

JOB SAFETY ANALYSIS

Safety Information for the University of California, Berkeley

RICHMOND FIELD STATION

EXCAVATION USING A BACKHOE OR SIMILAR EQUIPMENT

TASK	HAZARDS	CONTROLS
1. Assess work area	Soil containing heavy metals, polychlorinated biphenyls or other contaminants of concern (COCs) may cause a health hazard if inhaled as a dust or absorbed through the skin.	Prior to excavation, consult with EH&S to determine what control measures besides this JSA may be needed.
2. Perform an equipment inspection prior to operation.	Physical impact during inspection.	Stay aware of the locations of equipment components while looking for hydraulic leaks, checking mechanical connections, and testing the functionality of controls.
3. Pre-wet the surface of the soil to be excavated.	No health and safety hazards foreseen.	
	Environmental pollution possible.	To avoid the potential discharge of silty water or chloraminated water to local waterways, do not over water.
4. Place the chosen equipment and engineering controls to avoid conflict during operations, and after the soil is removed.	Impact or instability of the equipment due to unforeseen hazards or ground configuration	Survey potential obstacles within the operating range of the excavation equipment during its operation.
5. Verify the location of underground utilities.	Gas release and explosion, electrocution, flooding, or any combination.	Look for evidence of the location of underground utilities: manhole covers, conduits that lead into the ground next to buildings or transformers, or any other ground level access points to underground pipes or conduits.

	6. Begin water dust control measures.	Slips, Trips and Falls	Wear shoes that will have good traction in the mud. Be aware of the hose location to avoid trips
	7. Begin excavation.	Unforeseen underground hazards.	See #5 above. Plan escape routes and procedures to avoid compounding the problem, like creating sparks in a gas release, if hazards involving gas, water, or sewer release are encountered. Plan procedures and escape routes to avoid electrocution if an electrical conduit is disturbed.
		Exposure to dust.	Keep the soil damp while it is being disturbed. If pre-wetting has not sufficiently dampened the soil it should be misted or sprayed during disturbance.
		Exposure to pyrite cinders (skin contact) or pyrite cinder dust (inhalation).	If previously unknown pyrite cinders are found during excavation, suspend activities and report the location to the RFS Superintendent. Don't resume operations until has been determined by EH&S that the hazard has not increased due to the presence of significant amounts of cinders. Once work resumes, use dust control procedures and PPE to avoid unnecessary exposure to cinders.
		Falling into the hole.	Stay aware of where you are in relation to the hole. Marking the hole with 2 X 4's or similar material can act as a limit for foot travel and a limit to soil piles from the excavation.
		Injuries or death due to collapsing excavation walls.	Shoring or steeping is required if the excavation is four feet deep or more. There are other Cal/OSHA requirements depending on the excavation dimensions and the consistency (type) of soil. Refer to the Shop Safety Manual or EH&S for clarification of those requirements
	8. Cover the hole with a walkable surface and make a barrier around it if it can't be filled immediately after completion of the work or if it has to be left unattended.	Muscle strain from the weight of the cover and angle of the placement of the cover.	Two persons should place a panel unless it can be dragged into place.

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	<p>Required Training:</p> <ol style="list-style-type: none"> 1. Operation of the excavation machine. 2. Hazards associated with the disturbance of soil. 3. Procedures for reporting previously unknown locations of soil that may contain pyrite cinders. 	<p>Required Personal Protection Equipment (PPE) and Procedures</p> <ol style="list-style-type: none"> 1. Gloves 2. Hard toed and steel shank boots 3. Standard work clothes (coveralls etc to be used at work only) 4. Wash hands after work. 5. Change out of work clothes prior to going home. Launder clothes after work. 	
<p>Other Information: Contributors: Created: JSA Library Number:</p>	<p>EH&S Construction Health & Safety Specialist, Gary Bayne August 2005. August 2006 update.</p>		
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