keep sleeves and collars buttoned
			NOTE: *Pockets that are covered or equipped with closeable flaps are acceptable.*
			· For heavy work (e.g., Carbon Arc Cutting over 500Amps, Oxyfuel Gas Weld over 1/2" plate), flame-resistant leggings or other equivalent means shall be used to give added protection to the legs, when necessary

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Activity	Sub-Activity	Hazard	Control
			· Cape sleeves or shoulder covers with bibs made of leather or other flame-resistant material shall be worn during overhead welding, cutting, or other operations, when necessary
			· Additional evaluation of hot work PPE will be performed during the hot work permit process and pre-job FLHA briefing
			· Wear heat resistant gloves with extended/gauntlet cuff as listed on ML-SH-801768-A003, *UPF Glove Matrix*
			· Reference ML-SH-801768-A002, **UPF Eye and Face Protection List**
			· Install welding screens or other guards or barriers around the welding area OR when these are not feasible utilize other means (i.e., signs, spotters, etc.) to adequately notify and protect adjacent personnel
			· Visually inspect all welding leads and cables for damage prior to use
			· Ensure cords and leads are protected from damage by properly routing overhead and/or out of walkways or travel paths utilize insulated hooks, straps, or zip-ties to secure them. Do not route over sharp corners or edges that can cause damage
			· Standard 120-volt extension cords and 208-volt (single-phase twist lock) extension cords are a tool of the trade and craft persons can plug or unplug these cords after shedding the load (e.g., turning off the welder, tool, or heater)
			· Only Temporary Power Electricians can plug in, unplug, or route 480-volt cord sets
			NOTE: *Only Temporary Power Electricians can operate or reset any breakers in temporary electrical equipment such as panel boards.*
			· If not in a Designated Hot Work Area, contact the Permit Authorizing Individual (PAI) for a Hot Work Permit and follow the permit requirements
			· Employ good personal hygiene techniques such as washing your hands before drinking, eating, or smoking

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· Maintain proper body positioning by keeping head away from the generated fumes to minimize exposure during welding, cutting, and brazing
Welding, Cutting, and Brazing	Material Fit-up/Tack Weld Activities	Arc – Flash Burns	Support personnel in the immediate area assisting with the weld/hotwork activities (i.e., tacking supports) must wear PPE appropriate to the hazard (e.g., gloves, category 2 weld shirt/jacket, shaded glasses, face shield, etc.)
			NOTE: *The "immediate area" consists of the direct work face, weld screened area, aerial lift platform/basket, etc.*
			· The assigned PPE is to protect workers from secondary hazards created by the activity (e.g., sparks, slag, weld arc, flying debris) and is not intended to protect personnel directly watching the weld process.
Welding, Cutting, and Brazing	Shielded Metal Arc Welding (SMAW) on Carbon Steel (Stick Welding)	Inhalation of Welding Fume Arc Flash	**Outdoors**: Provide local exhaust ventilation with a capacity of 100 linear feet per minute per welder/operator with an inline high efficiency particulate air (HEPA) filter (i.e., fume extractor) OR discharge exhaust air outdoors to a location that does not affect other workers or allow exhaust air to be drawn back into the work area.
			When ventilation is not feasible, at a minimum, a half-face Air Purifying Respirator (APF 10) with a HEPA/P 100 filter is required.
			Indoors or Enclosed Areas: Provide local exhaust ventilation with a capacity of 100 linear feet per minute per welder/operator with an inline high efficiency particulate air (HEPA) filter (i.e., fume extractor) OR discharge exhaust air outdoors to a location that does not affect other workers or allow exhaust air to be drawn back into the work area.
			When local exhaust ventilation is not feasible, establish means of adequate general/mechanical ventilation AND at a minimum, use a half-face Air Purifying Respirator (APF 10) with a HEPA/P 100 filter is required.
			Barricade and Signage: If local exhaust ventilation requirement cannot be met, install danger barricade tape with completed danger signs or tags around the welding activity to adequately protect adjacent personnel.

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<tr><td></td><td></td><td></td><td>Wear safety glasses and a welding hood with a lens shade as follows:
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Inhalation of Welding Fume</td><td>Wear safety glasses and a welding hood with a lens shade as follows:
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Indoors: Ensure adequate general/mechanical ventilation, no additional controls required.
Enclosed/Confined Areas: Contact IH for additional and specific controls for the conditions at hand.</td></tr>
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Arc Flash</td><td>Remove welding residue and debris from work clothing using a HEPA filtered vacuum prior to leaving the work area for scheduled breaks and at the end of the work shift.</td></tr>
<tr><td>Clean the welding work area using a HEPA vacuum or a method to minimize dust generation (e.g., wet the debris or use floor sweep) at the termination of the welding activity.</td></tr>
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<tr><td rowspan="2">Removal of Fireproofing</td><td rowspan="2">Cementitious Fireproofing (via non-powered tools)</td><td rowspan="2">Environmental Waste
Inhalation</td><td>· Collect removed fireproofing chips, dust or filings by appropriate means (i.e., vacuum, etc.). Place debris in clear bags and seal with zip tie, duct tape, or knots and transport to the appropriate Special Waste Staging Area (for silica containing waste)</td></tr>
<tr><td>o Wet the cementitious fireproofing with water to reduce the generation of dust</td></tr>
<tr><td>Removal of Fireproofing</td><td>Intumescent Fireproofing (via powered tools)</td><td>Environmental Waste
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Activity	Sub-Activity	Hazard	Control
			· Where intumescent fireproofing is being removed for the purposes of planned welding, all intumescent fireproof coatings shall be stripped back a distance of four (4) inches from the area of heat application. The area of heat application means the surface area that the flame or arc contacts and any adjacent surface whose surface temperature may be appreciably raised by heat transfer
			· A minimum of a half-face Air Purifying Respirator (APF 10) with a HEPA/P 100 filter is required
			· P100 Particulate filters need to be replaced when:
			o The user has difficulty breathing comfortably or notices an increase of breathing resistance resulting from particle buildup
			o The filter becomes visibly dirty
			o The filter is physically damaged
			· Or at a minimum of every 30 days inclusive of the above requirements.
Installation/Removal of Electrical Equipment, Cables, and Accessories	General Requirements		· Ensure power is isolated, performing a live dead live test to any equipment, devices and cable/conductors
			· Ensure LOTO is applied and verified prior to accessing existing Electrical equipment and accessories
			· Always perform the required independent zero energy verification
			· Arc Flash PPE shall be worn where exposure exists
			· Ensure installations comply with site procedures and regulations
			· Cables and leads are installed with the minimum 7' clearance above floor level
			· Cables are installed on insulated non-conductive supports
			· Ensure testing is maintained in a barricaded area, to ensure work area is safe for work crews and other workers

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· Ensure electrical equipment has the required safe access/egress clearance to disconnecting means:
			o 36" to 120/208-volt
			o 42" to 480-volt
			· Standard 120-volt extension cords and 208-volt (single-phase twist lock) extension cords are a tool of the trade and craft persons can plug or unplug these cords, after shedding the load (e.g., turning off the welder, tool, or heater)
			· Only Temporary Power Electricians can plug in, unplug, route, or relocate 480-volt cord sets
Vibration Producing Equipment and Activities	General Requirements	Hand/Arm Vibration	· Do not exceed the trigger-time limits listed in ML-SH-801768-A008, *Power Tools Hand-Arm Vibration Levels*. Note that these limits are cumulative over the course of a work shift. Contact IH if you are using several different power tools continuously within the work shift
			· Take breaks from the source of the vibration every hour – perform a different task or rotate with a co-worker
			· Check tools before using them to Ensure they have been properly maintained and repaired to avoid increased vibration caused by faults or general wear
			· Avoid over-gripping or forcing a tool or work-piece more than is necessary
			· Encourage good blood circulation by:
			o Keeping warm and dry by dressing appropriately
			· Massaging and exercising the fingers during work breaks.
Defeating Safety Devices (Life Critical Activity)	Guards / Safety Protection Devices	Unsafe Conditions	Never Disable, bypass, modify, or remove any safety protection devices without written authorization from the Site Manager and ES&H Manager. This includes, but it's not limited to:
			· Disconnect load indicators

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Activity	Sub-Activity	Hazard	Control
			· Remove Guards or handles from rotating equipment or tools
			· Fix or lock triggers and power switches to keep them in the "on" position
			· Hardwire electrical wires into outlets
			· Use damaged or defective equipment and/or tools
			· Skip or bypass required inspections before using equipment and/or tools
			· Operate equipment without deploying outrigger pads when they are required
Post-Installed Concrete Anchors	General Requirements	Release of Hazardous Energy Electrical Hazard Property Damage	· Personnel shall be trained and qualified (as required by the Project specifications) to perform PICA installations.
			· PICA activities shall be documented on CFN-1081.
			· Regarding embedded item reviews:
			· Reviews are required for the following concrete excavations:
			· Depths greater than 1-inch from the concrete surface when non-carbide tooling is used
			· Depths greater than 4-inches from the concrete surface when carbide tooling is used
			NOTE: For non-permanent installations, an Inspection Report (IR) is not required when the Lead Civil Field Engineer (LCFE) has evaluated the scope. Once the evaluation is complete and the concrete excavation approved, a drill stop must be used.
			· A drill stop (or similar device) shall be used to prevent damage to embedded items as follows:
			· Non-carbide tooling and carbide tooling with 4 or more cutter head (including full carbide head) shall utilize a drill stop at all times. Tooling shall be controlled by the FE to prevent unauthorized use
			· 2 Cutter head carbide tooling shall utilize a drill stop for concrete excavation depths > 4-inches from the concrete surface

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JHA NO.:	**JHA-00741**	**REV:**	**1**	**ISSUE DATE:**	**12-20-2024**
JHA TITLE:	**Electrical Supports Installation**	**WORK PACKAGE NUMBER:**	**N/A**	**SPECIFIC LOCATION:**	**N/A**

Activity	Sub-Activity	Hazard	Control
			· Drill stops may be turned off (for both non-carbide and carbide tooling):
			o When permitted by design
			· After the condition has been evaluated by the FE and verbal authorization has been given to proceed. FE inspection is required prior to installing anything in the excavation
Post-Installed Concrete Anchors	Pre-Drilling Pre-Excavation	Release of Hazardous Energy Electrical Hazard Property Damage	· Craft personnel shall lay out the concrete excavations and anchor locations specified on the design documents using survey controls. For complex installations or installations with tight tolerances, templates are recommended to facilitate the layout.
			· If a location device (i.e., rebar scanner or ground penetrating radar) cannot be utilized due to adjacent interferences, 1/4-inch diameter pilot holes may be used.
			· When practical, it is recommended for the RS (or designee) to use a locating device (i.e., rebar scanner or ground penetrating radar) for locating embedded items (i.e., reinforcing, pipe, conduit, etc.) or drill pilot holes to establish a pattern within the area where the PICA(s) is to be installed.
Post-Installed Concrete Anchors	Drilling Excavation	Release of Hazardous Energy Electrical Hazard Property Damage	· Ensure that drill stops are obtained and used when required in accordance with the requirements.
			o If an embedded item is encountered, stop drilling/excavating and notify the FE for resolution prior to continuation.
Construction Blind Penetrations	General Requirements	Release of Hazardous Energy Electrical Hazard Property Damage	This Section applies to any aboveground construction activities, including core drilling of concrete walls and slabs, when the following two conditions exist:
			· 1. The potential exists for contacting utilities or damaging permanent plant commodities (including drywall studs).
			· 2. The tool(s) or person(s) involved with the activity will be physically accessing areas where direct visual confirmation of the location of enclosed/hidden hazardous energy sources or permanent plant commodities is not achievable.

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Activity	**Sub-Activity**	**Hazard**	**Control**
			Exceptions:
			· Penetrations limited to the thickness of the gypsum board sheet(s) without entering the blind cavity do not require a blind penetration permit (BPP). Examples include self-drilling screws or using a drill stop to limit the depth of penetration.
			· **NOTE**: CFN-1300 must be completed and approved in accordance with Y17-95-64-902, *UPF Construction Blind Penetrations* prior to physically completing blind penetration activities, including core drilling of concrete walls and slabs, to prevent damage or personal injury.
Ergonomic Hazard Activities	Various Activities	Musculoskeletal Disorder Injury	Contact ES&H/IH (Radio: Channel 1) to evaluate your work activity if any of the following risk factors are encountered.
			Risk Factors
			The risk of musculoskeletal disorder (MSD) injury depends on work positions and postures, how often the task is performed, the level of required effort and how long the task lasts. Risk factors that may lead to the development of MSDs include:
			· **Exerting excessive force**. Examples include lifting heavy objects or people, pushing or pulling heavy loads, manually pouring materials, or maintaining control of equipment or tools.
			· **Performing the same or similar tasks repetitively**. Performing the same motion or series of motions continually or frequently for an extended period of time.

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Activity	Sub-Activity	Hazard	Control
			· **Working in awkward postures or being in the same posture for long periods of time**. Using positions that place stress on the body, such as prolonged or repetitive reaching above shoulder height, kneeling, squatting, leaning over a counter, using a knife with wrists bent, or twisting the torso while lifting.
			· **Localized pressure into the body part**. Pressing the body or part of the body (such as the hand) against hard or sharp edges, or using the hand as a hammer.
			· **Cold temperatures**. In combination with any one of the above risk factors may also increase the potential for MSDs to develop. For example, many of the operations in meatpacking and poultry processing occur with a chilled product or in a cold environment.
			· **Vibration, both whole body and hand-arm, can cause a number of health effects**. Hand-arm vibration can damage small capillaries that supply nutrients and can make hand tools more difficult to control. Hand-arm vibration may cause a worker to lose feeling in the hands and arms resulting in increased force exertion to control hand-powered tools (e.g., hammer drills, portable grinders, chainsaws) in much the same way gloves limit feeling in the hands. The effects of vibration can damage the body and greatly increase the force which must be exerted for a task.
			· **Combined exposure to several risk factors**. May place workers at a higher risk for MSDs than does exposure to any one risk factor.
Orbital Welding (i.e., Swagelok)	Orbital (autogenous) Welding	Electric Shock Burns Fire Eye Damage	Orbital gas tungsten arc welding (GTAW) can be hazardous. Only qualified persons should use this equipment.
			After welding, the work piece, weld head, electrode, fixture block, and collets can be extremely hot and may cause burns.
			The M200 power supply has no internal serviceable parts and must not be disassembled.
			Keep all panels and covers securely in place. Do not touch electrode connector, electrode, or rotor after pressing start. The electrode is electrically charged during the weld process.

UPF JOB HAZARD ANALYSIS

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Activity	Sub-Activity	Hazard	Control
			Frequently inspect input power cord for damage or bare wiring—replace immediately if damaged.
			Properly unplug the power cord. Grasp the plug to remove it from the receptacle.
			Shut off gas supply when not in use.
			Use only with enclosed Swagelok weld heads, which minimize exposure to ultraviolet and infrared rays.
			Do not use extension cords that are in poor physical condition or have insufficient current capacity. Failure to do so can pose fire and shock hazards.
Tungsten Grinder (i.e., Sharpie DX, Piranha III)	Sharpening non-thoriated Tungsten Electrodes	Electric Shock Lacerations Caught Between	Visually inspect the grinder to ensure the motor, power cord, grinding head and related components are all in good working condition.
			Ensure the proper collet size is selected for the diameter of tungsten to be ground; two collets are stored in the top of the head assembly.
			Handle the equipment with care especially when cleaning to avoid dispersal and inhalation of grinding dust.
			Grinder is designed to grind tungsten electrodes only.
			Do not plug grinder into an electrical outlet if cord is frayed or cut.
			Do not unscrew grinder head while the machine is in operation.
			Remove plug from electrical outlet when changing the diamond wheel or cleaning the grinder.
			Keep hands away from moving parts.
			Wear protective hair covering to contain long hair.
			Do not wear loose clothing neckties, rings, bracelets, or other jewelry, which may get caught, in moving parts of the machine.

THE NATION'S URANIUM PROCESSING FACILITY

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Ensure a new corresponding CFN-1251, *UPF Construction Attendance Sheet*, is signed and inserted in the CWP to document JHA briefing.					
PREPARER:	Nicholas Prewitt Printed Name/Signature			12/20/24 Date	
APPROVAL:					
ES&H:	Anton Panev Printed Name/Signature			12/20/24 Date	
SITE MANAGER: (DOA-CM-801768-A214)	Dustin Reddick Printed Name/Signature			12/23/24 Date	