

*Appendix C*  
*Activity Hazard Analysis*

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## Activity Hazard Analysis

Activity: Demolition of Groundwater Monitoring Wells

Author/Initial Review: J Moser  
Final Review: Dr. R. Von Burg

This task includes demolition by overdrilling and/or grouting of monitoring wells and handling of debris generated during demolition.

Hazards expected during this phase of work include: Material Handling - load and unload of equipment, Work on uneven surfaces, Use of hand tools, Noise, Heat Stress, safety expectations, Dust, Flora/fauna, Motor Vehicles

ACTIVITY	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
<ul style="list-style-type: none"> <li>• Mobilization/</li> <li>• Demobilization</li>            <li>• Brush Clearing</li> </ul>	<ul style="list-style-type: none"> <li>• Physical injury from heavy equipment; heavy lifting, pinch points; slip, trip, and fall hazards</li>            <li>• Cuts, slashes, dismemberment.</li> <li>• Animals, poisonous plants, snakes and insects. (Poison oak prevalent), sharp objects Falling Objects, Flying Debris, Dirt, Dust, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect equipment, complete inspection forms.</li> <li>• Train equipment operators. Minimize work and personnel in vicinity of equipment. Provide ergonomic training</li> <li>• Institute good housekeeping practices; keep feet and hands clear of moving/suspended materials and equipment.</li> <li>• Keep personnel in area to a minimum; Use only trained equipment operators.</li> <li>• Wear PPE required by the SSHO.</li> <li>• Use caution with wild animals, learn to recognize poisonous plants, wear insect repellent, stay alert to sharp objects in underbrush.</li> </ul>
<ul style="list-style-type: none"> <li>• Heavy Equipment Operations (Drill Rig)</li> </ul>	<ul style="list-style-type: none"> <li>• Contact with heavy equipment, vehicle traffic, overhead utility lines, underground utilities, noise</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect area for overhead utility lines and conduct a geophysical survey for underground utilities</li> <li>• Inspect equipment daily for safe operating condition.</li> </ul>

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ACTIVITY	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
<ul style="list-style-type: none"> <li>• Drilling</li>   <li>• Changing flights</li>   <li>• Removal of existing well and casing</li> </ul>	<ul style="list-style-type: none"> <li>• Physical: Injury from heavy equipment; heavy lifting Pinch points; slip, trip, and fall hazards, noise.</li> <li>• Damage to overhead or underground utility lines.</li> <li>• Chemical: Exposure to fumes and vapors, skin contact with contaminated soils or water.</li> <li>• Strains, sprains, slipped tools, injured hand, dropped equipment</li>   <li>• Pinch points</li> </ul>	<ul style="list-style-type: none"> <li>• Minimize personnel in area of equipment operation; conduct utility checks prior to initiating heavy equipment use.</li> <li>• For repairs, use lockout/tag-out if necessary.</li> <li>• Wear PPE required by the SSHO including hearing protection.</li> <li>• Use only trained equipment operators. Minimize work and personnel in vicinity of equipment.</li> <li>• Conduct a utility survey</li> <li>• Provide ergonomic training. Institute good housekeeping procedures; keep feet and hands clear of moving/suspended materials and equipment.</li> <li>• Monitor for suspected chemical contaminants.</li> <li>• Use the appropriate tool for the appropriate job.</li> <li>• Keep feet and hands clear of moving or suspended material</li> </ul>

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ACTIVITY	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
	<ul style="list-style-type: none"> <li>• Electrical hand tools</li>   <li>• Noise</li>   <li>• Grinding/sawing</li> </ul>	<ul style="list-style-type: none"> <li>• Beware of contact points.</li>   <li>• Preventive maintenance procedures recommended by manufacturer shall be followed</li> <li>• Ground fault circuit interrupters, inspect extension cords, hand tool inspection.</li> <li>• If noise levels exceed 85dBA wear hearing protection.</li> <li>• Proper eye protection</li> <li>• Wear appropriate hand protection.</li> </ul>
<ul style="list-style-type: none"> <li>• Grouting of wells</li> </ul>	<ul style="list-style-type: none"> <li>• Physical: Injury from heavy equipment; heavy lifting Pinch points; slip, trip, and fall hazards.</li> <li>• Inhalation of grout dust.</li> </ul>	<ul style="list-style-type: none"> <li>• Institute good housekeeping procedures; keep feet and hands clear of moving/suspended materials and equipment.</li> <li>• Observe lifting limitation rule (no greater than 60 lbs).</li> <li>• Wear dust mask if appropriate.</li> </ul>
<ul style="list-style-type: none"> <li>• Fueling</li> </ul>	<ul style="list-style-type: none"> <li>• Fire, exposure to fuel vapors</li> </ul>	<ul style="list-style-type: none"> <li>• Only UL/FM-approved safety cans</li> </ul>

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ACTIVITY	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
<ul style="list-style-type: none"> <li>• Decontamination</li>   <li>• Pressure washing</li>   <li>• Steam cleaning.</li> </ul>	<ul style="list-style-type: none"> <li>• Dermal contact</li> <li>• Physical contact with pressurized water streams. Injection.</li> <li>• Physical contact with hot water/steam/objects, burns, flying debris.</li> <li>• Contact with neighboring structures, falling materials or equipment.</li> </ul>	<p>shall be used to store fuel.</p> <ul style="list-style-type: none"> <li>• .Do not refuel equipment while it is operating.</li> <li>• Fire extinguishers shall be readily accessible.</li> <li>• Stand upwind during refueling operations</li> <li>• Wear appropriate PPE; follow SOP for decontamination procedures.</li> <li>• Stage equipment for decontamination securely.</li> <li>• Separate contaminated and decontaminated equipment into appropriate zones.</li> <li>• Use experienced drill rig operators.</li> <li>• Stay clear of masts and booms.</li> </ul>

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PPE TO BE USED	MONITORING REQUIREMENTS	OTHER REQUIREMENTS
<ul style="list-style-type: none"> <li>• Level D PPE (steel-toed boots, safety glasses, hard hats, hi-vis vests)</li> </ul>	<ul style="list-style-type: none"> <li>• Use PID to monitor for VOCs</li> </ul>	See below.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<ul style="list-style-type: none"> <li>• Radio</li> <li>• Hand tools</li> <li>• Drill rigs</li> <li>• High pressure washers</li> <li>• Steam cleaners.</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect power tools for loose/slack parts (chains), -and faulty hydraulic lines</li> <li>• Maintain and check all safety devices. Do not use faulty equipment</li> <li>• On buddy system, inspect coworker for ticks and insects</li> <li>• Inspections shall be performed daily to assure all equipment is in safe operating condition</li> <li>• Maintenance records shall be maintained in accordance with manufacturer's recommendations.</li> </ul>	<ul style="list-style-type: none"> <li>• Hazardous waste operations (40 hr and 8 hr refresher training)</li> <li>• Hazard Communication training</li> <li>• Site safety orientation</li> <li>• Daily tailgate safety meeting</li> <li>• Trained equipment operators</li> <li>• Class B operator for driving on public roads</li> <li>• Respiratory protection training</li> </ul>