

	1. WORK PROJECT/ACTIVITY AML / ACTIVE MINE INSPECTION	2. LOCATION	3. NPS UNIT
JOB HAZARD ANALYSIS (JHA) References-FSH 6709.11 and -12 (Instructions on Reverse)	4. NAME OF ANALYST John Burghardt	5. JOB TITLE Mining Geologist, QCME, NPS/GRD	6. DATE PREPARED
7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls * PPE	
Participation in inspections at active and abandoned mine and mill sites	Travel To Field Sites	<p>Follow all procedures for driving a government owned or leased vehicle or vehicle rented under a government contract. Drive defensively.</p> <p>All passengers must wear safety belts whenever the vehicle is in motion. For urban traffic, select drivers comfortable in freeway situations and congested traffic areas. Use co-pilot for navigation to field sites, to assist driver in locating the proper area. Recognize added sight distance and turning radii requirements if using 15 passenger vans. Use spotter when backing vehicle. Back into parking spaces.</p>	
Inspections at surface mines, mills, and area around underground mines.	Steep Unstable Slopes	<p>AVOID. If unavoidable, wear sturdy leather work boots with lug soles that provide ankle support, and use leather gloves.</p> <p>Traverse along contours of slope and use proper angulation of body away from hill. There will not be anyone directly above or below because of loose rolling rock and other falling material hazards. Determine if any participant has a physical restriction due to a health condition or physical disability.</p>	
	Shaft Collars, Glory Holes, Open Stopes, Subsidence Areas, Portals	<p>AVOID. If necessary to enter, see JHA requirements for underground mine entry, below.</p>	
	Active Mill	<p>Be aware of mill operations in order to avoid dangerous areas, such as falling rock from grizzly/crusher, conveyor belts, and chemical storage/use areas. Always wear approved hardhat, protective eyewear, leather gloves, and hearing protection.</p>	
	Abandoned Mine and Mill Structures and Equipment	<p>AVOID. If necessary to enter, be aware of and avoid all areas having rotten/unstable structure supports that may fail on entry or disturbance.</p> <p>Avoid handling mine/mill equipment. Look for and avoid loose boards with nails and protruding mill remnants (e.g., concrete rebar). In multi-level structures, avoid passing under heavy equipment, such as the jaw crusher at the top of a mill circuit. Wear approved hardhat, protective eyewear, and leather gloves. Also refer to hantavirus JHA.</p>	
	Abandoned Chemicals and Chemical Containers	<p>AVOID. Report discoveries to the Regional HazMat Coordinator. Note nomenclature on containers from a safe distance. Never touch containers.</p>	

Inspections at surface mines, mills, and area around underground mines. (cont'd.)	Explosives	Suspected explosives will not be handled. If potentially live explosives are found on-site, certified mine inspector will assess risk and make determination whether to continue the inspection.
	Waste Rock, Tailings, Acid Mine Drainage, and Hazardous Metals	Avoid these areas on dry, windy days. Have water and soap or equivalent hand cleaner available. Wash all material from boots and other clothing as necessary.
	Heavy Equipment	Understand mine operation (left hand v. right hand traffic). Avoid areas of equipment use. Yield right of way to equipment and establish eye contact with operator. Wear hearing protection.
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Underground Inspections	Personal Protective Equipment (PPE)	Hardhat, several sources of lighting (preferably MSHA-approved), proper footwear (muckers or leather hard-toed work boots), long pants, long sleeved shirts, safety glasses with side shields or goggles, dust masks (if conditions warrant), leather gloves, if needed.
	Portal Entry	Workings deemed safe to enter by a certified mine inspector. Two-person underground team minimum comprised of at least one certified mine inspector with each group. Station one person at mine entrance clear of portal. Complete the underground mine entry notification form and file with park dispatcher. Notify park dispatch before entering and upon leaving mine. Notify regional MSHA office and mine rescue groups, if possible. Make list of employees entering workings, and check off when they exit.
	Bad Air Quality O2 Deficiency CO CH4 H2S Radon Progeny Dust	Certified mine inspector will be equipped with a multi-gas continuous monitor with visual displays of gas concentration, warning lights, and audible alarms. All employees will immediately evacuate upon alarm or first sign of symptoms for bad air inhalation (i.e. , headache, dizziness, slurred speech, and nausea).
	Falling Hazards	Certified mine inspector and local staff will discuss probable and known hazards at site. Keep eyes moving, observe competency of ribs (sides) and back (roof/ceiling), and be aware of footing, especially in mines with standing water (also see Pools of Water below). Avoid identified falling hazards. Do not pry loose rocks from ribs or back unless deemed necessary by certified mine inspector.

Underground Inspections (cont'd)	Explosives	(See above.)
	Pools of Water	<p>Conduct water quality assessments at designated field site as necessary.</p> <p>Certified mine inspector will probe standing water to verify depth and associated hazards. If necessary, water will be drained or pumped from workings to reveal and reduce sill (floor) hazards.</p>
	Walking Surfaces	Constantly observe condition of sill. Avoid traversing winzes and other vertical openings unless sufficient walking surfaces having structural integrity exist.
	Disorientation	In more extensive mine workings, avoid becoming disoriented by mapping as you go, and other methods such as using string-line measuring device or setting beacons to show the way out.
	Wildlife, Bug Bites, and Insect Stings	<p>Identify any team member subject to anaphylactic shock or other hypersensitivity from animal and bug bites or insect stings prior to field exercises (individuals with known adverse reactions to insect stings should secure appropriate medication from personal family physician prior to attending the course, if such field environments presents a potential life threatening condition).</p> <p>First aid kit of the appropriate size available at portal.</p>
	Communications	Post one person at portal, who will be in radio and/or cell/satellite phone communication with park dispatch and other pre-arranged safety contacts. Use personal satellite tracking device if available. Synchronize watches and establish time by which underground survey team will exit mine. If survey is not complete by that time, exit mine and set new exit time with portal attendant.
10. LINE OFFICER SIGNATURE	11. TITLE	12. DATE

JHA Instructions (References-FSH 6709.11 and .12)

The JHA shall identify the location of the work project or activity, the name of employee(s) involved in the process, the date(s) of acknowledgment, and the name of the appropriate line officer approving the JHA. The line officer acknowledges that employees have read and understand the contents, have received the required training, and are qualified to perform the work project or activity.

Blocks 1, 2, 3, 4, 5, and 6: Self-explanatory.

Block 7: Identify all tasks and procedures associated with the work project or activity that have potential to cause injury or illness to personnel and damage to property or material. Include emergency evacuation procedures (EEP).

Block 8: Identify all known or suspect hazards associated with each respective task/procedure listed in block 7. For example:

- a. Research past accidents/incidents.
- b. Research the Health and Safety Code, FSH 6709.11 or other appropriate literature.
- c. Discuss the work project/activity with participants.
- d. Observe the work project/activity.
- e. A combination of the above.

Emergency Evacuation Instructions (Reference FSH 6709.11)

Work supervisors and crew members are responsible for developing and discussing field emergency evacuation procedures (EEP) and alternatives in the event a person(s) becomes seriously ill or injured at the worksite.

Be prepared to provide the following information:

- a. Nature of the accident or injury (avoid using victim's name).
- b. Type of assistance needed, if any (ground, air, or water evacuation).
- c. Location of accident or injury, best access route into the worksite (road name/number), identifiable ground/air landmarks.
- d. Radio frequencies.
- e. Contact person.
- f. Local hazards to ground vehicles or aviation.
- g. Weather conditions (wind speed & direction, visibility, temperature).
- h. Topography.
- i. Number of individuals to be transported.
- j. Estimated weight of individuals for air/water evacuation.

The items listed above serve only as guidelines for the development of emergency evacuation procedures.

JHA and Emergency Evacuation Procedures Acknowledgment

Block 9: Identify appropriate actions to reduce or eliminate the hazards identified in block 8. Abatement measures listed below are in the order of the preferred abatement method:

We, the undersigned work leader and crew members, acknowledge participation in the development of this JHA (as applicable) and accompanying emergency evacuation procedures. We have thoroughly discussed and understand the provisions of each of these documents:

	SIGNATURE	DATE	UG	SIGNATURE	DATE	UG
a. Engineering Controls (the most desirable method of abatement). For example, ergonomically designed tools, equipment, and furniture.						
b. Substitution. For example, switching to high flash point, non-toxic solvents.						
c. Administrative Controls. For example, limiting exposure by reducing the work schedule; establishing appropriate procedures and practices.						
d. PPE (least desirable method of abatement). For example, using hearing protection when working with or close to portable machines (chain saws, rock drills, and portable water pumps).						
e. A combination of the above.						
Block 10: The JHA must be reviewed and approved by a line officer. Attach a copy of the JHA as justification for purchase orders when procuring PPE.						
Blocks 11 and 12: Self-explanatory.						