

NOTE: Any yellow text shading or red text annotations have been added by ORNL Subject Matter Experts (SMEs). The annotations have been made in order to document (1) certain Forest Service requirements that have been waived or (2) where some requirements for the ORNL participants have been clarified or established within the ORNL Research Safety Summary (RSS) instead. The RSS 7728 is the work control document that governs the ES&H the activities/actions of the ORNL participants doing work at the Marcell Experiment Station.

U.S. Department of Agriculture Forest Service		1. WORK PROJECT/ACTIVITY Field Work	2. LOCATION Grand Rapids MN	3. UNIT RWU 4101/4351
JOB HAZARD ANALYSIS (JHA) References-FSH 6709.11 and -12 (Instructions on Reverse)		4. NAME OF ANALYST	5. JOB TITLE	6. DATE PREPARED
7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls * PPE		
DRIVING TO THE JOBSITE	Dusty, winding, narrow roads	Drive confidently and defensively at all times. Drive with headlights on at all times. Go slow around corners.		
	Rocky or one-lane roads	Stay clear of gullies and trenches, drive slowly over rocks. Yield right-of-way to oncoming vehicles---find a safe place to pull over.		
	Turning around on narrow roads	Safely turn out with as much room as possible. Know what is ahead and behind the vehicle. Use a backer if available.		
COMMUNICATION NOTE: Any yellow text shading or red text annotations have been added by ORNL Subject Matter Experts (SMEs). The annotations have been made in order to document (1) certain Forest Service requirements that have been waived or (2) where some requirements for the ORNL participants have been clarified or established within the ORNL Research Safety Summary (RSS) instead. The RSS 7728 is the work control document that governs the ES&H the activities/actions of the ORNL participants doing work at the Marcell Experiment Station.	Safety, crew unity	Talk to each other. Let other crewmembers know when you see a hazard. Avoid working near known hazard trees. Yell "ROCK!" if you see one start to roll down the hill. Always know the whereabouts of fellow crewmembers. Medical Plan of the Incident will be used to address medical emergencies. County and or Local Medical Emergency Services will be assigned to the project area.		
WALKING AND WORKING IN THE FIELD	Falling down, twisted ankles and knees, poor footing	Always watch your footing. Slow down and use extra caution around logs, rocks, and animal holes. Extremely steep slopes (>50%) can be hazardous under wet or dry conditions; consider an alternate route. Tree root holes are prevalent and should be flagged. Work boots , hiking boots, or sturdy shoes will be required. Open toed shoes such as; sandals, tennis shoes, and the like are prohibited. <i>ORNL SME: See RSS LAST Question for actual foot protection requirements and other general guidance.</i>		

	Falling objects	Wear your hardhat for protection from falling limbs and pinecones, and from tools and equipment carried by other crewmembers. Stay out of the woods during extremely high winds. <i>ORNL SME: Hardhats not required per 9-8-09 email from R. Kolka (USFS)</i>
	Damage to eyes	Watch where you walk, especially around trees and brush with limbs sticking out. Exercise caution when clearing limbs. Advise wearing eye protection. Ultraviolet light from the sun can be damaging to the eyes; look for sunglasses that specify significant protection from UV-A and UV-B radiation. <i>ORNL SME: Instead, See RSS LAST Question for explanation of when eye protection is required.</i>
	Bee and wasp stings	Watch for respiratory problems. Notify Communications and get person to a doctor immediately if there is trouble breathing. Gently scrape stinger off of one is present. Apply analgesic swab and a cold pack if possible, and watch for infection. Flag the location of any known nests and inform other crewmembers. Advise packing an inhaler and Benadryl or Epi-pen if you are prone to severe allergic reaction.
	Tools and Equipment	Supervisors have the responsibility to : 1) ensure that tools are not modified or used in any manner that increases the risk of injury, 2) ensure that tools remain in a safe condition through periodic inspection and repair. This includes tools furnished by Volunteers. 3) Monitor Volunteers performance periodically to ensure proper methods are followed. Gloves shall be worn while performing work tasks. <i>ORNL SME: Instead, Glove requirements will be added to RSS as tasks that require them are introduced into the RSS.</i>
	Lifting	Ask for help if the load is too heavy. Do not try to lift or otherwise move material beyond abilities.
ENVIRONMENTAL HEALTH CONSIDERATIONS	Heat Stress	Remain constantly aware of the four basic factors that determine the degree of heat stress (air temperature, humidity, air movement, and heat radiation) relative to the surrounding work environmental heat load.
		Know the signs and symptoms of heat exhaustion, heat cramps, and heat stroke. Heat stroke is a true medical emergency requiring immediate emergency response action.
		NOTE: The severity of the effects of a given environmental heat stress is decreased by reducing the work load, increasing the frequency and/or duration of rest periods, and by introducing measures which will protect employees from hot environments.
		Maintain adequate water intake by drinking water periodically in small amounts throughout the day (flavoring water with citrus flavors or extracts enhances palatability). Some overhydration is strongly recommended.
		Tailor the work schedule to fit the climate, the physical condition of employees, and mission requirements. a. A reduction of work load markedly decreases total heat stress. b. Lessen work load and/or duration of physical exertion the first days of heat exposure to allow gradual acclimatization. c. Alternate work and rest periods. More severe conditions may require longer rest periods and electrolyte fluid replacement.

	<p>Wet Bulb Globe Temperature (WBGT) Index</p>	<p>Curtail or suspend physical work when conditions are extremely severe (see attached Heat Stress Index).</p> <p>Compute a Wet Bulb Globe Temperature Index to determine the level of physical activity (take WBGT index measurements in a location that is similar or closely approximates the environment to which employees will be exposed). <i>ORNL SME: Computation not required per 9-8-09 email from R. Kolka (USFS).</i></p> <p style="text-align: center;">WBGT THRESHOLD VALUES FOR INSTITUTING PREVENTIVE MEASURES</p> <p>80-90 degrees F Fatigue possible with prolonged exposure and physical activity.</p> <p>90-105 degrees F Heat exhaustion and heat stroke possible with prolonged exposure and physical activity.</p> <p>105-130 degrees F Heat exhaustion and heat stroke are likely with prolonged heat exposure and physical activity.</p>
	<p>Wind</p>	<p>Terminate all work during periods of high winds due to snag hazards.</p>
	<p>Dusty Conditions</p>	<p>Dust masks will be worn while working in dusty conditions along with eye protection <i>ORNL SME: Instead, See RSS LAST Question for dust mask and eye protection controls & information.</i></p>
	<p>Lightning</p>	<p>Although most common in the summer, thunder and lightning can occur anytime. If caught in a storm near a vehicle, return to the vehicle and stay inside while the storm is most active. Park vehicle in an open area away from trees. Turn off radios during the storm. Lightning is more likely to strike when radio transmission occurs. After the storm passes, turn forest radio on and check in with communications. If caught in a storm away from your vehicle, try to find some form of building or shelter. DO NOT seek shelter under large trees or open areas. Stay off ridge tops and mountain tops. Seek shelter in low lying areas such as a ditch or cave. High winds can snap off snags and healthy trees unexpectedly. <i>ORNL SME: See also RSS Question 13.5 for other details/controls.</i></p>
<p>Line Officer Signature</p>	<p>Title</p>	<p>Date</p>