THE NATION'S URANIUM PROCESSING FACILITY

UPF JOB HAZARD ANALYSIS

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JHA NO.:	**JHA-00760**		**REV:**	**1**	**ISSUE DATE:** **2-28-25**
JHA TITLE:	**Installation of Sprinkler Pipe, Supports and Associated Hardware**		**WORK PACKAGE NUMBER:**	**N/A**	**SPECIFIC LOCATION:** **N/A**
Activity	**Sub-Activity**	**Hazard**	**Control**		
General Site Activities	Remote/Lone-Worker	Delayed and Inadequate Response	Prior to accessing remote areas, ensure the Supervisor is notified for accountability and a reliable communication method is maintained (e.g., phone). When accessing a specific work area/activity additional briefing may be required (e.g., FLHA card briefing).		
			NOTE: *For lone worker activities- Ensure Supervisor or designated co-worker is informed when leaving and expected return. Check in with Supervisor or designated co-worker when return to office.*		
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	Tools used on the UPF construction site shall not be manufactured, altered, modified, or in any way changed without the explicit approval of the UPF Site Manager and ES&H Manager.		
			Personnel shall Ensure hand tools are safe by performing the following:		
			· Inspecting tools before each use for damage or defects, such as:		
			o Cracked handles		
			o Damaged cutting edges		
			o Splitting or cracked parts		
			o Broken adjusting components		
			o Insulation damage (e.g., flattened, cuts, abrasions, burnt or discolored		
			conductors, melted cord caps, cord deformation)		
			· Verifying that the work package identifies non-sparking tools when the work to be		
			performed may require them		
			· Testing daily ground fault circuit interrupter (GFCI) receptacles prior to use, including		
			portable units		
			· Verifying tools and their components (e.g., guards, retainers, and other safety mechanisms) are not altered and that they are operated in accordance with the manufacturers' specifications		

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			· Ensuring guards are in place for tools, such as saws and grinders, while they are in operation		
			· Ensuring that tools are not abused, are kept in good operating condition, and are		
			only used for their intended purposes		
			· Double insulating or grounding all electrically powered tools. If there is evidence that the ground pin has been damaged or removed, then immediately take the tool out of service, tag it, and return it to a controlled area for repair		
			· Protecting temporary construction outlets used for 120-volt tools with GFCI devices		
			· Inspecting woodworking tools for the following:		
			o Fixed power-driven tools have disconnect switches that can be either locked or tagged in the off position		
			o Circular saws that are over 20 inches in diameter and/or operated over 10,000 peripheral feet per minute have clearly marked operating speeds		
			o Installed automatic feed devices are covered and/or guarded		
			· Ensuring that the manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings used for conducting compressed air are not exceeded		
			· Ensuring that the pressure of compressed air used for cleaning purposes is less than 30 pounds per square inch. Compressed air shall not be used for cleaning or blowing dust from any part of the body or clothing		
			· Securing airline hoses for hand tools and other equipment together (i.e., with whip restraints) to preclude uncontrolled whipping in the event that hose couplings become separated while under pressure		
			· Protecting air-supplying hoses exceeding 1/2-inch internal diameter with an excess flow valve to prevent whipping in the event of hose separation or failure		

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			· Installing air receivers and associated drains, traps, gauges, and safety valves to promote ease of access and safe operation		
			· Having personnel Ensure portable grinders are properly configured for either a		
			left-handed or right-handed person's use, as applicable		
			· Providing portable grinders with a hood-type guard with side enclosures that cover the spindle and at least 50 percent of the wheel. All wheels shall be inspected regularly for signs of fracture		
			· Bench grinders shall be equipped with deflector shields and side cover guards that have:		
			o A maximum angular exposure of the grinding wheel periphery and sides not more than 90 degrees, except when work requires contact with the wheel below the horizontal plane of the spindle		
			o An angular exposure not exceeding 125 degrees		
			o An exposure not beginning more than 65 degrees above the horizontal plane of the spindle		
			o Have tool rests with a maximum clearance of 1/8-inch between the wheel and		
			grinding stone		
			· Hand-held grinders shall be equipped with a constant pressure switch.		
			· Supervisors shall Ensure frequent light dressings on bench grinders are performed.		
			· When turning on a bench grinder, the users shall stand off to one side until the wheel has come up to full speed.		
			· Personnel shall inspect all wheels before use for signs of fracture.		
			· Prior to operating a bench grinder, personnel shall conduct a "ring test" (i.e., gently tap the wheel with an object, which should yield a metallic tone or "ring"). If there is a "dead" sound, then take the grinder out of service and replace the wheel		

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			· Electric bench grinders shall be equipped with an anti-restart feature to prevent restart after an electrical power outage		
			· Shop machines (e.g., drill presses, fixed saws, or bench grinders) shall be effectively fastened or secured in place to prevent movement during operation and use.		
			· Tool safety retainers shall be installed on portable tools when required by the tool manufacturer (e.g., nail gun retainer).		
			· Fuel-powered tools shall not be used in unventilated areas. Fuel shall be dispensed only from approved safety cans. These cans shall be properly labeled and stored.		
			· Cutting tools approved for general application are cutters with an integrated safety device (i.e., self/automatic retracting blade) or safety design (i.e., scissors, shears, wire strippers, or recessed/protected blades).		
			· Prior to using cutting tools not approved for general use (i.e., fixed blade knives), Ensure the Job Hazard Analysis (JHA) identifies the hazards and controls associated with the use of the tool(s) and that approval is received from the ES&H Manager or designee. The approval shall be documented on the Field Level Hazard Assessment (FLHA) card for the specific task. Refer to Y17-95-64-823, UPF Field Level Hazard Assessment/ Job Hazard Analysis Program (FLHA/JHA) Process.		
Drill Presses	Drill Presses (Floor, Bench, and Magnetic) Manufactures Recommendations	Crushing Striking Entanglement Hot Objects and Components Flying Particles	· Always be sure the machine support is securely anchored to the floor or the work bench		
			· Do not overreach. Keep proper footing and balance at all times		
			· Never leave chuck keys, wrenches, or any other tools on machine. Always verify removal before starting		
			· Keep guards in place and in proper working order. Do not operate the machine with guards removed		
			· Never leave the machine running while unattended. Machine shall be shut off whenever it is not in operation		

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			· All work shall be secured using either clamps or a vise to the drill press table. It is unsafe to use your hands to hold any workpiece being drilled
			· Never brush away any chips while the machine is in operation. All clean up should be done when the machine is stopped
			· Keep hands in sight and clear of all moving parts and cutting surfaces. Do not put hands or fingers around, on, or below any rotating cutting tools
			· Reference ML-SH-80176-A002, *UPF Eye and Face Protection List*
			· Ensure drill press is grounded in accordance with the National Electrical Code and local codes and ordinances
Threading Machines	Threading Machines (includes Hand-Held) Manufacturer's Recommendations	Crushing, Striking, Entanglement, Hot Objects and Components/Flying Particles	· Keep handles and grasping surfaces dry, clean and free from oil and grease
			· Secure machine to bench or stand. Support long heavy pipe with pipe supports
			· Do not overreach. Keep proper footing and balance at all times
			· Restrict access or barricade the area when work piece extends beyond machine to provide a minimum of (3-4 feet) clearance from the work piece
			· While operating the machine, stand on the side where the operator control switch is located
			· Keep hands away from rotating pipe and fittings. Stop the machine before wiping pipe threads or screwing on fittings. Allow the machine to come to a complete stop before touching the pipe or machine chucks
			· Do not use this machine if the foot switch is broken or missing
			· One person must control the work process, machine operation and foot switch
			· Never reach into the machine front chuck or rear centering head
			· Never leave the machine running while unattended. Machine shall be shut off whenever it is not in operation

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			· Always firmly hold the power drive when threading or backing die head off the pipe to resist threading forces, regardless of support device use. (Hand-Held 700 Power Drive)		
			· When threading 1" or larger pipe, use support device to resist threading forces. Use an appropriate support device per manual instructions. Pipe ¾" and smaller nominal dimension can be threaded without the use of support device. (Hand-Held 700 Power Drive)		
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.		

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Manual Material Handling	Pallet Jack Use	Muscle Strain/Sprain Ergonomics Pinch Points Crushed By Struck By Caught Between	· Do not overload the machine. Be aware of dynamic loading! Sudden load movement may briefly create excess load causing product failure
			· 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 and for guidance on how to conduct a risk assessment on 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

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			· 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
			· 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*

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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)	General Requirements	Hazards Associated with Construction Activities	Review the applicable work activities and implement the associated work controls listed in **JHA-00712,** *Barricades, PPE, FLHA*
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.

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Fire Prevention and Protection	Ignition Hazards	Fire	· INSTALL electrical wiring and equipment for light, heat, or power purposes in accordance with UPF-MANUAL-CM-001, *Uranium Processing Facility Construction Electrical Safety Manual*
			· DO NOT SMOKE unless in a designated smoking area in accordance with UPFPOLICY-CM-004, *UPF Smoking/Tobacco Use Policy*
			· LOCATE exhausts of internal combustion engine-powered equipment away from combustible materials
Fire Prevention and Protection	Construction Material and Equipment Staging	Fire	· WHEN equipment to be installed is staged in unprotected structures under construction, REMOVE associated combustible construction and packing materials, unless authorized by the FPE
			· To the extent possible, materials used for temporary construction purposes inside of
			buildings/structures shall be of the fire-resistive type
			· Combustible materials staged for imminent use inside buildings under construction shall not exceed five days, unless authorized by the BNI FPE
			· MAINTAIN at least a 36-inch clearance between the top level of the stored material and the sprinkler deflectors
			· MAINTAIN clearance around lights and heating units to prevent ignition of combustible materials
			· DO NOT STORE material within 36 inches of a fire door opening
Fire Prevention and Protection	Waste Disposal	Fire	· REMOVE accumulations of combustible waste material, dust, and debris at the end of each work shift or more frequently (as necessary)
			· DISPOSE of materials susceptible to spontaneous ignition (e.g., oily rags) in a listed disposal container

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			· Trash chutes shall be constructed of noncombustible materials or fire retardant, and plans must be approved by the CAHJ prior to use
Fire Prevention and Protection	Yard Storage	Fire	ENSURE yard storage meets the following criteria:
			· PILE combustible materials with due regard to the stability of the piles, but no higher than 20 feet
			· KEEP the storage areas free from accumulation of unnecessary combustible materials, keep weeds and grass down, and provide periodic cleanup of the entire area
			· DO NOT STORE combustible material outdoors within 30 feet of a building or structure
			· PROVIDE portable fire extinguishing equipment suitable for the fire hazard involved at convenient, conspicuously accessible locations in the yard area
Barricades and Signs (Life Critical Activity)	General Requirements	Improper Hazard Communication and Mitigation	Review the applicable work activities and implement the associated work controls listed in **JHA-00712,** *Barricades, PPE, FLHA*
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	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.

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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.		
High Noise Activities	Hearing Protection	Noise	Workers are responsible for complying with the requirements of the HCP, including the following:		
			· Wear required hearing protection PPE (e.g., earmuffs and/or earplugs)		
			· Wear noise dosimeter devices, as assigned by PIH or ES&H Representative		
			· Follow HCP-required safety postings		
			· Attend or participate in HCP training or other requirements (e.g., audiograms)		
			Noise hazards will be assessed as part of the work planning process via job hazard analysis (JHA). In addition, workers will review noise hazards and hazard controls at the work location daily (or more frequently as appropriate) via the Field Level Hazard Assessment (FLHA) process		

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			Workers must wear hearing protection devices when any of the following situations or conditions applies:
			· Waiting for a sound-level survey to be completed
			· Performing a task whose work documents (e.g., JHA, FLHA) and/or this program require workers wear hearing protection
			· Working in or passing through posted noise hazard locations as specified by the area postings or signs
			· Using tools designated as high-noise equipment.
Respiratory Protection	Voluntary Respirator Use	Improper use of Respiratory Protection	Employees approved for voluntary dust mask use shall be provided the information contained in UCN-23310, *UPF Filtering Facepiece Approval/Issue for Voluntary Use*
Working with Materials Containing Respirable Crystalline Silica (RCS)	Methods of Compliance	Inhalation of Particulates (Silica)	· For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust
			· For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust
			· For measures implemented that include an enclosed cab or booth, Ensure the enclosed cab or booth is maintained as free as practicable from settled dust, has door seals and closing mechanisms that work properly, has gaskets and seals that are in good condition and working properly, is under positive pressure maintained through continuous delivery of fresh air, has intake air that is filtered through a filter that is 95% efficient in the range between 0.3 and 10.0 micrometers (e.g., Minimum Efficiency Reporting Value rating of 16 or better), and has heating and cooling capabilities
			· If the equipment/task is not listed or does not apply as indicated in Attachment A, then the use of engineering controls and associated work practice controls shall be considered as the primary method for controlling worker exposures to respirable silica dust.
			Typical work practice controls include the following:

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JHA TITLE:	**Installation of Sprinkler Pipe, Supports and Associated Hardware**		**WORK PACKAGE NUMBER:**	**N/A**	**SPECIFIC LOCATION:** **N/A**
Activity	**Sub-Activity**	**Hazard**	**Control**		
Working with Materials Containing Respirable Crystalline Silica (RCS)	Work Practice Controls	Inhalation of Particulates (Silica)	· Inspect and maintain controls to prevent or fix malfunctions that could result in increased exposures		
			· Confirm that nozzles spray water at the point of dust generation for wet method controls		
			· Confirm that hoses are not kinked on a tool used with a dust collector		
			· Moisten crystalline silica dust before sweeping, shoveling, or vacuuming		
			NOTE: *Material must be continuously and thoroughly wetted at all times with no visible dust generation*		
			· Schedule work so that tasks that involve high exposures are performed when no other		
			applicable project personnel are in the area		
			· When necessary, barricades and signs shall be used to control personnel access to areas to limit not only the number of applicable project personnel exposed to respirable crystalline silica but also the levels to which applicable project personnel are exposed		
			· Follow the applicable sections of UPF-CP-318, *Respirator Use and Issuance* and UPF-CP-214, *Barricades and Signs*.		
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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Activity	**Sub-Activity**	**Hazard**	**Control**
			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)	Drilling	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:
			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)

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Activity	**Sub-Activity**	**Hazard**	**Control**
			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 and/or 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
			· IF a suspect space is confined AND you cannot confirm that a confined space classification was conducted, THEN DO NOT enter the space

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· 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*
Lockout/Tagout (Life Critical Activity)	General Requirements	Release of Hazardous Energy Defeating a Safety Device	· Never commence work until all energy sources have been identified and isolated in accordance with procedures
			· Never remove and/or tamper with any tag and/or lock installed for the safety of personnel.
			Lock and tag machinery, equipment, components, and/or systems that may contain any type of stored energy before work begins
			· Eliminate all residual or stored energy before starting any work activities
			· The LO/TO program prevents the accidental release of hazardous energy such as electricity, compressed gases, liquids, and steam. The LO/TO program includes requirements for tagging, locking, blanking, capping, or blocking of moving mechanical parts, and for isolating electrical systems to prevent their being energized accidentally or without authorization
			· You must be trained on work-specific LO/TO requirements to be authorized to lock or tag out equipment and machinery
			· Never remove and/or tamper with any tag and/or lock installed for the safety of personnel
			· Prior to work, lock and tag machinery, systems, equipment, components, and/or systems that may contain any type of stored energy
			· Identify and eliminate all residual/stored energy prior to any work activities

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Activity	**Sub-Activity**	**Hazard**	**Control**		
			· Sign the authorized lockout/tagout EIP permit, as required in accordance with procedures, prior to work activities		
			· Do not perform work on any machinery, system, or equipment covered by LO/TO procedures without authorization or approved training		
			· Never manipulate any machinery, equipment, or system devices covered by any type of a LO/TO or restricted-use tagging permit without authorization and/or if not in accordance with procedures		
			· All panels and circuit breakers shall be easily identifiable with signage and NFPA 70E warning labels		
			· Only qualified electrical workers shall perform zero-energy checks using approved test equipment. Appropriately rated arc flash PPE will be used as required by the warning label or engineering calculation		
			· All electrical equipment to be inspected prior to use, any damaged equipment to be removed from service and quarantined. Insulating gloves shall be rated for the hazard, air tested for holes prior to use, and maintained with proper annual testing records		
			· Check access and escape routes are clear at all times		
Lockout/Tagout (Life Critical Activity)	Prerequisites to Isolation	Release of Hazardous Energy	The following are prerequisites to isolation:		
			· Personnel shall not isolate a piece of plant equipment until they possess the appropriate training, competencies, and authorization to isolate a specific item of plant or equipment		
			· Personnel shall not work on or within safe approach boundaries of a piece of plant equipment until they possess the appropriate training, competencies, and authorization		
			· Any personnel escorting a visitor ensures the visitor does not manipulate or otherwise tamper with any plant component under control of this Procedure		

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· An EIP is not always required for certain work scopes that can be executed by isolation under direct control of the individual performing the work
			· Personal locks shall only be attached and removed by their owner utilizing the lock's uniquely matched key
Lockout/Tagout (Life Critical Activity)	Preparation, Issue, and Implementation	Release of Hazardous Energy	· The intent of CFN-1312A and CFN-1312B is to protect people. If any doubt exists regarding the level of protection that an isolation might provide, any potential hazards and mitigation necessary shall be fully addressed via the Job Hazard Analysis (JHA) process
			· No work shall proceed within the boundary of the EIP until the isolation points are verified, the permit has been signed as issued by the TA, and the WGS and/or AE for the working group have signed on the permit accepting the permit and zero-energy has been verified.
Pneumatic Pressure Testing	General Requirements	Over Pressurization Unnecessary Exposure/ Inadequate Communication Laceration Noise (Pneumatic Pressure Testing) Pressure Release/Flying Particles Unintentional Release of Stored	Contact IH for specific hearing protection requirements.
			Barricade and Signage:
			· Install caution signs, or caution barricading tape with caution signs or tags requiring hearing protection at the approximate eighty-five (85) Dba boundary
			List the noise sources and contact information on the sign or tag:
			· Supervisor's name, phone number, or radio channel
			· Wear sealed safety glasses or goggles and a face shield OR safety glasses and a face shield when depressurizing pneumatic pressure tests
			· Secure hoses with properly installed whip restraints
			· Install danger barricade tape with danger signs or tags at the Minimum Required Test Boundary as defined in the Pressure Test Data sheet

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Activity	**Sub-Activity**	**Hazard**	**Control**
		Hazardous Energy (Pneumatic)	· List the contact information on the sign or tag: supervisors name, phone number, or radio channel
			· When releasing pressure after completion or suspension of the test, keep barricades and signs or tags in place until pressure has been released and the gauges are near zero (0)
			· Ensure all fittings, connections, and test plugs are secured and/or torqued
			· When increasing or releasing pressure, slowly open valves to avoid hammering the system. Report leaks as soon as they are identified. Release energy in a direction that will minimize exposure
			· Do not adjust or tighten pipe or tubing fittings or bolted connections if the pressure is above one hundred and sixty-five (165) psi
			· Fittings are to be adjusted or tightened only when the pressure is 165 psi or lower
			· Implementation of Y17-95-64-801, *UPF Construction Phase System and Equipment Safety Lockout/Tagout*, when pressure test boundary valves are against an energized system
			· Ensure all required safety tagging is in place
Hydrostatic Pressure Testing	General Requirements	Unidentified and Unmitigated Hazards	· The use of pressure relief valve(s) is required. Address the set pressure, sizing, location, and venting of the pressure relief valve
			· A control point shall be identified. The control point is defined as the location of the testing (i.e., manifold, gas cylinders and/or compressor, pressure gauge, relief valve, isolation valves, etc.) required to safely control and perform the test. The number of persons permitted at the control point shall be kept to a minimum
			· Notify all potential effected personnel of the test area safety boundaries prior to commencing the test
			· Contact the Environmental Representatives prior to discharging water for proper method(s) and compliance

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			· Ensure all fittings and connections are tight or torqued		
			· When increasing or releasing pressure, slowly open valves to avoid hammering the system. Report leaks as soon as they are identified. Release energy in a direction that will minimize exposure		
			· Examination will not begin until the pressure has been maintained for at least 10 minutes		
			· DO NOT adjust or tighten fittings or bolted connections if the pressure test is greater than 350 psi. Fittings are to be adjusted or tightened ONLY when the pressure is 350 psi or lower		
			· When releasing pressure after completion or suspension keep the barricades in place until the pressure has been released and the gauges are near zero (0)		
			· Expansion joints will have restraints to prevent over pressurization		
			· Barricade and Signage:		
			o For testing with pressures between 100 psi and 200 psi, install Danger Barricading in a five feet (5) radius around the test rig, test plugs, blind flanges and ventilation caps.		
			For testing with pressures greater than 200 psi, install Danger Barricading in a ten (10) feet radius around the test rig, test plugs, blind flanges and ventilation caps		
			List the contact information on the sign or tag: supervisors name, phone number, or radio channel.		
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.		

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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
			· 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 Fall to Elevation Below	· 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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Activity	Sub-Activity	Hazard	Control
		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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			· 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	· 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.		
Hoisting and Rigging Work Operations (Life Critical Activity)	Provision of Properly Trained Personnel	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	Persons performing certain tasks (e.g., signaling cranes) are required (by statute) to be formally qualified persons operating cranes are required (by statute) to be certified.		

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Hoisting and Rigging Work Operations (Life Critical Activity)	Mitigating Risk	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	· Appropriate exclusion zones are defined and monitored by supervision. This includes the area behind a crane as crane booms often spring back and fall to the rear when a crane fails		
			· Supervision is properly enforcing PPE requirements and personnel are trained in its proper use		
Hoisting and Rigging Work Operations (Life Critical Activity)	Checks and Pre-Lift Meeting	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	The Crane Operator, along with the PRE and Rigging Supervisor, ensures:		
			· Set-up is thoroughly checked		
			· Set-up is in accordance with the plan		
			· No previously unidentified hazards exist before starting any load-handling operation		
			· The PRE and Rigging Supervisor Ensure the Crane Operator has completed the daily crane checklist and confirm that all equipment and systems are in a satisfactory condition to perform the lift, in accordance with Y17-95-64-872, *UPF Cranes Use and Operation*.		
			· The PIC conducts a pre-lift briefing with the rigging crew, equipment operators, and all other personnel involved before starting any load-handling operation. Clear communication between the operator, signal person, and other persons directing and monitoring the operation shall be established		
			· The PIC ensures a pre-lift safety checklist CFN-1092 is completed for medium- or critical-risk operations. All participants are required to sign the checklist to confirm that the planned procedure has been described to them and they understand their roles and responsibilities.		
Hoisting and Rigging Work	Hazard Briefing	Loss of Control of Material	The PIC ensures the rigging crew understands any job-specific procedures regarding hazards before starting load-handling operation. Hazards include, but are not limited to, the following:		

UPF JOB HAZARD ANALYSIS

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Operations (Life Critical Activity)		Tipping Loads Crushing Injuries Falling Material	· Mechanical and Electrical Hazards – when rigging operations take place in close proximity to electricity or mechanical energy sources that are not locked out or de-energized, and where danger to the riggers or other personnel involved in rigging activities may exist. CFN-1093, *UPF Hoisting and Rigging Hazard*		
			· Evaluation, should be used. Reference UPF-MANUAL-CM-001, *Uranium Processing Facility Construction Electrical Safety Manual*, to determine UPF requirements for work near utilities		
			· Moving Equipment Hazards – when rigging operations take place in close proximity to moving machinery, vehicles, or equipment, if danger to the riggers or personnel involved in the rigging activities exist		
			· Hazardous Materials – when rigging activities occur in environments where the presence or possible release of hazardous materials endangers the riggers or other personnel		
			· Confined Spaces – when rigging operations take place in a confined space		
			· Lifting Over Personnel – note that persons are not allowed, either in whole or in part, under any portion of a suspended load. Personnel assigned to rigging (i.e., attaching and/or detaching rigging hardware to an intended load) are permitted under the lifting/rigging hardware only, and to the extent required to attached or detach the hardware from the intended load prior to or after it has been lifted		
			· Public Protection – when rigging operations take place in close proximity to the public, where danger to the riggers or other personnel involved in the rigging activity exists from foreseeable activity of the public, or where danger exists from foreseeable consequences of the rigging operation		

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· Ground and Support Conditions – when cranes, hoists, or loads are set upon, or moved over, ground that is not compacted or where underground structures, vaults, trenches, pipelines, pits, or other structures or voids exist or may exist
Hoisting and Rigging Work Operations (Life Critical Activity)	Monitoring the Operation	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	· The PIC ensures loads to cranes, radii, etc., are monitored at all times to ensure the operation is progressing as planned and the equipment remains within capacity. This monitoring is particularly important when upending or flipping loads, and when using multiple cranes. Any unanticipated shifting of weight shall be cause to stop the operation until the reason is adequately explained, and the PIC and Crane Operator are satisfied it is safe to recommence. If necessary, the assistance of a CRE shall be sought to investigate
			· The PIC/Crane Operator ensures the load is not completely released from the lifting or transport equipment until it is confirmed that the load is leveled/aligned as required, is stable, and is securely supported (including against possible wind loads)
Hoisting and Rigging Work Operations (Life Critical Activity)	General Requirements	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	· A qualified rigger/person in charge (PIC) shall be responsible for rigging loads
			· Inspect all rigging equipment prior to use and verify it is rated for the load's weight and rigging configuration. Verify that the tags are current
			· Identify and restrict access to areas where hoisting and rigging occur
			· Clear the load travel path. No hoisting of materials over occupied equipment or personnel
			· Perform an initial lift to allow for load settling, and adjust rigging as necessary
			· The rigging crew shall attach non-conductive tag lines to the load to safely control the load. Use multiple tag lines of sufficient length to control the load. Use long-reach tools and push-pull sticks to assist with controlling the load

UPF JOB HAZARD ANALYSIS

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JHA TITLE:	**Installation of Sprinkler Pipe, Supports and Associated Hardware**		**WORK PACKAGE NUMBER:**	**N/A**	**SPECIFIC LOCATION:** **N/A**
Activity	**Sub-Activity**	**Hazard**	**Control**		
			· Stay arms' length from the exterior of the load during movement. Keep hands off material until below shoulder height and to the extent possible		
			· Personnel performing rigging operations shall not place any part of the body under a suspended load		
			· Rigging/hoisting of permanent plant hangers, pipe spools, valves, blinds, etc., must be physically secured prior to leaving the material unattended		
			· Means of securing are welding, rigging, lashing, clamping hardware, or other approved means by Piping/Rigging Superintendent		
			· Use two workers to install and uninstall all heavy overhead rigging (greater than 35 lbs.). Utilize approved tethering tie off restraints or alternate dropped object prevention controls where necessary. This also requires approval from a General Foreman and Foreman		
			Field Level Hazard Assessment/Job Hazard Analysis Program (FLHA/JHA) Process		
			· All Riggers and Bellmen will be a part of the steel erector crew FLHA UP meeting at the start of shift		
			· Connectors will clear all the rigging clear up hooks while lowering or raising the hoist line		
			· Never take eyes off the load and rigging while load line is in motion		
			· All Connectors and Riggers will have Sub Part R training		
			· Training must be verified through union hall training centers		
			· Operator and riggers will clearly communicate when loads are ready to hoist and release		
			· Do not operate on high-speed mode until and all clear has been given		

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			· Prior to beginning operations, the operator, signal person, must contact each other and agree on the voice signals that will be used. Once the voice signals are agreed upon, these workers need not meet again to discuss voice signals unless another worker is added or substituted, there is confusion about the voice signals, or a voice signal is to be changed		
			· Each voice signal must contain the following three elements, given in the following order: function (such as hoist, boom, etc.), direction distance and/or speed function, stop command		
			· Follow the requirements of the Lift Plan/Data Sheet		
			· Crane Coordinator to be utilized in all areas where Cranes can clash:		
			· Duties include:		
			o Collaborating with Field crane operations and superintendents, organize and prepare crane pick schedules		
			o Review Crane pick plans for the shift prior to starting operations/FLHA up review with team		
			o During crane operations, coordinator must be present to Define/enforce/authorize limits of swing range of booms capable of making contact, and crane movements to eliminate any clashes		
			o Maintain daily operation consistency with safe operations and communications with all cranes on the project		
			o Coordinates and evaluates crane and/or concrete placing equipment movements within the swing radius of the tower crane jib and counter jib		
			o Authorizes crane movement outside the assigned operation quadrant. When Operators need to cross the demising wall or alley ways operators must first seek clearance from Crane Coordinator		
			o Defines limitations if more than one crane enters or operates within the same quadrant		

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			o Alternates crane movement where one crane may conflict with another crane
			o Assigns operation quadrants for cranes and concrete placing equipment and communicates these quadrants to the operators and signal persons by use of the crane coordination map
			o Stops rigging activity for safety or coordination reasons
			o Ensures signal persons and operators in their area have functional radios
			· Specifies each crane's park position and verifying the support cranes are clear of the tower crane jib and counter jib swing at the end of each shift
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)	Bull Rigging Planning Requirements	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	· The BR PIC shall explain the Bull Rigging plan to the participants before starting the operation. The formality of this discussion varies by risk category
			· The BR PIC creates the Bull Rigging plans for general risk operations in discussion with the Bull Rigging Team Members
			· The plan is a verbal agreement on how the operation is to be conducted in conjunction with a JHA and FLHA

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Activity	Sub-Activity	Hazard	Control
			· The BR PIC in a general risk Bull Rigging operation shall, at a minimum, be a Qualified Bull Rigger as defined in Y17-95-64-900
			· The BR PIC will complete a Bull Rigging Plan (refer to CFN-1352, *Bull Rigging Plan*). This plan shall be supplemented by a relevant sketch of load-handling methods for the task and any other information required to adequately explain the intent
			· The Bull Rigging Plan will show where the rigging is to be placed and the specific rigging needed for the task
			· The BR PIC develops the Critical Risk JHA and validates it has been reviewed and understood by all team members involved in the Bull Rigging operation
			· The BR PIC will conduct a briefing with the Bull Rigging team prior to load- handling operations, reviewing the JHA, FLHA card, and, as applicable, the Bull Rigging Plan to inform team members of the work plan, the hazards present, and the control measures in place to manage risk to personnel and property
			· All members of the Bull Rigging operation will sign the FLHA card, documenting their attendance at the pre-operation briefing and agreement to adhere to the work plan, established controls, and any hold/stop work pointsBull rigging activities identified as a Critical Risk Operation are required to be directed by a BR PIC
Bull Rigging (Life Critical Activity)	Equipment	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	· All rigging shall be used in the manner intended by the manufacturer and within their specifications and/or guidelines
			· 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.

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

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Bull Rigging (Life Critical Activity)	Monitoring the Operation	Loss of Control of Material Tipping Loads Crushing Injuries Falling Material	· 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		
			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*		
Creating Floor and Wall Openings	Walking/Working Surface Modification	Fall to Elevation Below Dropped Objects	Activities performed by personnel creating a floor hole or modifying existing walking/working surfaces (deemed safe for use via primary fall prevention measures) shall be controlled through a UCN-23432, *Walking/Working Surface Modification Permit*.		
			The requirements of the permit include:		
			· Only those Crafts who are specifically trained to perform such work (e.g., structural steel ironworkers, carpenters) will be allowed to remove/replace the cover/grating/floor plate/handrail		
			· A standard guardrail system shall be installed around any potential opening that presents a fall hazard. All access points to the area shall be equipped with a swing gate or equivalent and properly marked, "(Danger – Fall Protection Required beyond This Point)"		

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			· Fall protection must be provided and used by those working inside the barricaded area		
			· Walking/working surfaces below the work area shall be evaluated for dropped objects or other hazards to personnel below. As necessary, the area(s) below the work area shall be barricaded to prevent access, protecting personnel from exposure to dropped objects		
			· Illumination needs shall be evaluated prior to the start of work and additional lighting shall be provided, where required. The remaining grating/floor plate/handrail bordering the removed grate(s)/floor plates(s) sections must be protected from movement or slippage by securing with wire, clips or other means capable of preventing displacement		
			· Removed material must be set in an area so as not to create a tripping hazard or interfere with other work activities. Stacks or bundles of removed material must be organized and stored in accordance with floor-loading limits		
			· When reinstalling covers/grating/floor plate/handrail, the Supervisor shall verify all material has been completely re-installed, correctly positioned, and properly fastened/secured		
			· When all items have been reinstalled and properly secured, the area shall be inspected by the Supervisor and authorized BNI ES&H Representative for completeness, the barricade can be removed, and the area released for general use		
			· If covers must be altered or cut to accept piping, conduit, etc., the personnel performing the work must contact the responsible Supervisor and area Carpenter Supervisor for authorization prior to making any modifications.		
Mobile Elevated Work Platforms (MEWPs) (Life Critical Activity)	General Requirements	Contact with Surrounding Structure, Equipment, or Commodities Fire	· 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		

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Activity	**Sub-Activity**	**Hazard**	**Control**		
		Entrapment Limited Access/Egress Dropped Objects Electrical Shock Fall to Elevation Below	· 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		
			· Boom-type aerial lifts must be equipped with anti-entrapment devices		

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· 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 Fire Entrapment Limited Access & Egress Dropped Objects Electrical Shock Fall to Elevation Below	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*
			· 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)

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			· 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

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

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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		
			· Other materials are not to be stored on ladders		
Mobile Elevated Work Platforms (MEWPs) (Life Critical Activity)	General Requirements	Contact with Surrounding Structure, Equipment, or Commodities Falls Inadvertent Movement Electrical Shock	· The operator is to ensure adequate clearance is obtained between the lift and structures, equipment, and/or commodities		
			· The operator and/or supervisor to perform a pre-work walkdown and determine the need for a spotter(s) when conditions similar to those listed below are encountered		
			· Area blind spots exist OR		
			· Obstructions exist in the path of planned travel (e.g., clutter, other equipment, other activities) OR		
			· Obstructions exist when raising or lowering the lift OR		
			· Aerial lift tip over potential. Contact supervision and ES&H prior to operating an aerial lift on uneven surface OR		
			· Other (e.g., abrupt edges, holes, tight spots, soft surfaces)		
			· Employees riding or working from any aerial lift must wear an approved safety harness securely connected with a personal fall limiter (6ft SRL) to the lift anchorage point at all times		
			· To prevent inadvertent lift/platform control activation, engage the Emergency Stop switch when the lift is not in motion		

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· Always treat electrical equipment/cables and components as if they are energized. Any electrical components obstructing the operation of an aerial lift must be removed, properly protected, or managed with the use of a spotter
			· 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
			o Only Temporary Power Electricians can operate or reset any breakers in temporary electrical equipment such as panel boards.
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
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.

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Activity	**Sub-Activity**	**Hazard**	**Control**		
Environmental Protection Practices and Requirements	Spill Prevention and Control	Unwanted Environmental Impact	· Maintain best management practices for spill prevention, such as the following:		
			o Store hazardous materials away from drainages, streams, and wetlands		
			o Provide weather protection and secondary containment as necessary		
			o Ensure spill kits are stocked and available on site		
			· Take the following actions if a minor (hydraulic, fuel) spill occurs:		
			o Shut down the equipment		
			o Isolate the spill and prevent the spilled fluid from entering into drains or waterways		
			o Apply absorbent material and remove or containerize the contaminated soil		
			· Take the following actions if a major or emergency spill occurs:		
			o Evacuate as necessary or as directed by emergency services personnel		
			o Notify your supervisor and call OC at (865) 574-7172. The OC will dispatch the Spill Response Coordinator or Fire Department as necessary		
			· If safe to do so, then contain the spill to prevent it from spreading.		
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		

UPF JOB HAZARD ANALYSIS

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JHA NO.:	**JHA-00760**		**REV:**	**1**	**ISSUE DATE:** **2-28-25**
JHA TITLE:	**Installation of Sprinkler Pipe, Supports and Associated Hardware**		**WORK PACKAGE NUMBER:**	**N/A**	**SPECIFIC LOCATION:** **N/A**
Activity	**Sub-Activity**	**Hazard**	**Control**		
Loading or Unloading Equipment and Materials	Loading and unloading trucks and trailers with a forklift	Property Damage to Vehicles, Equipment, or Permanent Plant Equipment Serious Injury to Pedestrians and/or Workers	• Operators must be trained to operate equipment being loaded/unloaded • Operators must inspect equipment prior to loading/unloading, address identified issues prior to use • Use a spotter in congested areas or if line-of-site is restricted • Verify absence of overhead obstructions and power lines prior to loading/unloading equipment • Inspect transport trailers to ensure the floor is in good condition and can withstand anticipated loads • Properly use tie down straps. Position yourself out of the line-of-fire prior to releasing. Use an adequate number to secure the load, connect to equipment at proper locations • Ensure the width of ramps is adequate for the items traveling on the ramps • Use a spotter when loading/unloading a piece of equipment on a trailer, when the operator needs assistance maintaining adequate clearance between the equipment and hazards • Only load/unload equipment on level ground in safe areas that are out of high-traffic thoroughfares **Acceptable Methods for Flatbed Trailer Loading/Unloading:** 1. A barricaded exclusion zone that encompasses the entire length of the truck/trailer and extends a minimum of 15 feet outward laterally on the opposite side and rear of the trailer, **OR** 2. A sufficient number of spotters to adequately provide direction to the forklift operator and control the loading / unloading area to exclude entry by any personnel into the personnel free zone. The spotter(s) should never stand anywhere on the opposite (hospital) side of the trailer or at the rear of the trailer where a load could fall while a forklift is engaging the load. If the 15-foot clearance cannot be maintained, stop the loading / unloading activity and contact a superintendent.		

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Activity	**Sub-Activity**	**Hazard**	**Control**
			For unloading operations, once the load is unstrapped, the truck driver shall remain in the truck cab or leave the area until the trailer is completely unloaded. Conversely, for loading operations, the truck driver should leave the area or remain in the truck cab until the load is ready to be strapped.
			The spotter has control of the loading and unloading activity until all the material has been off-loaded or the material is ready to be strapped.
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
			· Drill stops may be turned off (for both non-carbide and carbide tooling):
			o When permitted by design

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

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

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:		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)		Brian Tevis		03/13/25	
		Printed Name/Signature		Date	