THE NATION'S URANIUM PROCESSING FACILITY

UPF JOB HAZARD ANALYSIS

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JHA NO.:	**JHA-00749**	**REV:**	**2**	**ISSUE DATE:**	**2-28-25**
JHA TITLE:	**Installation of Modular Mechanical Equipment**	**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	· 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

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Activity	**Sub-Activity**	**Hazard**	**Control**		
		Fire (Hot Work)	· 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)		
			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.*		
Jacks--Lever, Screw, Hydraulic, and Ratchet	Jacks--Lever, Screw, Hydraulic, and Ratchet	Potential Energy Release (Mechanical)	When using jacks, perform the following:		
			· Verify the manufacturer's rated capacity is marked legibly on each unit		
			· Verify the presence of a positive stop to prevent over-travel on all jacks		
			· When the potential exists for slippage from the metal cap of the jack, establish a firm foundation during a lift by setting in place blocking and cribbing at the base of the jack and a wood block between the cap and the load		
			· Crib, block, or otherwise secure a load immediately after it has been raised		
			· Lubricate jacks at regular intervals and inspect them frequently, but not less frequently than the following:		
			o Once every six months for constant or intermittent use		
			o When jacks are sent out of shop for special work or when returned		
			o When a jack is subjected to abnormal load or shock, immediately inspect before and after use		
			· Examine repaired jacks and associated replacement parts for possible defects		
			Tag defective jacks and take out of service until repaired		
	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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Activity	Sub-Activity	Hazard	Control
Manual Material Handling		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*
Dropped Object Prevention	General Controls	Dropped Objects	Review the applicable work activities and implement the associated work controls listed in **JHA-00715,** *Dropped Object Prevention*
Personal Protective Equipment (PPE)	Hot Work	Burn	Clothing shall be selected to minimize the potential for ignition, burning, entrapment of hot sparks, or electric shock. Personnel performing welding and associated hot work activities shall:
			· Wear a shirt, jacket, or equivalent that meets the requirements of hazard risk category 2 (in accordance with NFPA 2112, *Standard on Flame-Resistant Clothing for Protection of Industrial Personnel Against Short-Duration Thermal Exposures from Fire*)

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· Wear pants/trousers made from heavier materials (e.g., heavy cotton, denim) that overlap footwear to prevent spatter from entering
			· Keep sleeves and collars buttoned
			· Wear clothing that is free from pockets, hoods, or cuffs that can trap sparks or slag
			· 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
			· 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 card briefing
Personal Protective Equipment (PPE)	Welding	Arc Flash	· Personnel performing welding activities shall wear a welding helmet (hood) that meets the requirements of ANSI Z87.1 to protect themselves from welding arc, sparks, and spatter
			· Filter lenses shall be selected for the specific welding operation in accordance with ANSI Z49.1, *American National Standard for Safety in Welding, Cutting, and Allied Processes*, Table 1 – "Guide for Shade Numbers." Refer to Appendix B, *Guide for Shade Numbers in Welding*
			NOTE: *Minimum shade requirements for welding operations are identified in the JHA for the activity.*
			· Safety glasses or goggles must be worn in addition to the welding helmet
			· Support personnel in the immediate welding area must wear a similar level of eye and face protection
Personal Protective Equipment (PPE)	Task Specific Eye/Face Protection	Flying Particles	· Refer to ML-SH-801768-A002, *UPF Eye and Face Protection List*, for task-specific eye and face protection directives
			· Goggles and sealed eyewear (e.g., spoggles) may be required to provide protection from impact, dust, mists, and splashes that are generated by work activities

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· Face shields are required when workers are exposed to flying objects, molten metal, liquid chemicals, or potentially hazardous light radiation. Face shields shall be worn in conjunction with primary eye protection (safety glasses or goggles)
Personal Protective Equipment (PPE)	Hearing Protection - Noise Levels Between Eighty-Five (85) and Ninety-Nine (99) dBA.	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
			· 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

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Activity	**Sub-Activity**	**Hazard**	**Control**		
			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:		
			· **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 Control and Communication	Review the applicable work activities and implement the associated work controls listed in **JHA-00712,** *Barricades, PPE, FLHA.*		
Compressed Gas Cylinder; Liquefied	General Requirements	Spills Asphyxiation Muscle Strain Ergonomic	Review the applicable work activities and implement the associated work controls listed in **JHA-00713,** *Compressed Gas, LPG, and Inert Gas.*		

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Activity	Sub-Activity	Hazard	Control
Petroleum Gas; and Liquefied Inert Gas Use		Cryogenic Burn Fire	
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 Hot Work	A worker assigned as a Fire Watch:
			· 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

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Activity	**Sub-Activity**	**Hazard**	**Control**
			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.
			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	Confined Space Watch (Attendant)	Confined Space	· A Confined Space Watch, also referred to as an attendant, is required when personnel must enter a permit-required confined space (e.g., vessel, tank, pit,
			excavation).
			Workers assigned as a Confined Space Watches must wear orange vests in accordance with UPF-CP-205.
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

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Activity	**Sub-Activity**	**Hazard**	**Control**
			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)
			· 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

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			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
			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)	Concrete Prep. Drilling in Concrete	Flying Particles Inhalation of Particulates (Silica) Environmental Waste	· Reference ML-SH-801768-A002, UPF Eye and Face Protection List
			· 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:

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			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.
Confined Space Entry (Life Critical Activity)	General Requirements	Engulfment/Entrapment Hazardous Atmosphere Limited Access/Egress	· Never enter a confined space unless you are trained and authorized to do so, and an entry evaluation or permit has been completed
			· Never enter a confined space unless atmospheric testing has been performed
			· Never enter a confined space without an approved permit
			· Never enter a confined space without an attendant at the entrance. Even when an attendant is present, do not enter without an effective way to communicate with the attendant from inside the confined space
			· Confined spaces include, but are not limited to, sewers, tunnels, underground utility vaults, water towers, storage tanks, process vessels, bins, boilers, and ductwork
			· These spaces share common characteristics that help us understand what a confined space is.
			· Characteristics of a confined space include the following:
			o it is large enough for a worker or workers to enter
			o it has limited means of entry and exit
			o it is not designed for people to enter and work in on a regular basis, and it can contain some form of hazard
			· Some hazards that can be present in confined spaces are oxygen deficiency, flammable or explosive gases, toxic gases, slips and falls, and electrical and mechanical hazards. Contact ES&H for assistance and evaluation of confined spaces on the construction site

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· IF a suspect space is confined AND you cannot confirm that a confined space classification was conducted, THEN DO NOT enter the space
			· Contact supervision to determine if the space was evaluated and classified
			· IF supervision cannot provide a confirmation, THEN request that ES&H classify the space
			· Do not enter any confined space prior to contacting ES&H and completing UCN-23273, *Confined Space Entry Evaluation*
Hot Work	Fire Watch	Fire	A single Fire Watch can support multiple co-located hot work operations as long as:
			· The hot work activities are within the same permitted location and covered by a single hot work permit
			· The hot work operations can be observed from the same observation position, and must have clear line-of-sight to the operation
			· Clear communication exists between each hot work operation and the Fire Watch
			· The Fire Watch has clear access to the hot work operation to allow for quick response
			· In a Permit-Required Area, observe hot work operations to ensure fire safe conditions, as specified in the Hot Work Permit, are maintained
			· Remain in the area for at least 30 minutes after the completion of hot work operations to detect and extinguish smoldering fires
			· Close CFN-1139 once the hot work operation and Fire Watch responsibilities are complete.
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	Implementing Field Level	Unidentified and	Prior to beginning work activities each day or after an extended break or interruption (e.g., shift change, weekend), perform the following:

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Assessment (FLHA)	Hazard Assessment	Unmitigated Hazards	· 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
			· 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.
Scaffold Use (Life Critical Activity)	Scaffold User	Unauthorized Use	· Never access any scaffold without documented evidence of inspection by a designated Competent Person for scaffolding before each work shift
			· Obey the scaffold requirements at all times

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		Fall to Elevation Below Slips and Trips	· Never use any scaffold without a proper tag that displays the current day's date. Scaffold requirements include strict adherence to the color-coded tagging system of red (Danger—Unsafe for Use), yellow (Caution), and green (Safe for Use) tags, as appropriate		
			· Never access a red-tagged scaffold. Only authorized scaffold builders are permitted to access a red-tagged scaffold, and they are required to wear fall protection		
			· Never access a yellow-tagged scaffold without proper fall protection		
			· Consider all scaffolds without tags as red-tagged scaffolds		
			· Never alter or modify a scaffold, unless you are a designated Competent Person, who is qualified and authorized to do so		
			· Touching-the-tag before each use to ensure a scaffold inspection has been completed for the shift		
			· Never access any scaffold without a documented and tagged daily inspection. Inspect the scaffold prior to use, looking for holes in the platform, missing handrails and other potential hazards		
			· Never access a red-tagged scaffold. Only authorized scaffold builders are permitted, and they must wear required fall protection		
			· Never access a yellow-tagged scaffold without 100% tie-off or fall protection		
			· Indicating on the scaffold request when intended use will require scaffold capacity greater than light duty (i.e., 25 pounds per square foot [psf])		
			· Ensuring scaffold is not loaded in excess of its duty rating		
			· Maintaining housekeeping and accumulation of materials to prevent dropped objects		
			· Notifying scaffold erectors when pearlweave, toe board, or other dropped object prevention controls need repair		

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· Utilizing barricading, as required, when scaffold dropped object controls (e.g., mesh, toe boards) are incomplete OR when hoisting material outside of the dropped object confines of the scaffold
Scaffold Use (Life Critical Activity)	Scaffold Safety	Unauthorized Use Fall to Elevation Below Slips and Trips	· Climbing on scaffolding components (e.g., cups, rings, diagonal members) is not allowed
			· Free Climbing scaffold structures in any direction above a height greater than 6 ft without using a Personal Fall Arrest System (e.g., harness and retractable lifeline) tied off to an acceptable anchor point is not allowed
			· Ensure an adequate working surface during erection/dismantlement activities
Hoisting and Rigging Work Operations (Life Critical Activity)	General Requirements	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	Review the applicable work activities and implement the associated work controls listed in **JHA-00722,** *Hoisting, Rigging, and Material Handling*.
Bull Rigging (Life Critical Activity)	General Requirements	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	Review the applicable work activities and implement the associated work controls listed in **JHA-00722,** *Hoisting, Rigging, and Material Handling*.
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	General Requirements	Contact with Surrounding	· Never operate any mechanical elevated work platform without documented training

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Activity	**Sub-Activity**	**Hazard**	**Control**
Work Platforms (MEWPs) (Life Critical Activity)		Structure, Equipment, or Commodities Fire Entrapment Limited Access/Egress Dropped Objects Electrical Shock Fall to Elevation Below	· 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 · 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

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· 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, Equipment, or Commodities	Only trained and qualified personnel shall operate aerial or scissor lift devices in accordance with the following:
		Fire	· All personnel must wear an approved PFAS in accordance with the requirements of Section 3.0, *Fall Prevention and Protection*
		Entrapment	· 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
		Limited Access/Egress	· Aerial/scissor lift platform or basket will not be secured to any structure for any reason nor be allowed to rest on any structure
		Dropped Objects	· When aerial/scissor lift equipment is used with outriggers, outriggers shall be positioned on a solid surface
		Electrical Shock	· 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
		Fall to Elevation Below	· 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

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· 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 • The Responsible Supervisor for the work and an ES&H Representative must approve the activity and document the approval on CFN-1323 • 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		Inspect ladders prior to use to verify:

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Activity	Sub-Activity	Hazard	Control
		Fall to Elevation Below Dropped Objects	· 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
			· 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		· 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**
		Fall to Elevation Below Dropped Objects	· Other materials are not to be stored on ladders
Welding, Cutting, and Brazing	General Requirements	Inhalation of Coating Fume Burns Flying Particles Arc Flash Shock Fire (Hot Work) Ingestion	Review the applicable work activities and implement the associated work controls listed in **JHA-00719,** *Fire Prevention, Protection, Hot Work and Welding*.
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	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.

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Activity	Sub-Activity	Hazard	Control
	Carbon Steel (Stick Welding)		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.
			Wear safety glasses and a welding hood with a lens shade as follows:

Electrode Size - in. (mm)	Arc Current (Amperes)	Minimum Protective Shade	Suggested* Shade No. (Comfort)
Less than 3/32 (2.4)	Less than 60	7	10 (*)
3/32 - 5/32 (2.4 - 4.0)	60 - 160	8	10
5/32 - 1/4 (4.0 - 6.4)	160 - 250	10	12
More than 1/4 (6.4)	250 - 550	11	14

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Activity	Sub-Activity	Hazard	Control
Welding, Cutting, and Brazing	Gas Tungsten Arc Welding (GTAW)/Tungsten Inert Gas (TIG) on Carbon Steel	Arc Flash Inhalation of Welding Fume	Wear safety glasses and a welding hood with a lens shade as follows: **Arc Current (Amperes)** / **Minimum Protective Shade** / **Suggested* Shade No. (Comfort)** Less than 50 / 8 / 10 50 - 150 / 8 / 12 150 - 500 / 10 / 14 **Outdoors**: Ensure adequate natural ventilation, no additional controls. **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.
Welding, Cutting, and Brazing	Gas Tungsten Arc Welding (GTAW) / Orbital Welding on Stainless Steel, Hastelloys and Inconels	Hexavalent Chromium Inhalation of Welding Fume Arc Flash	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. 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. **Outdoors**: Ensure adequate natural ventilation, no additional controls. **Indoors**: Ensure adequate general/mechanical ventilation, no additional controls. **Enclosed/Confined Areas**: Contact IH for additional and specific controls for the conditions at hand.

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Activity	Sub-Activity	Hazard	Control
			Wear safety glasses and a welding hood with a lens shade as follows: **Arc Current (Amperes)** / **Minimum Protective Shade** / **Suggested* Shade No. (Comfort)** Less than 50 / 8 / 10 50 - 150 / 8 / 12 150 - 500 / 10 / 14
Welding, Cutting, and Brazing	Gas Metal Arc Welding (GMAW/Metal Inert Gas (MIG) on Stainless and Carbon Steel	Hexavalent Chromium Inhalation of Welding Fume Arc Flash	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.
			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.
			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) AND at a minimum, a half-face Air Purifying Respirator (APF 10) with a HEPA/P 100 filter is required.
			When local exhaust ventilation is not feasible, provide adequate general/mechanical ventilation AND 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 10 linear feet per minute per welder/operator and with an inline high efficiency particulate air (HEPA) filter (i.e., fume extractor) AND at a minimum, a half-face Air Purifying Respirator (APF 10) with a HEPA/P 100 filter is required.
			Barricade and Signage: Install danger barricade tape with completed danger signs or tags around the welding activity to adequately protect adjacent personnel.

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Activity	Sub-Activity	Hazard	Control
			Wear safety glasses and a welding hood with a lens shade as follows: **Arc Current (Amperes)** / **Minimum Protective Shade** / **Suggested* Shade No. (Comfort)** Less than 60 / 7 / - 60 - 160 / 10 / 11 160 - 250 / 10 / 12 250 - 500 / 10 / 14
Removal of Fireproofing	Cementitious Fireproofing (via non-powered tools)	Environmental Waste Inhalation	· 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)
			o Wet the cementitious fireproofing with water to reduce the generation of dust
Removal of Fireproofing	Intumescent Fireproofing (via powered tools)	Environmental Waste Inhalation	· 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 Waste Staging Area
			· 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. This also includes the backside of the weld joint when it's accessible.
			· 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

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Activity	**Sub-Activity**	**Hazard**	**Control**
			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.
Linear Module, Handling and Rigging	Module Movement Planning	Loss of Control	· Prior to handling any infill linear modules Forman confirms load for compliance with drawings and piece numbers to prevent double handling
			· Qualified Rigger (QR) will plan with the Foreman the load handling operations, including proper equipment and rigging hardware
			· QR will plan with the FM the safest travel path inside the building and identify height of cribbing required to clear obstacles
			· QR will confirm required chain fall size and chain fall placement location for interior positioning/installation
			· QR will identify the module points for attachment of the rigging and ensure correct size rigging is utilized
			· QR will identify any yellow shipping steel to be removed as necessary
			· QR must be a part of the FLHA discussion for all linear modules where handling plans will be discussed with the crew
			· Sketch FSK-CM-801768-A192 will be used as a demonstration of proper skate placement and module orientation during travel/positioning
Linear Module, Handling and Rigging	Initial Offload	Loss of Control	· Offload linear modules from the trailer as a unit in the vertical position and set in the lay down area for disassembly into separate individual linier modules
			o Each disassembled module component is rigged/lifted and set in the staging area in the horizontal position
Linear Module, Handling and Rigging	Prep to Move into Building/Structure	Loss of Control	· Crew confirms interior travel path and utilizes appropriate cribbing on skates per the plan
			· During module movement on skates - Spotter must accompany load and notify surrounding area. Workers must stay out of line of fire

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Activity	Sub-Activity	Hazard	Control
Linear Module, Handling and Rigging	Prep for Installation	Loss of Control	· The installation location is properly barricaded for the lifting operations
			· At the installation location the module is rigged per QR direction and lifted from the horizontal to the vertical position for bolt up
Linear Module, Handling and Rigging	Module Storage	Loss of Control	· Any vertically stored module not being actively worked must be secured by lashing to complete main structural steel in which all bolts are installed and tight. Lashing may consist of wire rope and clips, Synthetic chain, or slings/shackles/rigging hardware to secure the load on cribbing until the next shift
			· At initial installation, 2 bolts per connection are required prior to the crew leaving for any reason. No mechanical rigging will be left in place (under a load) during lunch or after shift
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
			· 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	Pre-Drilling Pre-Excavation	Release of Hazardous Energy Electrical Hazard	· 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.

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Activity	**Sub-Activity**	**Hazard**	**Control**		
		Property Damage	· 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.		
			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.		

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Activity	**Sub-Activity**	**Hazard**	**Control**		
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.		
			· **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.		

My signature on the corresponding CFN-1251, UPF Construction Attendance Sheet, indicates that I have read the JHA and have received answers to any questions I had relative to the JHA. My signature further indicates my willingness to comply with the provisions and requirements of the JHA.

JHA NO.:	**JHA-00749**		**REV:**	**2**	**ISSUE DATE:** **2-28-25**
JHA TITLE:	**Installation of Modular Mechanical Equipment**		**WORK PACKAGE NUMBER:**	**N/A**	**SPECIFIC LOCATION:** **N/A**
Activity	**Sub-Activity**	**Hazard**	**Control**		
			· **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.		
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

UPF JOB HAZARD ANALYSIS

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JHA NO.:	**JHA-00749**	**REV:**	**2**	**ISSUE DATE:**	**2-28-25**
JHA TITLE:	**Installation of Modular Mechanical Equipment**	**WORK PACKAGE NUMBER:**	**N/A**	**SPECIFIC LOCATION:**	**N/A**
Ensure a new corresponding CFN-1251, *UPF Construction Attendance Sheet*, is signed and inserted in the CWP to document JHA briefing.					
PREPARER:		Anton Panev		02/28/25	
		Printed Name/Signature		Date	
APPROVAL:					
ES&H:		Robert Drake		02/28/25	
		Printed Name/Signature		Date	
SITE MANAGER: (DOA-CM-801768-A214)		Christopher Hogan		03/31/25	
		Printed Name/Signature		Date	