THE NATION'S URANIUM PROCESSING FACILITY

UPF JOB HAZARD ANALYSIS

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JHA NO.:	**JHA-00762**		**REV:**	**0**	**ISSUE DATE:** **11/14/2024**
JHA TITLE:	**Application of Specialty Coatings and Surface Preparation**		**WORK PACKAGE NUMBER:**	N/A	**SPECIFIC LOCATION:** **N/A**

Activity	**Sub-Activity**	**Hazard**	**Control**
Hand & Power Tools	Hand, Air and Electrical Tools	Improper Use of Tools/Equipment Laceration/Grinding Wheel Failure Fire Electric Shock Inhalation of Carbon Monoxide, Nitrogen Dioxide, and/or Other Combustion Gases, Chemical Asphyxiation Struck-by Abrasion	Review the applicable work activities and implement the associated work controls listed in JHA-00721, *Hand and Power Tools*.
Grinding Activities	Grinding Activities on Uncoated Metal	Flying Particles (Debris) Grinding Wheel Failure Loss of Tool Control - Laceration (Grinding Activities) Burn Fire (Hot Work)	· Reference ML-SH-801768-A002, UPF Eye and Face Protection List. · Ensure the grinding wheel is rated for higher revolutions per minute (RPM) than the grinder. Ensure the guard is on the grinder. · Use the tool handle(s) to maneuver the grinder · Hand-held grinders shall be equipped with a constant pressure switch · Wear a shirt, jacket (or equivalent) made from heavier materials (e.g., heavy cotton, denim) that overlap footwear to prevent spatter from entering · Wear pants/trousers made from heavier materials (e.g., heavy cotton, denim) that overlap footwear to prevent spatter from entering · Wear clothing that is free from pockets, hoods, or cuffs that can trap sparks or slag. Keep sleeves and collars buttoned · Ensure the material being cut is secured via approved methods (i.e., bench vise, c-clamp) **NOTE:** *Never hold the material that is being cut!*

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Activity	Sub-Activity	Hazard	Control
			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.*
Use of Hazardous Materials	Emergency Eyewash/Showers	Exposure to Hazardous Chemical	· Construction Supervision will consult with IH to evaluate and pre-plan the need for emergency flushing stations where workers may be exposed to chemical or other material hazards
			· The Responsible Supervisor, or Designee, will perform weekly eyewash inspections using form UCN-23381, *UPF Weekly Eyewash Inspection Checklist*, and records will be submitted to UPF DMC and stored in InfoWorks
			· Any obstructions, damage, improper flow, or any other potential problems are to be reported immediately to supervision for resolution
			· Supervision will contact a Subject Matter Expert (SME) to address any obstructions, damage, improper flow, or any other potential problems
			· SMEs will perform initial, six-month, and intermittent maintenance or repair inspections using form UCN-23382, Eyewash Station Change-out Inspection Log, and return to a designated record storage area
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

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

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Activity	**Sub-Activity**	**Hazard**	**Control**
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. Specific PPE requirements may be required based on the work activity and product!
			- Ensure quantity of material is kept to only what is needed to complete the task
			-Use with good hygiene practices, wash hands after using, before lunch, and at the end of shift
			- If using in an area with poor ventilation, consult ES&H. Additional ventilation requirements may be required!
			-
			- If using any hazardous materials in a confined space, they must be documented on UCN-23273.
			· Disposal of hazardous materials shall be in accordance with the completed UCN-23353 for the given product/chemical and in accordance with PL-SH-801768- A002, *Construction Waste Management Plan for the Uranium Processing Facility*
Dropped Object Prevention	General Requirements	Dropped Objects	Review the applicable work activities and implement the associated work controls listed in **JHA-00715,** *Dropped Object Prevention.*
Personal Protective Equipment (PPE)	Hearing Protection - Noise Levels Between 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.
		Noise	· Reference ML-SH-801768-A011 Sound Levels of Common Construction Power Tools

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Activity	**Sub-Activity**	**Hazard**	**Control**
Personal Protective Equipment (PPE)	Hearing Protection - Noise Levels over One-Hundred (100) dBA		· At a minimum, wear single hearing protection devices with NRR of 33 (i.e. red, white and blue foam earbuds) AND ear muffs
			· Contact IH or ES&H Representative if the anticipated noise levels are greater than 114dBA prior to engaging in the activity
			· Use employee and or job rotation to reduce the time of exposure. When performing activities in enclosed spaces such as enclosed cells, pits, vaults or other similar spaces that may adversely affect noise levels or where multiple noise sources are present contact ES&H for further evaluation
			· Barricade and Signage:
			o Install danger barricade tape with danger signs or tags to identify the one hundred (100) dBA boundary area
			o Identify area outside of danger barricade with caution single hearing protection required signs. Contact IH to evaluate size of these boundaries
			o Contact IH to evaluate noise levels for new/changed work activities or when working in enclosed areas.
Fire Prevention and Protection	Use of Flammable and Combustible Liquids	Fire	· USE only approved containers and portable tanks for storage and handling of flammable and combustible liquids
			· USE only approved safety cans or Department of Transportation-approved containers for the handling and use of flammable liquids in quantities of five gallons or less. The only exception to this requirement is for flammable liquid materials that are thick and highly viscid (extremely hard to pour), which may be used and handled in original containers
			· IF quantities are one gallon or less, THEN USE the original container or approved metal safety cans for storage, use, and handling
			· DO NOT STORE flammable or combustible liquids in areas used for exits, stairways, or areas normally used for the safe passage of people. Aggregate incidental in-use quantities of flammable and combustible liquids for tasks in buildings under construction shall not exceed:
			o 25 gallons (95 liters) of Class IA liquids in approved containers

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Activity	**Sub-Activity**	**Hazard**	**Control**
			o 120 gallons (454 liters) of Class IB, Class IC, Class II, or Class III liquids in approved containers
			· USE Class I flammable liquids within a building under construction or other potentially enclosed space ONLY with an approved and implemented plan. The BNI FPE shall provide one of the approvals of the plan, evaluating whether the atmosphere will be adequately maintained below 25% of the applicable flammables Lower Flammable Limit (LFL)/Lower Explosive Level (LEL)
			· DO NOT transfer/dispense flammable or combustible liquids inside of unprotected structures
			· PROTECT flammable and combustible liquids being transferred/dispensed from static electricity
			· PROVIDE adequate spill preventing and control means
			· ENSURE adequate natural or mechanical ventilation
			· USE only Project-approved dispensing devices and nozzles for flammable liquids.
Fire Prevention and Protection	Storage of Flammable and Combustible Liquids	Fire	· Designated flammable and combustible liquid storage areas (bulk storage) SHALL be approved by the BNI FPE
			· PROVIDE only approved metal storage cabinets that meet the requirements of NFPA 30, Flammable and Combustible Liquids Code, 2012 Edition
			· LABEL cabinets with conspicuous lettering “Flammable—Keep Fire Away”
			· LABEL portable bulk tanks and containers with the applicable NFPA 704, *Standard System for the Identification of the Hazards of Materials for Emergency Response*, placard
			· STORE no more than 60 gallons of Class I and Class II liquids inside of an unprotected structure. Storage MUST to be in an approved metal storage cabinet
			· LOCATE designated flammable/combustible liquid storage areas (bulk storage) 50 feet or greater from buildings under construction. Hot work or open flames SHALL NOT be allowed in approved flammable and combustible liquid storage areas
			· KEEP approved flammable and combustible liquid storage areas free from weeds, debris, and combustible materials not necessary to the storage

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Activity	**Sub-Activity**	**Hazard**	**Control**
Fire Prevention and Protection	General Requirements	Fire	Review the applicable work activities and implement the associated work controls listed in **JHA-00719**, *Fire Prevention, Protection, Hot Work and Welding*.
Barricades and Signs (Life Critical Activity)	General Requirements	Improper Hazard Communication	Review the applicable work activities and implement the associated work controls listed in **JHA-00712,** *Barricades, PPE, and 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	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:
			· May attempt to extinguish the fire
			· Notifies and clears out nearby personnel
			· Ensures emergency response has been summoned
			· 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
			o Never allowing personnel to stand within the swing radius of equipment while it is operating

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			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
			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.

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Activity	**Sub-Activity**	**Hazard**	**Control**
Respiratory Protection	Respirator Issuance	Improper use of Respiratory Protection	The process used during issuance of respirators from the issue point is as follows:
			· User must be clean shaven for tight-fitting face-piece respirators and hooded PAPR with a seal along the face. User will meet requirements for being clean shaven at time of use
			· User must provide a current respirator qualification card to the Respirator Issuer indicating the user is qualified to wear a respirator (make, model, and size), and respiratory training is current
			· User checks the plastic bag containing the respirator to ensure it is sealed
			· User verifies the correct make, model, and size of the respirator has been issued by the Respirator Issuer
			· User checks cartridges/canisters provided by the respirator issuer to verify the appropriate cartridges/canisters were provided and the expiration date has not been exceeded
			· User completes and signs the UCN-23309, *UPF Air Purifying Respirator and Cartridge Issuing*, at the time of initial issuance of a respirator
			· Users will be issued a respirator, filters/cartridges, a storage bag, and respirator wipes. The user wipes and will install cartridges/canisters on the respirator, if applicable, prior to use
Respiratory Protection	Respirator Inspections	Improper use of Respiratory Protection	The Respirator User shall adhere to Occupational Safety and Health Administration (OSHA) inspection check procedures and/or manufacturer's recommendations prior to each use.
			The user inspects the following items before donning respirator:
			That the respirator assembly includes all components as required by the approval
			For the tightness of connections
			For the condition of the respiratory inlet covering
			Head Harness
			Valves
			Connecting Tubes
			Harness Assemblies
			Lenses or visors

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Activity	**Sub-Activity**	**Hazard**	**Control**
			Hoses
			Filters, cartridges
			Canisters
			End-of-service-life indicator
			Electrical Components
			Shelf-life date(s)
			For the proper function of regulators, alarms and other warning systems
			Elastic parts
			Respirator function
Respiratory Protection	Respirator Seal Checks	Improper use of Respiratory Protection	The Respirator User shall follow the OSHA seal check procedure or manufacturer's recommendations prior to each use.
			The following are the procedures identified by OSHA:
			· The user shall conduct negative-pressure seal check on tight-fitting respirators each time they don the respirator and prior to entering the hazardous atmosphere, using the following procedures:
			o Close off inlet openings of the respirator, canister(s), cartridge(s), or filter(s) by covering with palm of hands by replacing the inlet seal on the canister(s) or by squeezing a breathing tube or blocking its inlet to stop the passage of air
			o Inhale gently and hold breath for ten seconds
			o A satisfactory fit is achieved if the face-piece collapses slightly and no inward leakage of air into face-piece is detected
			· The user shall conduct positive-pressure seal check on tight-fitting respirators each time they put on the respirator and prior to entering the hazardous atmosphere using the following procedures:
			o Close exhalation valve or breathing tube, or both, then exhale gently

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			o A satisfactory fit is achieved if a slight buildup of positive pressure is generated on the inside of the face-piece and no outward leakage between the sealing surface and the face is detected
			o If outward leakage is detected, reposition the face seal and/or straps and repeat this sequence until a satisfactory seal check is obtained
Respiratory Protection	General Use Requirements	Improper use of Respiratory Protection	The Respirator User Requirements during general use are as follows:
			· Users may make adjustments to respirators (e.g., head straps), but Respirator Users are not allowed to make modifications or interchange parts from other respirators
			· Users don respirator in clean areas
			· Users shall not remove their respirator while in a hazardous atmosphere
			· Users shall leave the work area to wash face and respirator face piece as necessary to prevent eye or skin irritation associated with respirator use
			· Users shall leave the hazardous atmosphere immediately if they smell, taste, or otherwise detect vapors inside an air-purifying mask, or if breathing difficulty occurs
			· When using respirators during a work shift, users are to store and protect their assigned respirators when the respirators are not being worn. The respirators are to be kept clean (e.g., place them back in the bag they came in) and out of the elements, including direct sunlight (e.g., kept in job boxes, in shaded areas, or returned to a drop off location, if no longer required for task). If using for longer than one shift, then respirator shall be cleaned after each shift and stored appropriately (e.g., a cabinet in a temperature-controlled area)
			· Users are responsible for knowing and following the change-out schedule for cartridges/canisters used
			· Users' filter/chemical cartridge change out schedule is provided in the JHA
			· Users contact the supervisor and/or Industrial Hygiene after experiencing respirator mechanical failure, and shall leave the work area immediately

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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*
Respiratory Protection	Respirator Malfunction	Improper use of Respiratory Protection	If a respirator malfunctions at any time during the shift:
			· Immediately leave the area
			· Report the malfunction to the supervisor and to BNI-IH and BNI RRPA
Respiratory Protection	Respirator Cleaning and Sanitation	Improper use of Respiratory Protection	Respirator users are responsible for the daily cleaning and proper storage of respirators issued to them, including the following:
			· Thoroughly inspect the respirator for damage and replace as needed
			· Store the clean respirator in a storage bag and keep separate from used P100 filters
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.
Working with Materials Containing	Work Practice Controls	Inhalation of Particulates (Silica)	Typical work practice controls include the following:
			· Inspect and maintain controls to prevent or fix malfunctions that could result in increased exposures

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Activity	**Sub-Activity**	**Hazard**	**Control**
Respirable Crystalline Silica (RCS)			· 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
			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
	Concrete Prep.	Flying Particles	· Reference ML-SH-801768-A002, UPF Eye and Face Protection List

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

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Activity	**Sub-Activity**	**Hazard**	**Control**
			· 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
			· 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	General Requirements	Fire Improper Use of Tools/Equipment Shock Burn	Review the applicable work activities and implement the associated work controls listed in **JHA-00719,** *Fire Prevention, Protection, Hot Work, and Welding.*

UPF JOB HAZARD ANALYSIS

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Activity	Sub-Activity	Hazard	Control
Personal Protective Equipment (PPE)	General Requirements	Various Construction Hazards	Review the applicable work activities and implement the associated work controls listed in **JHA-00712**, *Barricades, PPE, and FLHA*
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.
Scaffold Use (Life Critical Activity)	Scaffold User	Unauthorized Use Fall to Elevation Below Slips and Trips	· 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
			· 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

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Activity	Sub-Activity	Hazard	Control
			· 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
			· 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
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*
Work at Heights (Life Critical Activity)	General Requirements	Fall to Elevation Below	Review the applicable work activities and implement the associated work controls listed in **JHA-00717,** *Elevated Work*
Mobile Elevated Work Platforms	General Requirements	Contact with Surrounding Structure,	· Never operate any mechanical elevated work platform without documented training
			· Never stand on the toe board, mid-rail, or top rail of the basket

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Activity	**Sub-Activity**	**Hazard**	**Control**
(MEWPs) (Life Critical Activity)		Equipment, or Commodities Fire Entrapment Limited Access/Egress Dropped Objects Electrical Shock Fall to Elevation Below	· 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-MANUAL-SH-A001, *Elevated Work Manual,* 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-MANUAL-SH-A001. 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*
Orbital Sanding on Coated Metals	General Requirements	Ingestion Inhalation of Particulates	· Employ good personal hygiene techniques such as washing your hands before drinking, eating, or smoking
			· Use an orbital sander with vacuum attachment with HEPA filtration OR when ventilation is not feasible, at a minimum a half-face Air Purifying Respirator (APF 10) with a HEPA/P 100 filter is required
			· If local exhaust ventilation requirement cannot be met, install danger barricade tape with completed danger signs or tags around the coatings removal activity to adequately protect adjacent personnel
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)
			Ensure the work area is free from fugitive dust after performing the activity. Clean using either HEPA vacuums or wet sweeping.
			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
			· 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:

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Activity	**Sub-Activity**	**Hazard**	**Control**
			o The user has difficulty breathing comfortably or notices an increase of breathing resistance resulting from particle buildup
			o The filter becomes visibly dirty
			o The filter is physically damaged
			· Or at a minimum of every 30 days inclusive of the above requirements.
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.
Environmental Protection Practices and Requirements	Disposal of Waste	Improper Disposal of Waste	**General waste segregation guidelines for any coatings or fireproofing**
			· Brushes and naps (applicators) are to be put in dedicated 6ml plastic bag for specific application.
			· Liners are to be put in a dedicated 6ml plastic bag.
			NOTE: E100 Liners may be put into bags with mixed material at the end of shift for disposal (current process).
			· All excess paint is to be poured back into the original paint can and sealed.
			· Any rags used need to be put in a dedicated 6ml plastic bag for specific applications.
			· All bags are to be clear bags.
			· Any cans containing thinner are not to be placed in plastic bag.

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Activity	Sub-Activity	Hazard	Control
			· Material stored in metal buckets to be sealed with lid, picked up by Distribs (tech support), and taken to waste connex for sorting/labeling.
			· All bags shall be labeled with name, contents, date, and time. Must be legible.
			o Use of Tag or "tape flag" acceptable.
			· All contents in bags should weight no more the 35 lbs.
			· Material cans must be verified (by RCRA trained person) prior to stacking or disposing in metal recycling.
			· Ensure all containers are free of any residual liquid or moisture by visual inspection. Clean out with rag.
			· Ensure all waste streams are segregated into dedicated bags. (I.e. PPE, applicators, rags, etc.)
			o All PPE (i.e. Tyvek, gloves, glasses, respirator cartridges) should be placed in dedicated back for the specific application.
			· All employees have the right to STOP work when unsure.
			· In the event of an emergency (i.e. Suspect bag or drum expanding) Follow the proper communication (set forth in separate communication chart) for proper notification.
			o In case of emergency contact the Y-12 Operations Center: 865-574-7172.
			KEY NOTES:
			· Do not put empty paint cans into the bags with the poured-up paint.
			· Do not stack buckets or cans inside each other.
			· Do not place Part A and Part B in the same bag.
			· Do not bag any buckets or liners with any "residual" paint or thinners.
			· Do not open bagged waste once it has been sealed.
			· THE GUIDELINE ABOVE ARE TO BE USED FOR THE FOLLOWING PAINTS (any materials not listed in this should be added to next revision as applicable)
			o Phenoline 1205 (all colors)

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Activity	**Sub-Activity**	**Hazard**	**Control**
			o Phenoline 187
			o Acrolon 218 hs
			o Macropoxy 646
			o Carboguard 60
			o Carboguard 890
			o Carboguard 501
			o Carbomas□c 94
			o Carbothane 133
			o Carbomas□c 15
			o Themolag 3000
			o Phenoline 1205 (all colors)
			o Carbozinc 859
			o Euco Diamond Hard
			o Pel Seal
			o Loxon Caulking
			o E100
			o Primer 67 LV
			o Polymer Alloy 2000 LE
			o Scratch Coat 200
			o Sealer 200WB
			Latex/Acrylic Materials
			· Flush material out of pump with the use of water.
			· Spent material and water rinsate to be pumped into buckets sealed.
			· All bags/buckets shall be labeled with name, contents, date, and time. Must be legible.
			· Use of Tag or “tape flag” acceptable.

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Activity	**Sub-Activity**	**Hazard**	**Control**		
			Guidelines applicable to the following coatings (any materials not listed in this should be added to next revision as applicable):		
			· Pro Industrial Waterbased Alkyd		
			· Urethane Promar 200		
			· Promar 200 VOC		
			· Loxon - Acrylic		
			· Solo -Acrylic		
			· Devguard 4306 - Alkyd Seal Grip - Acrylic		
			· Latex Permacrete 4-603 - Acrylic		
			· Speedhide - Acrylic Latex Sealer 200WB -		
			· Urethane		
			Solvent Based Materials		
			· Flush material out of pump with approved thinners		
			o Inside Building Only		
			§ Thinner 229		
			§ Thinner 236 E		
			o Outside Building		
			§ Acetone		
			§ Carboline Thinner #2		
			· Spent material should be pumped out and poured into the original containers and sealed.		
			· Thinner rinsate should be pumped into buckets and sealed.		
			· All bags/buckets shall be labeled with name, contents, date, and time. Must be legible.		
			o Use of Tag or “tape flag” acceptable.		
			KEY NOTES:		
			· Do not put empty paint cans into the bags with the poured-up paint.		
			· Do not stack buckets or cans inside each other.		

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Activity	Sub-Activity	Hazard	Control
			· Do not place Part A and Part B in the same bag.
			· Do not place any buckets or liners with any "residual" paint or thinners inside of a bag.
			Guidelines applicable to the following coatings (any materials not listed in this should be added to next revision as applicable):
			· Carbozinc 859
			· Phenoline 1205
			· Thermolag 3000 SP
			Cementitious Fireproofing (gypsum based)
			· Southwest 5GP is mixed with water.
			· Spent material is to be accumulated in dumpsters and then taken to the Concrete washout basin to be dumped.
			· Removal (dry) cementitious is to be bagged and taken to the waste connex to be labeled and sorted.
			· All contents in bags should weigh no more than 35 lbs
			Silica
			· Bag applicable material in 6ml plastic bag.
			· Label bag as Silica.
			· Place labeled and closed bag within designated silica waste area.
			Aerosol Cans
			· Check Tool Crib flammable cabinets to make sure no other cans could be used before obtaining a new can.
			· Once aerosol cans have been finished, place empty can within designated flammable cabinet.
			NOTE: Ensure waste has been properly labeled.
			If other wastes are generated and not listed in this document, contact BNI Environmental for requirements on disposal.

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Loading/Unloading Equipment and Materials	Loading/Unloading Equipment and Materials	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. 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.

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Activity	**Sub-Activity**	**Hazard**	**Control**
Compressed Breathing Air	Compressed Breathing Air	Hazardous atmosphere Inhalation of Dust Hazardous Substances	· The compressed breathing air quality shall meet or exceed the requirements of Grade D breathing air as specified in Compressed Gas Association, CGA G-7.1-2011, *Commodity Specification for Air*.
			· Compressed gaseous air used with airline respirators shall have a maximum dew point 10°F (5°C) lower than the lowest ambient temperature to which any regulator or control valve on the respirator or air supply system may be exposed. Airline quick disconnect fittings must be incompatible with other fittings used in the workplace to prevent inadvertent supply with non-breathing air or other gas.
			· The breathing air system components shall be inspected and maintained in accordance with the manufacturer's recommendations. Inspectors of breathing air systems shall be trained in accordance with the system component manufacturer's recommendations and frequency. Records of inspection and maintenance shall be kept. Carbon monoxide monitors, if used, shall be calibrated and maintained according to the manufacturer's recommendations.
			· Breathing air systems that utilize an oil lubricated compressor, or air compressors powered by internal combustion engines, shall have a continuous carbon monoxide monitor with alarm detectible by the wearers. If the monitor alarms, the compressor shall be shut down immediately until the source of contamination is abated.
			· The intake of compressors and ambient air pumps shall be located and monitored to prevent entry of contaminated air into the system.
			· To ensure a continued high quality air supply that complies with the requirements of Grade D air, and to account for any distribution system contaminant input, a representative sample shall be taken at air supply points of attachment where the respirator wearer connects to the system. Air quality sampling frequency shall be: a) prior to initial use b) performed periodically (e.g., quarterly), as directed by the program administrator c) following major overhaul, modifications or extensive repairs of any part of the breathing air system d) prior to reuse, if the compressor has been idle for a long period as defined by the program administrator e) whenever inadequate air quality is suspected

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JHA TITLE:	**Application of Specialty Coatings and Surface Preparation**	**WORK PACKAGE NUMBER:**	N/A	**SPECIFIC LOCATION:**	**N/A**

<table>
<tr><th>Activity</th><th>Sub-Activity</th><th>Hazard</th><th>Control</th></tr>
<tr><td></td><td></td><td></td><td>Compressed breathing air shall be tested as specified in Table 3:
<table>
<tr><th rowspan="2">Type/Sample</th><th colspan="3">Compressor Type</th></tr>
<tr><th>Oil Lubricated</th><th>Non-oil Lubricated</th><th>Combustion Engine Powered</th></tr>
<tr><td>Water Vapor</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>CO</td><td>X</td><td>--</td><td>X</td></tr>
<tr><td>Condensed Hydrocarbon</td><td>X</td><td>--</td><td>X</td></tr>
<tr><td>CO_2</td><td>--</td><td>--</td><td>X</td></tr>
<tr><td>Odor</td><td>X</td><td>X</td><td>X</td></tr>
</table></td></tr>
<tr><td>Ladders</td><td>General Requirements</td><td>Fall to Elevation Below Dropped Objects</td><td>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</td></tr>
</table>

UPF JOB HAZARD ANALYSIS

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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.

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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.

THE NATION'S URANIUM PROCESSING FACILITY

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Ensure a new corresponding CFN-1251, *UPF Construction Attendance Sheet*, is signed and inserted in the CWP to document JHA briefing.					
PREPARER:		Nicholas Prewitt		11/14/24	
		Printed Name/Signature		Date	
APPROVAL:					
ES&H:		Anton Panev		11/14/24	
		Printed Name/Signature		Date	
SITE MANAGER: (DOA-CM-801768-A214)		Brian Tevis		11/14/24	
		Printed Name/Signature		Date	