

<p>U.S. Department of Agriculture Natural Resources Conservation Service</p>		<p>1. WORK PROJECT/ACTIVITY SNOTEL Work in suspected Hanta Virus environment</p>	<p>2. LOCATION Boise, Idaho</p>	<p>3. UNIT Snow Survey</p>
<p>JOB HAZARD ANALYSIS (JHA)</p>		<p>4. NAME OF ANALYST Jeff Anderson</p>	<p>5. JOB TITLE Hydrologist</p>	<p>6. DATE PREPARED 2/13/07</p>
<p>7. TASKS /PROCEDURES</p>	<p>8. HAZARDS</p>	<p>9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls * PPE</p>		
<p>Opening and working in SNOTEL shelters</p>	<p>High risk of exposure has been associated with entering or cleaning rodent-infested structures</p> <p>Infection can occur after only a few minutes of exposure.</p>	<p>When opening a SNOTEL shelter make a quick visual inspection for signs of rodent activity from outside the door. Signs include dropping, nests, and dead rodents.</p> <p>If such evidence is found ventilate the building by opening doors for at least 30 minutes. Leave the area downwind during the airing-out period. This airing helps to remove infectious primary aerosols that might be created when hantavirus-infected rodents urinate. Clean-up any rodent materials by following guidelines in the next sections.</p>		
<p>Cleaning up rodent urine and droppings</p>	<p>Human infection occurs most commonly through the inhalation of infectious, aerosolized rodent saliva, urine, or droppings.</p> <p>Transmission of hanta virus can occur when dried materials contaminated by rodent excreta are disturbed and inhaled, or when directly introduced into broken skin or eyes.</p> <p>Depending on environmental conditions the hanta virus survives <1 week in indoor environments and much shorter periods (perhaps hours) when exposed to sunlight outdoors</p> <p>The Utah State epidemiologist found that rodents at high elevation were infected at the same rate as those in lower areas. Elevation is not a defense.</p>	<p>The hantavirus is eliminated by disinfectants. Two types of disinfecting solutions are recommended:</p> <ol style="list-style-type: none"> 1. General-Purpose Household Disinfectant --- Prepare according to the label, if not prediluted. Any product labeled "disinfectant" should be sufficient. These include products with the following active ingredients: phenols, quaternary ammonium compounds and hypochlorite. 2. A chlorine solution, freshly prepared by mixing 1½ cups of household bleach in 1 gallon of water (or a 1:10 solution). Chlorine solutions should be prepared fresh daily. <p>During cleaning, wear rubber, latex, vinyl or nitrile gloves</p> <p>Spray rodent urine and droppings with a disinfectant or chlorine solution until thoroughly soaked.</p> <p>To avoid generating aerosols, do not vacuum or sweep surfaces until they have been disinfected. Use a paper towel to pick up the urine and droppings. Place paper towels in sealable garbage bags.</p> <p>Unless burned on-site, all potentially infectious waste material should be double-bagged in plastic bags. These bags should then be labeled as infectious and disposed of in accordance with local regulations for infectious waste. Burying the trash in a 2- to 3-foot-deep hole is also considered acceptable by CDC.</p> <p>After the rodent droppings and urine have been removed, disinfect items that might have been contaminated by rodents or their urine and droppings.</p> <ul style="list-style-type: none"> --- Spray floors and horizontal surfaces with a disinfectant or chlorine solution. --- Leave books, papers, and other items that cannot be cleaned with a liquid disinfectant outdoors in the sunlight for several hours. After that time, the virus should no longer be infectious. --- Disinfect gloves before removing them with disinfectant or soap and water. After removing the clean gloves, thoroughly wash bare hands with soap and water. --- Clothes worn during the clean-up should be washed in hot water with detergent and dried on high heat or hung in sunlight to dry 		

Cleanup of dead rodents and rodent nests	In addition to the above hazards the fleas found on rodents in the western US can carry the plague.	<p>Wear rubber, latex, vinyl, or nitrile gloves.</p> <p>Use insect repellent (containing DEET) on clothing, shoes, and hands to reduce the risk of fleabites that might transmit plague.</p> <p>Spray dead rodents and rodent nests with a disinfectant or a chlorine solution, soaking them thoroughly.</p> <p>Place the dead rodent or nest in a plastic bag.</p> <p>Clean up the surrounding area as described in the above section.</p>
Closing a SNOTEL shelter for the season	Attracting a new rodent population which could carry hanta virus	<p>Leave rodenticides such as "Bar Bait" in the shelter to decrease the likelihood of rodent infestation.</p> <p>Note: Environmental Protection Agency (EPA)-approved rodenticides are commercially available. Instructions on product use should always be followed.</p>
General practices to make buildings more rodent proof	Attracting a new rodent population which could carry hanta virus	<p>Seal all entry holes $\geq \frac{1}{4}$-inch (≥ 6 mm) in diameter with any of the following: cement, lath screen or lath metal, wire screening, hardware cloth ($< \frac{1}{4}$-inch grate size), or other patching materials. Steel wool or STUF-FIT also can be used, but caulk must be placed around the steel wool or STUF-FIT to prevent rodents from pushing it through the hole. Caulk and expanding foam can be used to reinforce any repairs where lath metal, hardware cloth, steel wool, or STUF-FIT are the primary materials; however, caulk or expanding foam alone are usually not sufficient to prevent rodent intrusion.</p> <p>Insure that doors seal completely – check doors for effective sills.</p>
Camping while on a SNOTEL trip	<p>In addition to the above hazards...</p> <p>Infection can also occur by ingesting contaminated food or water.</p> <p>Persons have also acquired hantavirus after being bitten by rodents.</p>	<p>Keep food in rodent-proof containers and dispose of any food that has been in contact with rodents.</p> <p>Do not pitch tents or place sleeping bags in proximity to rodent feces or burrows or near possible rodent shelters (e.g., garbage dumps or woodpiles) where the possibility of a rodent bite is higher.</p> <p>Avoid sleeping on the bare ground. Use a cot with the sleeping surface at least 12 inches above the ground or use a tent with a floor.</p>
Digging that may stir up infected material	Hanta Virus Exposure	<p>The risks are low from rodent material located on the surface which is exposed to sunlight.</p> <p>Avoid areas with signs of intense above or below ground rodent activity.</p>
10. LINE OFFICER SIGNATURE	11. TITLE	12. DATE

JHA Instructions

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 literature.
- c. Discuss the work project/activity with participants.
- d. Observe the work project/activity.
- e. A combination of the above.

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:

- 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.

Emergency Evacuation Instructions

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

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

SIGNATURE DATE
