

DRI Boilerplate Language for Use in Completing the HAMP

(Must be customized in each hazard assessment and mitigation plan)

Internal Use Only

Risk Assessment: List identified risks associated with the field activity or physical environment (such as extreme heat/cold, wild animals, endemic disease, etc.). For each identified risk list the appropriate measures to take to eliminate or reduce the risk. Use additional sheets if necessary.	
Identified Risk	Control Measures
High Altitude	Additional information is available in the DRI Altitude Sickness Guideline, http://www.dri.edu/images/stories/editors/ehs/ehsdocs/Field_Altitude_Sickness_Guide_line_2006.pdf .
Extreme Heat	To the extent possible, alter work shifts to work in cooler portions of the day. Wear loose fitting, light colored clothing, take frequent water breaks and do not skip meals. If no natural shade is available for rest breaks, use a tarp or umbrella to provide a protected area. If electricity is available use a fan to move air. Air-conditioned vehicles may also be used, but be aware of fuel levels to avoid being stranded. Additional information is available in the DRI Heat Stress Fact Sheet, http://www.dri.edu/images/stories/editors/ehs/ehsdocs/Gen_Safety_Heat_Stress_Fact_Sheet.pdf .
Excess exposure to sun, wind, blowing sand, etc.	To prevent sun/wind burn, wear light colored clothing that covers the skin. Wear a hat with a brim to protect face and ears from excess sun exposure. Wear sun glasses with UV protection. Sunscreen spf 25 or higher should be frequently applied to exposed skin. See OSHA's Protecting Yourself in the Sun , for additional tips. In dusty situations, wear appropriate eye protection with UV protection. A wet bandana can be tied around the face during unexpected dust storms.
Work in Confined Spaces	DRI policy does not allow employees to enter 'permit required' confined spaces. Exceptions may be made on a case by case basis. If the hazard assessment indicates a confined space entry is necessary, contact EH&S to determine what will be specifically required for the project employees to do so. (Specific language will also need to be developed on a case by case basis.)
Work over water	Wear a personal floatation device when working on and over water. Follow the DRI Policy for Safety Associated with Measurements, Sampling and Related Streamgaging, http://www.dri.edu/images/stories/editors/ehs/ehsdocs/Field_Water_Safety_Policy_2006.pdf .
Falling Objects (avalanches, rock falls, etc.)	Wear hard hat when working below potential overhead hazards. Seek alternate routes to avoid overhead hazards. Minimize time at risk or when the ability to recognize potential hazard (night, sunrise and sunset) or when weather (fog, heavy rain/snow) may exacerbate conditions.
Remote location	Develop a communication and evacuation plan. Provide communication via cell/sat phone, ensure evacuation plan has been discussed and vehicle availability.
Rough Terrain	Use caution when traversing stream banks. Wear sturdy work/hiking boots or other, appropriate footwear
Wild Animal/Plant Hazards	Be aware of your surroundings. Do not approach wild animals. Wear long sleeves, pants, gloves. Before going into the field, review the documents under the "Wildlife" section of DRI's Field Safety page .
Potential for Adverse Weather	Consider impending weather before embarking and be aware of indications of changing weather when you are in the field. Carry extra waterproof clothing when away from shelter. Weather considerations related to boating are found in section 4 of the DRI Safe Boating Guidelines, http://www.dri.edu/images/stories/editors/ehs/ehsdocs/Field_Boating_Guidelines_2008.pdf . Be aware of the signs of a pending storm, see DRI Lightning Safety, http://www.dri.edu/images/stories/editors/ehs/ehsdocs/Field_Lightning_Safety_Guideline_2006.pdf .
Flash Flood Potential	Information on flashfloods can be found in the DRI emergency procedures, http://intranet.dri.edu/Policies/Adminmanual/Manual.9.02.06.Preparedness.pdf

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Long Distance to Medical Services	At least one first aid/CPR trained person should be present on the field team. In addition to the standard first aid kit available in motor pool vehicles, assess whether you need additional equipment such as splints, stretchers, etc. for remote locations. In the event of a medical emergency, call 911. In case self-transport is required, maintain the appropriate directions to medical facilities/hospital in vehicles. Carry a satellite phone into areas where there is no cell phone coverage. Consider taking a GPS personal locator beacon with you. (Find out if your division has any available to be borrowed, otherwise consider purchasing a system for your project.)
Difficult Communication with the outside world	Leave travel plans including destination, expected return date/time and vehicle ID with contact person (and, depending on situation, in vehicle at trail head). Establish a communication schedule with someone at home base and carry a satellite capable cell phone in order to maintain check in.
Climbing/Strenuous Hiking required	Maintain physical conditioning if this kind of activity is required. Wear sturdy hiking boots; carry plenty of water, energy snacks, and first aid supplies. Do not hike alone. If working alone is necessary carry satellite capable cell phone or a GPS personal locator beacon.
Crossing High Water required	See working on and over water, http://www.dri.edu/images/stories/editors/ehs/ehsdocs/Field_Water_Safety_Policy_2006.pdf .
Rural Roads	Care will be taken in driving on rural roads, and all vehicle drivers and passengers will be alert to changing or unseen conditions. Protocols in the handout on driving on rural roads will be followed.
Towing	Towing guidelines are found in section 7 of the DRI Safe Boating Guidelines . Ensure you are following all DMV requirements (http://www.dmvnv.com/pdf/forms/equipreqtr.pdf).
Work along roadway shoulders (Attach traffic control plan and permit, if required)	Wear high visibility clothing, including reflective materials if working in low light conditions. Use cones or flaggers and signs to alert drivers of work ahead. A copy of OSHA's Work Zones Hazards Workbook for road workers is available here .
Cut Hazards	If scrapes or cut hazards exist, wear heavy work clothes, work gloves and safety shoes.
Mechanical/Moving Parts	Inspection of all mechanical equipment shall be done before the equipment is placed in service. All guards and safety devices for chain or belt drives shall be in place when the equipment is in use. Do not wear loose clothing around moving parts. Tie long hair back and up. An emergency stop should be located in easy reach of the operator.
Trenching/Excavating	Follow OSHA regulations for trenching and excavation (29 CFR 1926, Subpart P). If silica content is high, use wet methods to limit exposure to dust. Heavy equipment use may require hearing protection.
Overhead Hazards	Wear a hard hat when working below potential overhead hazards. Seek alternate routes to avoid overhead hazards. Minimize the length of time a worker will be at risk. Be aware of times when the ability to recognize potential hazards (night, sunrise and sunset) or when weather (fog, heavy rain/snow) may exacerbate conditions.
Slip/Fall Hazards	Use caution when traversing stream banks, and stream beds. Wear sturdy work/hiking boots or other appropriate footwear. Surface characteristics such as uneven ground, debris, and open trenches or soil boring holes can cause slip, trip, and fall hazards. Such areas will be identified and clearly marked or barricaded during project activities. Use safety lines when appropriate.
Falls (from height)	Fall protection is required for work at 4 feet or higher. If erecting scaffolding, ensure construction meets OSHA requirements and that toe boards and railings are in compliance. (29 CFR 1910, Subpart E).

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Use of Ladders/Scaffolding	Follow instructions on ladders. Do not use the top two rungs. Ensure feet are set on a flat surface. Set feet on extension ladders away from the side of the structure at a 75.5 degree angle (i.e., the length of the ladder is 4 times the horizontal distance between the point of support and the foot of the ladder). Tie off extension ladders. One person at a time on a ladder. Stand away from the ladder until the person above has cleared the ladder to avoid getting struck for dropped objects. Scaffolding must be constructed per OSHA 29 CFR 1920.28.
Work at night	Provide adequate lighting for field conditions.
Long Drive to Site	Workdays, including drive time, should be limited to <12 hours. Particularly when DRI employees are driving alone, it is recommended that brief rest breaks be taken every hour to avoid fatigue. Other means of minimizing hazards are: Locate overnight lodgings near the work site Arrange shifts to provide a rest period for drivers prior to driving home.
Manual Lifting > 50 lbs	Material handling will be accomplished using safe lifting procedures. Follow DRI Back Safety/Lifting Guidelines, http://www.dri.edu/images/stories/editors/ehs/ehsdocs/Occ_Safety_Back_and_Lifting_Tips_2007.pdf . Mechanical lifts and/or carts will be utilized whenever possible; otherwise several people should be used when lifting heavy objects.
Noise Generation > 85 dBA	Generators and heavy equipment are significant sources of noise. Noise levels at 70 dBA can interfere with the ability to carry on normal conversation, making communication difficult. Hearing protection is required when noise levels are above 85 decibels (dBA) or when normal speech is impeded between two individuals approximately 3 feet apart.
Dust/other Airborne Hazard generated by work	Nuisance dust generation from equipment operations will be kept to a minimum and control measures such as wetting will be used as necessary. The use of filtering face pieces on a voluntary basis requires training on their limitations, proper donning and use. See DRI's Respiratory Safety Program documentation, http://www.dri.edu/images/stories/editors/ehs/ehsdocs/Occ_Safety_Respirators_2010_r3.pdf .
Potential for Oxygen Deficiency (or other hazardous atmospheres generated by work)	If hazard assessment indicates oxygen deficiency may occur on the project, consult with EH&S to determine the proper mitigation steps. DRI policy does not allow employees to enter 'permit required' confined spaces. Exceptions may be made on a case by case basis. If the hazard assessment indicates a confined space entry is necessary, contact EH&S to determine specific requirements before the employee enters the area. (Specific language will also need to be developed on a case by case basis.)
Fire Issues related to hot work, ignition sources, flammable materials use, etc.	Refueling activities present a significant fire/explosion hazard in the presence of static electricity. The principal hazard posed by static electricity is that of a spark from a built-up electrical charge which can cause combustion or explosion of vapors or gases. It is necessary to bond together flammable liquid dispensing and receiving containers with bonding cables before pouring or pumping. Only Factory Mutual Research, Underwriters Laboratories, or DOT-approved safety cans will be used to transport and store small amounts of gasoline. Safety cans shall be secured to the vehicle during transport. Site personnel are to ensure that equipment used to transfer liquids is approved for the material being transferred. Equipment should be given a short period of time to cool down before refueling, if applicable. <i>Include different or additional language depending on the hazard identified.</i>
Lack of Potable Water	Provide appropriate amounts of drinking water per person depending on conditions and sites. Ensure additional water is available for hand washing, clean up, etc.
Lack of Sanitary Facilities	Bring extra water for hand washing and clean up.

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<p>Transportation of Hazardous Materials to/from work site.</p>	<p>Follow procedures outlined in the DRI chemical transportation guideline, http://safety.dri.edu/Programs/Procedures_Transporting_Chemicals_final.pdf. Develop project specific language for the chemicals to be used in the field. Some examples include:</p> <ul style="list-style-type: none"> - Ethanol-to be left in manufacturers one gallon containers and placed in plastic storage boxes for transportation. Approximately 3 gallons per sampling. - Nitric Acid-10mL concentrated acid in Teflon bottles inside zip-lock plastic bags. - 10% hydrochloric acid, which will be used to acid wash particulate phosphorus filter funnels and filters + Nutrient and IC filtering equipment. - Sodium hydroxide, which will be used for the neutralization of acid. It is in its original container, and then put into double zip lock baggies, and stored in a box. <p>Safety Data Sheets for chemicals will be available at field locations where they are in use.</p>
<p>Storage of Hazardous Materials</p>	<p>Storage of chemicals used in the field shall be by hazard class (http://www.dri.edu/images/stories/editors/ehs/ehsdocs/Gen_Safety_Chem_Storage_Handling_Use_2007.pdf).</p>
<p>Potential for Hazardous Material Spill</p>	<p>Chemicals used in field studies should transported in the smallest quantity necessary to complete the study. Secondary containment should be employed to prevent leaking containers from contaminating the environment. The appropriate spill clean up materials and containers to store any waste resulting from a spill should be readily available in field sites where chemicals are used.</p>
<p>Waste Generation</p>	<p>It is illegal to transport hazardous (RCRA) waste without a permit. If you cannot make arrangements with the host site to dispose of used chemicals, mark them 'used' and transport them back to DRI for the hazard determination. All transportation of hazardous materials must follow the DRI chemical transportation guidelines, http://www.dri.edu/images/stories/editors/ehs/ehsdocs/Gen_Safety_Moving_Transport_Chemicals_2007.pdf.</p>
<p>Heavy Equipment Used (Hazards section c)</p>	<p>Attach safety instructions required for each type noted in Hazards section c and outline any specific hazards present on the project that require additional precautions. Contact EH&S for assistance as needed to complete this section.</p>
<p>Other equipment or materials that might pose a safety hazard or require training (Hazards Section d)</p>	<p>Attach safety instructions required for each type noted in Hazards section d and outline any specific hazards present on the project that require additional precautions. Contact EH&S for assistance as needed to complete this section.</p>