



Hazard Analysis and Controls

For use with Procedures and Skill of the Worker Classification

Division Identification No.: GWPC-1 Revision No.: _____ Date: 03/15/2010

SECTION 1 SUMMARY

Division: MCS	Dept./Section:
Preparer: Craig Stacey	Badge #: 50133
Title(s) and Document Number(s) for applicable procedures: General Work Planning and Control	

*Hazard Level VH H M L *Fill in after Hazards have been identified and controls selected.

SECTION 2 HAZARD IDENTIFICATION AND ANALYSIS

PART A: PERMITS		
Activities requiring Permits – A Yes answer requires contacting SME per procedure ESH-1.1.3		
Y	N	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANL-206 Radiological Work Permit
<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANL-211 Energized Electrical Work Permit
<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANL-499 Occupancy Permit Request
<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANL-609A ANL Laser Operating Permit
<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANL-609B ANL Temporary Laser Operating Permit
<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANL-612 Movable Structure and Storage Trailer/Container Siting Permit
<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANL-614 Confined Space Entry Permit
<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANL-780 Confined Space Entry Permit for PRCS that Requires Lockout/Tagout Only
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FD-48 Open Flame Operating Permit
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FMS-006 Digging Permit
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Institutional Biosafety Committee (IBC) Approval
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Institutional Review Board (IRB) Forms/Approval (Human subjects in research)

PART B: HAZARD SCREENING		
Y	N	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Physical Hazards If Yes, complete ANL-797 Part A.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hazardous Working Environment If Yes, complete ANL-797 Part B.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ionizing Radiation If Yes, complete ANL-797 Part C.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Engineered Nanomaterials If Yes, complete ANL-798 Part A.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Biological Hazards If Yes, complete ANL-798 Part B.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chemical Hazards If Yes, complete ANL-798 Part C.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Human Subjects as Research Participants If Yes, complete ANL-798 Part D.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	NEPA – Categorical Exclusion? Complete ANL-799 Part B.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emissions or Waste Generation? If Yes, complete ANL-799 Part B.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Special Considerations? If Yes, complete ANL-799 Part A.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency Planning Required? If Yes, Complete ANL-799 Part C.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Work in Bldg. 200, 205, 212, 306, or 331? If Yes, Complete ANL-799 Part D.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Walkthrough completed? Required where hazard level is very high.



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SECTION 3 SME SIGNATURES

NOTE: This section to be completed only if subject matter expert review and signature NOT obtained during the review and approval process for the standing procedure per local document control procedures.

Through my signature below, I certify that systematic hazard identification relating to this work has been performed, within the area of my expertise (e.g., electrical safety). By following the controls contained within this document, the work will be within acceptable hazard boundaries. Signatures denote that all comments have been resolved.

Check all that apply:	Print Name	Signature	Date
<input type="checkbox"/> Fire Protection			
<input type="checkbox"/> Electrical Safety			
<input type="checkbox"/> Hoisting and Rigging			
<input type="checkbox"/> Industrial Safety			
<input type="checkbox"/> Industrial Hygiene			
<input type="checkbox"/> NEPA Owner			
<input type="checkbox"/> Emergency Management Officer			
<input type="checkbox"/> Nuclear Safety Basis Analyst			
<input type="checkbox"/> ESH Coordinator			
<input type="checkbox"/> Environmental Compliance			
<input type="checkbox"/>			

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SECTION 4 SUMMARY of HAZARDS AND CONTROLS

HAZARDS

PHYSICAL	WORKING ENVIRONMENT	RADIOLOGICAL	
<input type="checkbox"/> Electrical <input type="checkbox"/> Elevated work <input checked="" type="checkbox"/> Ergonomics <input type="checkbox"/> Fire <input checked="" type="checkbox"/> Hand tools <input type="checkbox"/> High pressure <input type="checkbox"/> High or low temperature <input type="checkbox"/> High vacuum <input checked="" type="checkbox"/> Hoisting/rigging <input checked="" type="checkbox"/> Laser <input type="checkbox"/> Limited egress <input type="checkbox"/> Machine tools/rotating equipment <input type="checkbox"/> Non-ionizing radiation (except lasers): radio-frequency electromagnetic, infrared, ultraviolet, electric and magnetic fields <input checked="" type="checkbox"/> Overhead work or obstructions <input type="checkbox"/> Protruding objects <input type="checkbox"/> Sharps – non-biological <input type="checkbox"/> Vision <input type="checkbox"/> Welding, cutting, brazing, and grinding (generating sparks)	<input checked="" type="checkbox"/> Confined space <input type="checkbox"/> Cryogenic materials <input type="checkbox"/> Ground penetrations <input type="checkbox"/> Blind penetrations of walls, floors, ceilings, and foundations <input type="checkbox"/> Excavations deeper than 5 feet <input type="checkbox"/> Exhaust or toxic gas generating equipment <input checked="" type="checkbox"/> Noise <input type="checkbox"/> Outdoor exposure <input type="checkbox"/> Stored energy <input type="checkbox"/> Sewage and waste	<input type="checkbox"/> Airborne radioactivity/ Cutting, welding, grinding, etc. on radiological material <input type="checkbox"/> Radiation Exposure <input type="checkbox"/> Removable contamination	
	ENVIRONMENTAL	NANOMATERIALS	BIOLOGICAL
		<input type="checkbox"/> Water effluent <input type="checkbox"/> Air emission	<input type="checkbox"/> Etiological agents <input type="checkbox"/> Bloodborne pathogens <input type="checkbox"/> Contaminated materials-biological
	WASTE GENERATION		
	<input type="checkbox"/> ENM waste <input type="checkbox"/> Chemical waste <input type="checkbox"/> Radioactive waste	<input type="checkbox"/> Mixed waste <input type="checkbox"/> Transuranic waste	
CHEMICAL			
<input type="checkbox"/> Asbestos <input type="checkbox"/> Asphyxiant gas <input type="checkbox"/> Beryllium <input type="checkbox"/> Carcinogenic chemicals <input type="checkbox"/> Explosives or highly reactive (e.g., alkali metals) chemicals <input type="checkbox"/> Flammable and combustible chemicals (liquid or solid)	<input type="checkbox"/> Flammable gas <input type="checkbox"/> Hydrofluoric acid <input type="checkbox"/> Hydrogen gas above 1% concentration <input type="checkbox"/> Industrial chemicals <input type="checkbox"/> Oxidizers <input type="checkbox"/> Perchloric acid or perchlorate salts	<input type="checkbox"/> RCRA –toxic metals <input type="checkbox"/> Silica dust generation <input type="checkbox"/> Strong acids or bases <input type="checkbox"/> Toxic chemicals <input type="checkbox"/> Toxic gas	
Additional information as appropriate:			

INTEGRATED FINAL CONTROLS

PPE	ENGINEERING
<input type="checkbox"/> Face shield <input checked="" type="checkbox"/> Gloves (specify): <u>Work Gloves</u> <input type="checkbox"/> Hard Hat <input type="checkbox"/> Hearing Protection <input type="checkbox"/> Lab coat <input type="checkbox"/> Respirator (specify): _____ <input checked="" type="checkbox"/> Safety Glasses <input checked="" type="checkbox"/> Safety Shoes <input type="checkbox"/> Tyvek <input checked="" type="checkbox"/> Other: <u>Bump hat</u>	<input type="checkbox"/> Eyewash <input type="checkbox"/> Fire Extinguisher <input type="checkbox"/> GFCI (Fixed or portable) <input type="checkbox"/> Glovebox <input type="checkbox"/> Hood – Chemical Exhaust <input type="checkbox"/> Hood – Biological Safety Cabinet (specify type): _____ <input type="checkbox"/> Interlocks, safety shutoffs (solenoids, etc., specify type): _____ <input type="checkbox"/> Lockout/Tagout Devices <input type="checkbox"/> Radio/Phone <input type="checkbox"/> Safety Shower <input type="checkbox"/> Ventilation controls (specify type): _____ <input type="checkbox"/> Other: _____



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MONITORING	ADMINISTRATIVE
<input type="checkbox"/> Atmospheric Monitoring Equipment (specify): _____ <input type="checkbox"/> Dosimetry (specify): _____ <input type="checkbox"/> Fire Watch <input type="checkbox"/> Industrial Hygiene Monitoring (specify): _____ <input type="checkbox"/> Medical Surveillance (per ESQ-IH) (specify): _____ <input type="checkbox"/> Radiation Protection Monitoring (specify): _____ <input type="checkbox"/> Other: _____	<input type="checkbox"/> Procedures (specify): _____ <input type="checkbox"/> Special Training (specify): _____ <input type="checkbox"/> Other: _____

Note: Refer to work instructions, permits, JSA, etc. to determine when specific controls are required during the conduct of the job.

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How to Fill Out This Form

Step	Job Role	Action
1	WCD preparer	Complete Section 1
2	WCD preparer	Complete the Section 2 Parts A and B
3	WCD preparer	For “Y” responses in Section 2 Part B, complete the referenced forms. For example, if “Physical Hazards” was answered “Y”, complete Part A of ANL-797.
4	WCD preparer	Document the overall Hazard Level (HL) for the work activity in Section 1.
5	WCD preparer	<ol style="list-style-type: none"> 1. Prepare applicable permits, consulting subject matter experts as required.* 2. Prepare local procedure or work instructions for the work activity hazard levels as noted below. If the hazard level is: <ul style="list-style-type: none"> • Very High, step-by-step procedures are required for those tasks involving very high hazards. • High, local procedure or work instructions are required. • Moderate, local procedures or work instructions are optional. • Low, local procedures or work instructions are optional.
6	WCD preparer	Complete Section 2 of the ANL-801 (Summary of Hazards and Controls).
7	WCD preparer	Verify that permits, procedures, and controls are consistent. Revise procedures, permits, as appropriate to ensure consistency.
8	WCD preparer	Assemble the form and all attachments.
9	WCD preparer	Submit the ANL-801 to subject matter expert(s) for HL = VH or H. Otherwise, go to Step 13.
10	SME	Review draft WCD and provide comments to the WCD preparer.
11	WCD preparer	Modify the ANL-801 and associated documents as necessary to incorporate SME input. Submit revised documents to the SME for signature.
12	SME	Sign Section 3 of the ANL-801 indicating that the review of the WCD has been completed and that all comments have been adequately addressed.
13	WCD preparer	Submit the WCD to the ESH coordinator for review where the HL=VH, H, or M. Otherwise, go to Step 17.
14	ESH coordinator	Review the WCD and associated attachments where the HL = Very High, High, or Moderate. Provide comments to the WCD preparer.
15	WCD preparer	Modify the ANL-801 and associated documents as necessary to incorporate ESH coordinator input. Submit revised documents to the SME (as applicable) and ESH coordinator.
16	ESH coordinator	Sign Section 3 of the ANL-801 indicating that the review of the WCD has been completed and that all comments have been adequately addressed.
17	WCD preparer	Submit the completed ANL-801 to the appropriate line manager for use.

***Note:** Some permits may not be completed until just prior to starting work (e.g., dig permits). If so, state this fact in the controls section of the hazard analysis forms.

Hazard Analysis and Control Selection Worksheet

Physical Hazards, Hazardous Working Environment, Radiological Hazards

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Y	N	Hazard	Task/Hazard Relationship and Hazard Description	Graded Approach – Hazard Levels	Hazard-Specific Application of Controls
PART A: PHYSICAL HAZARDS					
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Electrical: arc flash, shock, exposed electrical conductors (excludes as - intended use of NRTL or DEEI - inspected equipment)		VH <input type="checkbox"/> Energized and ≥ 300 volts and ≥ 5 milliamps VH <input type="checkbox"/> Disabled safety interlocks VH <input type="checkbox"/> Energized and > 50 volts under wet, damp, outdoor, or confined space conditions VH <input type="checkbox"/> ≤ 10 feet from non-insulated energized power line VH <input type="checkbox"/> NFPA 70E Hazard/Risk Category is 2 or higher; non-routine or first time H <input type="checkbox"/> Energized and > 50 volts but less than 300 volts under dry, indoor conditions not in a confined space M <input type="checkbox"/> Energized and ≤ 50 volts or less M <input type="checkbox"/> LOTO and zero energy checks L <input type="checkbox"/> Not energized and disconnected, as when being built or unplugged, plug controlled, and no stored energy L <input type="checkbox"/> Approved skill of the worker (use this only after skill of the worker per PROC-65 is approved) ___ Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Elevated work: falls greater than 4 ft., falling from equipment, tip over, equipment malfunction		H <input type="checkbox"/> Work requiring the use of fall protection other than approved guardrails M <input type="checkbox"/> Use of Scaffolds, elevated platforms or man-lifts M <input type="checkbox"/> Working on trailers, trucks, or heavy equipment under wet, icy, or other slippery conditions M <input type="checkbox"/> Working from ladders near a leading edge L <input type="checkbox"/> Working from portable ladders that are not positioned near a leading edge ___ Self-determined (explain):	

Y	N	Hazard	Task/Hazard Relationship and Hazard Description	Graded Approach – Hazard Levels		Hazard-Specific Application of Controls
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ergonomics: work activities associated with repetitive and/or awkward or forceful motions and postures that can cause injury to musculoskeletal system from repeated small traumas. This includes activities with hand tools: vibration, force, bending/twisting wrist, and pinch grip	Racking Machines. Occasional lifting of less than 50 lbs, occasional use of handheld power tools.	H <input type="checkbox"/>	Repetitive (>20 times/week) manual lifting or handling of >50 lbs where extreme or unusual environmental conditions are present such as extreme temperature	Follow procedure in "Guidelines and Methods for Working Safely in 'The Core'", Section VIII. Use power tools only when able to do so in a safe and comfortable fashion.
				M <input type="checkbox"/>	Repetitive (>20 times/week) manual lifting or handling of >50 lbs	
				M <input type="checkbox"/>	Repetitive (>20 times/week) hand tool usage involving forceful squeezing, pinching, grasping, twisting, or turning	
				M <input type="checkbox"/>	Exposure to vibration from power-operated tools	
				L <input checked="" type="checkbox"/>	Lifting or handling (≤50 lbs)	
				L <input checked="" type="checkbox"/>	Hand tool usage that does not meet the definition for Moderate	
				L <input type="checkbox"/>	Lifts >50 lbs and <20 times/week	
				L <input type="checkbox"/>	Routine handling of industrial drums using drum carts or caddies that does not meet the definitions above	
				___	Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Fire: welding, grinding, burning, flammable materials, system impairment		H <input type="checkbox"/>	Work in a hazard category 2 or 3 nuclear facility	
				M <input type="checkbox"/>	Open flame permit required	
				L <input type="checkbox"/>	Open flame permit not required	
				___	Self-determined (explain):	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hand tools: vibration, force, bending/twisting wrist, pinch grip	Occasional use of power tools in racking machines.	M <input type="checkbox"/>	Powder-actuated tools	Wear correct PPE as outlined in "Guidelines and Methods for Working Safely in 'The Core'", Section IV.
				L <input checked="" type="checkbox"/>	Common hand tools, portable electrical tools <240V or battery powered tools	
				L <input type="checkbox"/>	Pneumatic tools	
				___	Self-determined (explain):	

Y	N	Hazard	Task/Hazard Relationship and Hazard Description	Graded Approach – Hazard Levels	Hazard-Specific Application of Controls
<input type="checkbox"/>	<input checked="" type="checkbox"/>	High pressure: injuries due to failure to recognize stored/potential energy		VH <input type="checkbox"/> Stored energy is greater than 75,000 ft-lbf inclusive and operating differential pressure is greater than 0.36 psig and made of ductile materials VH <input type="checkbox"/> Maximum operating pressure for gas exceeds 150 psig VH <input type="checkbox"/> Maximum operating pressure for liquid exceeds 600 psig VH <input type="checkbox"/> Stored energy is greater than 7,500 ft-lbf inclusive and operating differential pressure is greater than 0.36 psig and made of brittle materials H <input type="checkbox"/> Stored energy is between 7,500 ft-lb inclusive and 75,000 ft-lb exclusive H <input type="checkbox"/> High pressure (>2,500 psig) cylinders (and supporting tubing/piping systems) M <input type="checkbox"/> Stored energy less than 7,500 ft-lbf exclusive M <input type="checkbox"/> Standard pressure gas cylinders (less than or equal to 2,500 psig) or lecture bottles L <input type="checkbox"/> No differential operating pressure in excess of 0.36 psig under any circumstances ___ Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	High or low temperature (systems, fluids, gases, or equipment): burns, damage to equipment, fire		VH <input type="checkbox"/> >2500°C (4532°F) VH <input type="checkbox"/> ≤-150°C (-238°F) H <input type="checkbox"/> >-150°C (-238°F) but ≤-30°C (-22°F) H <input type="checkbox"/> ≥1000°C (1832°F) M <input type="checkbox"/> ≥100°C (212°F) M <input type="checkbox"/> <-30°C (-22°F) L <input type="checkbox"/> > room temperature and <100°C (212°F) L <input type="checkbox"/> <0°C (32°F) ___ Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	High vacuum: injuries due to failure to recognize stored/potential energy		VH <input type="checkbox"/> Vacuum vessel where operating differential pressure cannot be protected from pressurization exceeding 15 psig H <input type="checkbox"/> Vacuum vessel where operating differential pressure can be protected from pressurization exceeding 15 psig through engineering flow controls M <input type="checkbox"/> Vacuum vessel where operating differential pressure can never exceed 15 psig	

Y	N	Hazard	Task/Hazard Relationship and Hazard Description	Graded Approach – Hazard Levels	Hazard-Specific Application of Controls
				<input type="checkbox"/> L No differential operating pressure in excess of 0.36 psig under any circumstances ___ Self-determined (explain):	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hoisting/rigging: dropped loads, being struck by or pinned by a carried load	Moving equipment into racks using Genie Lift.	<input type="checkbox"/> VH Critical lifts <input type="checkbox"/> H Lift is 75% or more of the rated capacity <input type="checkbox"/> H Moving heavy loads by personnel other than riggers or qualified crane/fork operators <input type="checkbox"/> H Engineered lift <input type="checkbox"/> M Routine bucket truck, forklift, or crane work with trained personnel <input checked="" type="checkbox"/> L Self-determined (explain): Loads are well within limits of lift, and heaviest loads are loaded at bottom of rack.	Follow procedure in "Guidelines and Methods for Working Safely in 'The Core'", Section V.c, Equipment Lifts and Carts..
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Laser: exposure, severe damage to eyes and/or skin, fire	Plugging and unplugging network connections.	<input type="checkbox"/> VH Class 4 <input type="checkbox"/> H Class 3B <input type="checkbox"/> M Class 3A and 3R <input checked="" type="checkbox"/> L Class 1 (as supplied by mfr), Class 2 and 2M ___ Self-determined (explain):	Laser permit (ANL-609A or ANL-609B) required for VH, H, and M Follow procedure in "Guidelines and Methods for Working Safely in 'The Core'", Section IX, Lasers.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Limited egress: blocked aisle way/doors		<input type="checkbox"/> VH More than one stairwell, corridor, or exterior exit door blocked or pathway blocked <input type="checkbox"/> H One stairwell, corridor, or exterior exit door completely blocked or reduced to less than 28" <input type="checkbox"/> M One stairwell, corridor, or exterior door partially blocked but more than 28" in width ___ Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Machine tools/rotating equipment: improper safety systems, nip points, flying chips, sparks, poor condition or vibration		<input type="checkbox"/> VH Improperly guarded <input type="checkbox"/> M Properly guarded machine tools ___ Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Non-ionizing radiation (except lasers): radio-frequency electromagnetic, infrared, ultraviolet, electric and magnetic fields		<input type="checkbox"/> VH Exposure rate greater than 5 times TLV (per IH survey) <input type="checkbox"/> H Exposure rate 1–5 times TLV (per IH survey) <input type="checkbox"/> M Exposure rate 0.2–1 times TLV (per IH survey) <input type="checkbox"/> L Exposure rate <0.2 times TLV (per IH survey or mfr specs)	IH survey required for M, H, VH

Y	N	Hazard	Task/Hazard Relationship and Hazard Description	Graded Approach – Hazard Levels		Hazard-Specific Application of Controls
				___	Self-determined (explain):	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Overhead work or obstructions: falling objects, head bump	Working under the raised floor.	H <input type="checkbox"/>	Use of scaffold with overhead bump hazards	Follow procedure in "Guidelines and Methods for Working Safely in 'The Core'", Section VII.c.
				L <input checked="" type="checkbox"/>	Overhead bump hazards	
				___	Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Protruding or falling objects: impalement on rebar or lightning rods		H <input type="checkbox"/>	Installation of protection on rebar or utilities that present an impalement hazard	
				L <input type="checkbox"/>	Potential for falling objects, such as dropped tools or loads	
				L <input type="checkbox"/>	Bump hazards (e.g., pipes, cabinets)	
				___	Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Sharps – non-biological: nicks, cuts, scratches, amputations		M <input type="checkbox"/>	Air- or hydraulic-powered equipment	
				L <input type="checkbox"/>	Sharps that are not related to air- or hydraulic-powered equipment	
				___	Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Vision: particles, chemicals, temperatures, vapors, impact		VH <input type="checkbox"/>	Line of sight viewing of uncontained high speed or high temperature process	
				H <input type="checkbox"/>	Use of uncontained high speed or high temperature process	
				M <input type="checkbox"/>	Opening contained high speed or high temperature process for viewing	
				L <input type="checkbox"/>	Process cannot release particles, spray, or vapor with sufficient energy to reach face	
				L <input type="checkbox"/>	Limited sight due to poor lighting or other vision obstructions (e.g., fog)	
				___	Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Welding, cutting, brazing, and grinding (generating sparks): burns or fire, shock, electrical, falling compressed gas cylinders, and potential valve damage		VH <input type="checkbox"/>	Work with toxic metals—lead, cadmium, chromium (chromate), manganese, confined work area, limited ventilation, flammable/toxic/halogenated solvents/gases nearby	
				H <input type="checkbox"/>	Extended work with low/moderate toxicity materials—zinc (galvanized)/stainless steels/alloys. Coated welding rods, ozone generation, less than ideal ventilation.	
				M <input type="checkbox"/>	Extended work with low toxicity materials, open work area or local exhaust ventilation	
				L <input type="checkbox"/>	Intermittent work with low toxicity materials—mild steel, etc.	
				___	Self-determined (explain):	

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<input type="checkbox"/>	<input type="checkbox"/>	Other		___	Self-determined (explain):	
PART B: HAZARDOUS WORKING ENVIRONMENT						
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Confined space: (1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and (2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits); and (3) Is not designed for continuous employee occupancy.	Working under the floor, running cables.	VH <input type="checkbox"/> Is marked with a "DANGER – PERMIT REQUIRED CONFINED SPACE" label VH <input type="checkbox"/> Contains a hazardous atmosphere VH <input type="checkbox"/> Contains a material with potential for engulfment VH <input type="checkbox"/> Has an internal configuration such that the entrant could be trapped or asphyxiated by inwardly converging walls or a floor that slopes downward and tapers to a smaller cross-section VH <input type="checkbox"/> Contains any other recognized serious health or safety hazard such as rotating parts, shafts, exposed electrical circuitry M <input type="checkbox"/> Is not marked with a "DANGER – PERMIT REQUIRED CONFINED SPACE" label L <input checked="" type="checkbox"/> Self-determined (explain): Is marked "NON-PERMIT REQUIRED CONFINED SPACE". Multiple points of exit. Only occasional exposure.		Follow procedure in "Guidelines and Methods for Working Safely in 'The Core'", Section VII, Working Under the Floor.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cryogenic materials: serious burns (frostbite) from direct contact, permanent damage to eyes, oxygen displacement		VH <input type="checkbox"/> Larger quantities(>200 L) VH <input type="checkbox"/> Questionable ventilation/oxygen depletion/leak potential VH <input type="checkbox"/> Liquid oxygen/oxygen condensation risk VH <input type="checkbox"/> Work above arm level H <input type="checkbox"/> Potential for spills on person or creating oxygen deficiency H <input type="checkbox"/> Potential for supply line leak of larger quantity (>50 L) M <input type="checkbox"/> Frequent handling of cryogenics/larger Dewars, open/general ventilation L <input type="checkbox"/> Occasional use, open/ventilated area L <input type="checkbox"/> Pouring small (<1 L) quantities of cryogenic liquids ___ Self-determined (explain):		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ground penetrations: breach of concealed utilities (such as power, water, gas) resulting in personnel injury		M <input type="checkbox"/> Breach of ground requires a dig permit ___ Self-determined (explain):		

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<input type="checkbox"/>	<input checked="" type="checkbox"/>	Blind penetrations of walls, floors, and ceilings, and foundations: breach of concealed utilities (such as power, water, gas) resulting in personnel injury		M <input type="checkbox"/> Blind penetration of walls, floors, ceilings, and foundations requires a blind penetration checklist. ___ Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Excavations deeper than 5 feet: cave in, confined space, hazardous atmosphere		VH <input type="checkbox"/> Trenching and shoring required H <input type="checkbox"/> Excavations requiring dig permits ___ Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Exhaust or toxic gas generating equipment: carbon monoxide poisoning		H <input type="checkbox"/> Work with or use of exhaust-generating systems indoors (e.g., forklifts, small engines or generators) M <input type="checkbox"/> Exhaust-generating systems used outdoors but near facilities and/or facility air intakes L <input type="checkbox"/> Exhaust-generating devices used outdoors and away from facilities ___ Self-determined (explain):	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Noise: hearing loss, interference with communication, and annoyance	Ambient noise in the room and below the floor.	VH <input type="checkbox"/> Continuous noise greater than 115 dBA VH <input type="checkbox"/> Impact noise greater than 140 dB H <input type="checkbox"/> Continuous noise greater than 89 dBA and less than or equal to 115 dBA H <input type="checkbox"/> Impact noise greater than 120 dB and less than or equal to 140 dB M <input type="checkbox"/> Worker(s) routinely enter/exit posted noise hazard areas throughout a workday M <input type="checkbox"/> Continuous noise greater than 84 dBA and less than 90 dBA M <input type="checkbox"/> Impact noise greater than 100 dB and less than or equal to 120 dB L <input checked="" type="checkbox"/> Continuous noise less than 85 dBA or where verbal communication is affected ___ Self-determined (explain):	Hearing protection is offered for those who wish it.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Outdoor exposure: heat or cold stress, high winds, lightning, outdoor travel across uneven walking surfaces, mold, plant,		M <input type="checkbox"/> Storm/lightning expected in area; potential for weather watches (e.g., wind advisory, severe weather advisory) M <input type="checkbox"/> Marshy or high grass area M <input type="checkbox"/> Mosquitoes common	

Y	N	Hazard	Task/Hazard Relationship and Hazard Description	Graded Approach – Hazard Levels	Hazard-Specific Application of Controls
		poison ivy, animals, insects, bees, wasps, mosquitoes, ticks		<input type="checkbox"/> M High heat/humidity <input type="checkbox"/> M Low wind <input type="checkbox"/> M High wind <input type="checkbox"/> M Bees/wasps nearby <input type="checkbox"/> M Uneven walking or work surface <input type="checkbox"/> M Potential for contact with bees, wasps, mosquitoes, poison ivy, ticks <input type="checkbox"/> M Ice or snow in the area <input type="checkbox"/> L Mild weather, landscaped area, daytime work. Generally good conditions, but risk of one of the hazards listed above. _____ Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Stored energy – hydraulic, thermal, pneumatic, mechanical		<input type="checkbox"/> VH Required to disassemble system or piping to isolate energy (e.g., inserting blank flange) <input type="checkbox"/> H Work on pneumatic systems with stored energy $\geq 100,000$ joules <input type="checkbox"/> M Capable of being easily isolated; no disassembly required <input type="checkbox"/> M LOTO (other than electrical) <input type="checkbox"/> L No stored energy _____ Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust		<input type="checkbox"/> VH High-speed sawing, drilling, or coring of concrete and other silica or sand-containing materials <input type="checkbox"/> H Low speed drilling, sawing, or coring, or manual breaking of concrete or other silica-containing material <input type="checkbox"/> M High- or low-speed sawing, drilling, or coring of materials other than concrete or-silica containing materials _____ Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Sewage and waste		<input type="checkbox"/> M Scheduled maintenance and repair work on sewage lines with some potential for contact <input type="checkbox"/> L Routine cleaning of restrooms and removal of properly contained sanitary waste _____ Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other hazardous working environment hazard not		_____ Self-determined (explain):	

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Y	N	Hazard	Task/Hazard Relationship and Hazard Description	Graded Approach – Hazard Levels		Hazard-Specific Application of Controls
		listed above				
PART C: RADIOLOGICAL HAZARDS – If Yes, contact ESQ Health Physics						
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Airborne radioactivity/ cutting, welding, grinding, etc. on radiological material: inhalation, skin		VH <input type="checkbox"/>	Work requiring Laboratory ALARA review	<input type="checkbox"/> RWP #:
				___	Self-determined (explain):	
		<input type="checkbox"/> Radiation exposure: beta, gamma, x-ray, neutron absorption, uptake		H <input type="checkbox"/>	Work requiring division ALARA review	
		<input type="checkbox"/> Removable contamination: alpha, beta/gamma		M <input type="checkbox"/>	Airborne contamination greater than or equal to 2% derived air concentration (DAC)	
				M <input type="checkbox"/>	Expected dose greater than or equal to 100 mrem/y	
				M <input type="checkbox"/>	Removable contamination greater than or equal to the 10CFR835 App D values	
				L <input type="checkbox"/>	Airborne contamination <2% DAC	
				L <input type="checkbox"/>	Expected dose <100 mrem/y	
				L <input type="checkbox"/>	Removable contamination less than the 10CFR835 App D values	
				___	Self-determined (explain):	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other ionizing radiation hazard not listed above		___	Self-determined (explain):	