



Heartland Network Safety Plan and Procedures



protecting the habitat of our heritage



Natural Resource Monitoring

The Heartland Network Safety Plan and Procedures has been reviewed by the network technical committee and approved by the network Board of Directors.

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Purpose

The National Park Service (NPS) has a continuing concern about the occupational safety and health of employees and others who work in the parks as volunteers, contractors, concession employees, or any other capacity. Controlling exposure to hazards that affect employees can also positively affect the visitor experience and enhance the accomplishment of the NPS mission. In recognizing this, the NPS is committed to reducing workplace accidents, injuries, illnesses, and the pain, suffering, and losses associated with these incidents.

At the Heartland Network (HTLN), we expect that each manager, supervisor, and employee has the expertise to understand, recognize, practice, and demonstrate their individual responsibilities for safety performance and safe behavior at the workplace; and all employees and volunteers have the tools and equipment to perform their work safely. This safety plan outlines general and park specific safety guidelines for the HTLN. General guidelines that pertain to all field work are described here in order to minimize potential health and safety risk. Safety of field personnel should always be the first concern while conducting a sampling project, and in the selection of sampling sites. Numerous safety issues and concerns are associated with implementing a long-term, service-wide monitoring program that includes extensive fieldwork by network staff or other cooperators/contractors. Field monitoring projects necessitate exposure of field personnel to potentially hazardous conditions across seasons and climatic conditions in addition to unforeseen, potentially catastrophic, short-term natural events (e.g., floods, storms) that may occur. As a result, field sampling requires planning that anticipates the risks and dangers that field personnel may be exposed to, so precautions may be taken to limit threats to safety as much as possible. The most direct route from various sampling sites to the nearest emergency facility and emergency phone numbers must be documented in advance of field work. Emergency plans with emergency contacts, storm shelters, and nearest hospitals are listed by park in Appendix 1. Familiarity with the safety plan is required of all sampling personnel. A copy of the plan for ready reference should always accompany field personnel to the field.

This safety plan is based on the following guiding principles. It is our desire that every manager, supervisor, and employee use these principles as the overall guiding influence in performing their duties, and providing leadership and direction in the maintenance of a safe and healthful work environment.

Guiding Principles:

- Safety is a condition of employment at the HTLN.
- All injuries and occupational illnesses can be prevented or mitigated.
- Management is responsible and accountable for preventing injuries and occupational illnesses.
- Employees must be trained to work safely.
- The combined energy of everyone at the HTLN is necessary to continuously improve safety performance.

- Management must audit performance in the work place to assess safety program success.
- All concerns must be addressed promptly.
- Safety must be integrated as a core operational and personal value.

This safety plan provides a comprehensive summary of work-related safety precautions, issues, policies, and procedures for all people associated with the HTLN. Through frequent conversation and training, HTLN staff can prevent most injuries from occurring and effectively respond to injuries that do occur. HTLN supervisors will ensure that all employees are aware of, know, and understand this safety plan through annual training of permanent, temporary, student, and volunteer staff.

Scope

This safety plan applies to all HTLN staff (permanent, temporary, student, and volunteer), cooperators, contractors, partners, and others working in concert with the HTLN. Compliance with this plan is essential to ensure personal safety. Failure to comply with this plan could result in disciplinary action for HTLN staff, cooperators, contractors, partners, and others working in concert with the HTLN.

Relationship Between this Safety Plan and Other Agency Requirements

The HTLN is a NPS unit assigned to carry-out inventory & monitoring activities on Arkansas Post National Memorial (ARPO), Buffalo National River (BUFF), Cuyahoga Valley National Park (CUVA), Effigy Mounds National Monument (EFMO), George Washington Carver National Memorial (GWCA), Herbert Hoover National Historic Site (HEHO), Homestead National Monument of America (HOME), Hopewell Culture National Historical Park (HOCU), Hot Springs National Park (HOSP), Lincoln Boyhood National Memorial (LIBO), Ozark National Scenic Riverways (OZAR), Pea Ridge National Military Park (PERI), Pipestone National Monument (PIPE), Tallgrass Prairie National Preserve (TAPR), and Wilson's Creek National Battlefield (WICR) and as such will follow the safety requirements established by the parks if such requirements are more restrictive than those outlined in this plan. At BUFF and OZAR there is a need for backcountry travel. Therefore, HTLN staff, volunteers, and cooperators will follow the Buffalo National River – Management Directive (BUFF 2009) on backcountry travel when working in either park.

The HTLN is duty stationed at WICR and Missouri State University and as such will follow the office and lab safety requirements of WICR and the University. Applicable is the requirement to store chemicals properly labeled and with Material Safety Data Sheets (MSDS) in areas identified at both facilities and to store combustibles such as propane or fuel in the fire cabinet located at WICR.

Relevant NPS Policy

NPS Director's Order #50B: Occupational Safety and Health Program (NPS 2008) provides NPS managers, supervisors, and employees with direction for the implementation of a comprehensive risk management program that provides for the occupational safety and health of NPS employees and identifies strategies to minimize the loss of NPS human, physical, and fiscal resources due to preventable accidents.

This Director's Order mandates that every NPS employee:

- Adheres to established occupational safety and health procedures.
- Properly uses and maintains required clothing and/or personal protective equipment (PPE).
- Takes the initiative for his/her own safety and health and that of co-workers.
- Takes the initiative to maintain a level of personal wellness and fitness as needed for assigned work tasks.
- Identifies and, where appropriate, corrects unsafe conditions and work practices.
- Reports unsafe/unhealthful conditions and/or operations.
- Immediately reports a mishap, including minor accidents or a "near-miss," to supervisor, no later than the end of the work shift.
- Helps establish a safe and healthful working culture and practices safe work procedures, even when working alone.

The NPSafe Program (Safe Acts and Attitudes Foster Excellence), implemented by the NPS's Division of Risk Management, works to ensure all NPS units have the skills and knowledge to: (1) provide a safe and healthful worksite for NPS employees; (2) provide, to the greatest extent possible, for the safety of the visiting public [although HTLN is not a park unit, we can still provide for the safety of the public when we are working in parks]; and (3) minimize human capital and monetary losses through effective workers' compensation case management.

Roles and Responsibilities

Although crew safety is of primary importance, it is not possible to remove all unsafe conditions from the field environment. Project managers and supervisors have a responsibility to provide training and informational materials to field crew personnel that will make their jobs as safe as possible. Both employers and employees are responsible for safety.

Responsibilities of the Safety Officer

The HTLN safety officer will be responsible for the overall coordination of the safety and health program. The safety officer will be generally responsible for:

- Overseeing the implementation of HTLN's safety plan and programs.
- Ensuring that safety and risk management training is provided for all employees.
- Conducting annual program evaluations and reviews of the HTLN safety plan and procedures, and making adjustments when needed to increase their effectiveness.
- Maintaining records required by the HTLN safety plan and Occupational Safety and Health Administration (OSHA).
- Advises the program manager of all lost time employee accidents/incidents and maintains an OSHA 300 Log for the HTLN.
- Provides program manager with data and reports on overall site occupational safety and health program progress, including annual program evaluation.
- Serves as member of the Wilson's Creek NB Safety Committee.

Responsibilities of Supervisors:

- Provide safety training for all employees, including first aid.
- Provide proper safety equipment.
- Provide appropriate personal protective equipment (PPE).
- Report and investigate all accidents and incidents.
- Ensure employees are aware of safety tools and comply with the safety program.

Responsibilities of the Employee:

- Report unsafe working conditions.
- Comply with safety and other work regulations.
- Use safety equipment and personal protective equipment (PPE).
- Report all accidents and incidents per NPS Director’s Order #50B.

Safety and Prevention of Accidents and Injuries

An important element of work in the field and especially a backcountry setting is self-reliance and personal preparedness. Accordingly, personnel are expected to assume a high degree of responsibility for their own safety, commensurate with the nature of activities they undertake. While safe practices and procedures will be emphasized in all aspects of the program, employees are ultimately responsible for their own safety. A safe and successful field trip is dependent upon good situational awareness and the ability to anticipate, detect, and act upon problems encountered (risk management). Discretion and judgment are key elements of this process. It is also important to keep these ideas in mind while completing routine tasks in the office or if going from an office to field setting.

Situational Awareness

Situational awareness is the ability to identify, process, and comprehend the critical elements of information about what is happening around you. It is dependent upon the accuracy of one's perception of the current environment. When you lose situational awareness you increase the potential for human error. The loss of situational awareness usually occurs over a period of time and will leave a trail of clues.

Factors that reduce situational awareness include the following:

- Confusion or gut feeling that something is “off” or “wrong”
- Lack of attention to surroundings
- Departure from established policy or procedure
- Failure to meet objectives or follow plans
- Ambiguity
- Fixation or preoccupation
- Insufficient communication
- Fatigue or stress
- Task overload
- Task under load (complacency)

- Group mindset
- “Press on regardless” philosophy
- Use of certain prescribed and over-the-counter medications
- Deteriorating conditions, such as weather and fatigue

To maintain situational awareness, pay attention to current and changing conditions. What is your physical and mental status? Are you properly clothed and equipped for your trip? Observe your surroundings. Watch your footing. Evaluate current and expected weather (beware of changes that could affect safe travel). Has your trip itinerary changed? Regularly communicate your location and status when required.

Good situational awareness requires constant attention and processing of all the objective and subjective information that surrounds you. Situational awareness is an essential element to managing risk.

Risk Management

Risk management is a process that begins with effective situational awareness. Risk management helps ensure that critical factors and risks associated with all work related activities are identified and considered during the decision making process. This proactive process must precede action and may follow the Green, Amber, and Red risk assessment process (G.A.R.).

Risk management should include the following five steps:

- A. Identify hazards (e.g., weather, terrain, animals, tripping hazards).
- B. Assess hazards (e.g. What is the river level? Am I able to control the boat under these conditions? Is my footwear adequate? Do I have enough water? Will I be prepared for rapid change in temperature? Is it hunting season? Is this box too heavy or awkward to carry by yourself?)
- C. Make decisions (e.g. Do benefits outweigh potential costs?)
- D. Implement controls (e.g. Are controls in place for identified hazards? Has the best route been identified? Is my safety equipment ready? Have I asked for help to move something or complete a repetitive task?)
- E. Evaluate (e.g. Reevaluate your decision. Is it still a good decision? Are conditions different than anticipated? Reassess. Change the plan if necessary!)

Personal protective equipment

The use of personal protective equipment (PPE) by HTLN personnel may be necessary for certain activities to protect workers from hazards which cannot be eliminated by engineering controls or other means. The need for government to supply PPE is normally identified in the monitoring protocol safety standard operating procedure (SOP) or the job hazard analysis (JHA) for the activity. PPE commonly provided to HTLN employees includes: insect repellent; sun screen; life jackets and wading outerwear; chaps and helmets; etc.

Recommended Personal Gear

- Water or other suitable hydration source (i.e., Gatorade and similar products). Hydration with two waters / one Gatorade or similar products is recommended.
- Snacks
- Hat
- Pocket knife
- Long-sleeved shirt and light-colored, long pants
- Solid footwear
- Compass and map
- Backpack or cruising vest
- Rain gear
- Special medications if necessary (e.g., Epi-pen)
- Sunglasses
- Extra layers of clothing

Job Hazard Analysis

Numerous potentially hazardous situations arise out of the physical condition of the environment HTLN work in. Safe practices allow us to prevent these conditions from causing harm. Supervisors are responsible for providing instructions on how to avoid environmental hazards and crew leaders implement these instructions when a crew or crew member is faced with such hazards. The most important tool is situational awareness. Being aware of your surroundings—the weather, potentially harmful plants and animals, and the terrain—and how to safely interact with them gives you the opportunity to minimize danger.

Job Hazard Analysis (JHA) procedures include identification of tasks, potential hazards, and safe job practices/procedures. A JHA is required to be completed for:

- Jobs or work practices that have potential hazards
- New or non-routine tasks to be performed where potential hazards exist
- Jobs that may require employee use of PPE
- Changes in equipment, work environment, conditions, practices, policies, or materials

Most monitoring tasks, if hazardous, probably fall under one of the first two categories. JHA's for frequently encountered hazards are included in Appendix 2.

Supervisors shall discuss the job hazards with employees prior to beginning new projects and identify any hazards not noted on the JHA, and discuss ways to reduce these hazards, including the use of protective equipment. Supervisors and appropriate line managers shall ensure that established JHAs are reviewed and signed prior to any non-routine task, or at the beginning of the field season.

Developing a Job Hazard Analysis

In order to develop a JHA, the job to be evaluated is broken down into basic steps by the supervisor and the employee(s) assigned to perform the job. For each step, job hazards

and safe job procedures are identified. The JHA's in Appendix 2 should be used as an example when developing a new JHA.

- A. **Identification of Tasks.** Each step of a job should identify a major task and briefly describe each in the order in which it is performed. Three or four words may be sufficient to describe each job step. Avoid steps that are too detailed. They will make the JHA unnecessarily long and trivial. For example, sanding and painting a picnic table are major tasks to be listed; opening a paint can is not considered a major task and would not be included on the JHA. Most jobs can be separated into 12 to 15 basic steps.
- B. **Potential Hazards.** Each step is examined to identify potential hazards. Hazards may be associated with work practices, procedures, equipment, materials or environment. Questions to be considered to help identify specific hazards include: Could the worker come in contact with; be struck by; strike against; be caught in, under, between; slip, trip, or fall; cut by; or suffer from overexertion?
- C. **Safe Job Procedures.** Safe job procedures to reduce or abate the hazards are identified. The use of general terms such as "be careful", "use caution", or "work safely" should be avoided. Safe job procedures will normally fall into one of the categories listed below:
 - Environmental change
 - Reduction in the frequency a task is performed
 - Personal protective equipment (PPE) changes
 - Job procedures/work practices
 - Safe behaviors
- D. **Job Hazard Analysis Review.** In the HTLN, review will be done by both the safety officer and the program manager.
- E. **Job Hazard Analysis Reevaluation.** Although used throughout the year as appropriate, established JHAs should be reevaluated periodically, at least every three years, to ensure that they reflect the latest, safest, and most efficient way to perform the task. New equipment, tools, methods, and changes in safety standards should require modifications in JHAs. Employees and supervisors should work together when reevaluating the JHA to assure that all characteristics of the job are addressed and that the safest and most efficient means of performing a job will be utilized. At any time updates can be made to the JHA which will most likely happen during the annual review of the JHA prior to the field season.
- F. **Job Hazard Analysis Recordkeeping.** Supervisors are responsible for maintaining JHA records. A signed version of the review copy will be kept on file in the HTLN's centrally located files.

Safety Plan Management Controls

Field crew leaders and members have much discretion in carrying out field work. They also have a great deal of responsibility in using their discretion responsibly. The following critical elements are meant to help staff define the extent of their discretion by identifying conditions that require consultation with their supervisor. Although, the critical elements are not go/no-go thresholds, compelling reasons must support

continuation of work when a threshold is met, and the decision to continue operations requires supervisory approval.

Workday and Driving Limits

- A. Workdays should not exceed 16 hours. The 16 hours include paid and unpaid travel, and paid and unpaid breaks. This is to allow an employee the minimum 8 hours off-duty between shifts. Example: if an employee leaves their house at 2:00 AM and travels ½ hour to work, they should be released from work no later than 5:30 PM to allow for the drive home regardless of how many paid or unpaid breaks are taken.
- B. During a workday involving travel after working, no single person can drive more than 10 hours or exceed a 12 hour work day limit. Examples: an employee works for 6 hours in the office prior to departing on official travel. The employee may then drive for 6 more hours. Or, the employee attends training for 8 hours; the employee may drive for 4 more hours. If two or more people share the driving, they are still restricted to a 12 hour work day limit, and no driver exceeds the 10 hour driving limit. Driving hours include those accumulated while driving on standard roads both within and between parks. Time accumulated while working off road in a park is not counted toward the 10 hour driving limit. Once the 10-hour driving threshold has been reached, the employee may not drive again until having a minimum of 8 hours of off-duty time. Example: an employee in travel status drives from noon to 10:00 p.m. and stops to check into a hotel. The employee cannot begin driving again until being off duty for a minimum of 8 hours (6:00 a.m. in this example). If an employee or group of employees travel first and then initiate work, they may now work up to the 16 hour work day limit.
- C. Employees traveling by common carrier (e.g., air, rail, bus) may only drive the remaining time period up to the 12-hour work/driving limit once they reach their destination. This 12-hour limit may be exceeded for the employee to drive to local area accommodations (close proximity to the airport). Examples: if an employee travels for 6 hours (including travel to airport, flight time, layovers, etc.) the employee could drive an additional 6 hours after landing. Or, if the flights, layovers and general travel time took a total of 12 hours, the employee could drive the distance necessary to reach local accommodations.
- D. Winter travel is prohibited if the National Weather Service has issued a Winter Weather Warning or a prolonged Winter Weather Advisory (advisory lasting for three or more consecutive days) for any part of the area the traveler will be driving in.
- E. When weather conditions change while employees are in travel status, travelers should not attempt a return to duty station by vehicle during a travel advisory or winter storm warning. Travelers should stop in a safe location and promptly notify their supervisor. Travel authorizations will be modified to account for extra

expenses. Travel may resume after the advisory expires and in accordance to workday and driving time limits above.

- F. For additional travel information, see the attached DOI guidance.

Atmospheric Temperature Limits

All field crews are required to carry a Kestrel weather monitoring instrument, and heat index chart to determine current heat index values. If heavy protective clothing/gear (e.g. waders, chain saw chaps) is required for the field crew, then add 10^o F to the temperature when calculating the heat index value. If the field crew is working in direct sunlight, add 10^o F to the temperature when calculating the heat index value.

- A. All field work is prohibited when a heat index reaches 130^o F (black conditions).
- B. When heat index values range between 105^o F and 130^o F (red conditions), mandatory 10 minute cooling/rehydration breaks each hour are required. Under red conditions, supervisors are required to provide supplemental water to augment each individual's supply. Each field vehicle will have a water cooler assigned to it for this purpose. Supervisors are also authorized to purchase electrolyte replacement fluids or mixes for crews working under red conditions. At the supervisor's discretion, field work may be suspended under red conditions.
- C. When heat index values range between 90^o F and 105^o F (yellow conditions), supervisors should encourage more frequent breaks and water consumption. Crew members should monitor one another for signs of heat fatigue.
- D. No river sampling will be conducted when the air temperature is less than 20^o F.

Storms

- A. Field crews are required to leave the field and seek immediate shelter upon the first hearing of thunder or observation of lightening. Remember "if thunder roars go indoors."
- B. Field crews are required to remain indoors, or in other acceptable shelter, for at least 30 minutes after the last clap of thunder is heard or lightening is observed.
- C. When the chance of thunderstorms or other severe weather is greater than 50% for the region (as modeled by the National Weather Service), no river floats greater than 1 mile total length will be initiated.
- D. All field work is prohibited when the National Weather Service has issued a Severe Thunderstorm Warning or a Tornado Warning.
- E. Field crews should remain vigilant of changing weather conditions and stay in radio contact with the host park if the National Weather Service has issued a Severe Thunderstorm Watch or a Tornado Watch.
- F. Crews should be within 1 mile of their vehicle at all times if severe weather is forecast.

Navigating Waterways

Buffalo National River Services and River Level Guide

(<http://ar.water.usgs.gov/buffaloriver/>)

- A. No floating is permissible under red (flood) conditions.
- B. Supervisor approval for floating must be obtained for yellow (high) conditions.

Ozark National Scenic Riverways

(<http://www.nps.gov/ozar/planyourvisit/levels.htm>)

- A. The rivers are closed and will not be floated when the water level is equal to or greater than the flood levels posted for the listed USGS gages.
- B. Supervisor approval for floating must be obtained when the river levels are rising and approaching flood stage for the respective USGS gages.

Weather Terms

- A. **Excessive Heat Watch-** Issued for the potential of the following conditions within 12 to 36 hours: heat index of at least 105 degrees Fahrenheit for more than 3 hours per day for 2 consecutive days or heat index more than 115 degrees Fahrenheit for any period of time.
- B. **Heat Advisory-** Issued within 12 hours of the onset of the following conditions: heat index of at least 105 degrees but less than 115 degrees for less than 3 hours per day. Nighttime lows remain above 80 degrees for 2 consecutive days.
- C. **Excessive Heat Warning-** Issued within 12 hours of the onset of the following conditions: heat index of at least 105 degrees Fahrenheit for more than 3 hours per day for 2 consecutive days or heat index more than 115 degrees Fahrenheit for any period of time.
- D. **Winter Storm Watch-** A significant winter storm may affect your area, but its occurrence, location and timing are still uncertain. A winter storm watch is issued to provide 12 to 36 hours notice of the possibility of severe winter weather. A watch will often be issued when neither the path of a developing winter storm nor the consequences of the weather event are as yet well defined. Ideally, the winter storm watch will eventually be upgraded to a warning when the nature and location of the developing weather event becomes more apparent. A winter storm watch is intended to provide enough lead time so those who need to set plans in motion can do so.
- E. **Winter Weather Advisory-** Issued when 4, 5, or 6 inches of snow or sleet is expected in 24 hours; or any accretion of freezing rain or freezing drizzle is expected on road surfaces; or when blowing or drifting snow is expected to occasionally reduce visibility to 1/4 mile or less.
- F. **Winter Storm Warning-** Issued when 7 or more inches of snow or sleet is expected in the next 24 hours, or 1/2 inch or more of accretion of freezing rain is expected. A warning is used for winter weather conditions posing a threat to life and property.

- G. **Red Flag Warning-** A term used by fire-weather forecasters to call attention to limited weather conditions of particular importance that may result in extreme burning conditions. It is issued when it is an on-going event or the fire weather forecaster has a high degree of confidence that Red Flag criteria will occur within 24 hours of issuance. Red Flag criteria occurs whenever a geographical area has been in a dry spell for a week or two, or for a shorter period, if before spring green-up or after fall color, and the National Fire Danger Rating System (NFDRS) is high to extreme and the following forecast weather parameters are forecasted to be met: 1) a sustained wind average 15 mph or greater, 2) relative humidity less than or equal to 25 percent, and 3) a temperature of greater than 75 degrees F. In some states, dry lightning and unstable air are criteria.
- H. **High Wind Watch-** Issued when conditions are favorable for the development of high winds over all of or part of the forecast area but the occurrence is still uncertain. The criteria of a high wind watch are listed under the high wind warning and should include the area affected, the reason for the watch and the potential impact of the winds.
- I. **High Wind Warning-** Issued when sustained winds from 40 to 73 mph are expected for at least 1 hour; or any wind gusts are expected to reach 58 mph or more.
- J. **Severe Thunderstorm Watch-** Issued when conditions are favorable for the development of severe thunderstorms in and close to a defined area.
- K. **Severe Thunderstorm Warning-** Issued when thunderstorms are expected to have wind gusts to 58 mph or above or hail 3/4 inch or more in diameter.
- L. **Tornado Watch-** Issued by the National Weather Service when conditions are favorable for the development of tornadoes in and close to the watch area. Their size can vary depending on the weather situation. They are usually issued for a duration of 4 to 8 hours. They normally are issued well in advance of the actual occurrence of severe weather.
- M. **Tornado Warning-** Issued when there is likelihood of a tornado within the given area based on radar or actual sighting. It is usually accompanied by conditions indicated for Severe Thunderstorm Warning.
- N. **Flash Flood Watch-** Issued to indicate current or developing hydrologic conditions that are favorable for flash flooding in and close to the watch area, but the occurrence is neither certain or imminent.
- O. **Flash Flood Warning-** Issued to inform the public, emergency management, and other cooperating agencies that flash flooding is in progress, imminent, or highly likely.

Potential Job Hazards

Vehicle Safety

Traveling associated with field work brings the risk of a vehicular accident. To minimize this risk, the following measures should be taken:

- A. All drivers shall be properly licensed.
- B. Up-to-date defensive driving training is required for all employees (training every 2 years).
- C. The project supervisor or their designee prior to departing for fieldwork, and occasionally during prolonged deployments (those deployments lasting over three days), shall perform a pre-operational safety check of their vehicles using the "HTLN Vehicle Inspection Checklist" (Appendix 3). Report all needed repairs to the program manager promptly. Do not use equipment that is unsafe. Vehicle inspections forms are to be kept on file in the Heartland Network office and made available to staff as needed.
- D. All HTLN vehicles must undergo a professional safety inspection, tire balance and rotation, and front-end alignment each time they are serviced with an oil change.
- E. If the sampling vehicle is not safe to operate, the vehicle should not be operated until the condition is rectified.
- F. All drivers and passengers shall wear seat belts and/or shoulder harnesses.
- G. Keep windshield, wipers, side windows and mirrors clean and free of ice.
- H. All personnel shall ride inside the vehicle.
- I. The use of cell phones or portable radios by the driver while the vehicle is in motion is strictly prohibited. If the driver needs to make a phone call or speak with someone by two-way radio, pull the vehicle off the road in a safe location and stop before doing so.
- J. Choose the safest location to park vehicles. When exiting the vehicle place an orange safety cone at the left rear or right rear of the vehicle whichever is most appropriate. The orange safety cone is a reminder to see that: (a) you have parked the vehicle in a safe manner, (b) that you have room behind the vehicle. Prior to re-entering the vehicle to leave the parked location the employee will look behind the vehicle to insure that they have room to back up in a safe manner, pick up the orange safety cone, and place it in the trunk, or truck bed or proper location on/in the vehicle.
- K. Equip the vehicle with a properly charged fire extinguisher.
- L. Assure that all cargo is properly secured.
- M. Vehicle speed should be adjusted for load and weather.
- N. Properly store tools and equipment.
- O. Do not leave vehicle unattended with the engine running. Shut off engine and set the parking brake when vehicle is not in use.
- P. As a courtesy to the next driver, vehicle must be returned from the field clean and with a ½ tank of fuel or more.
- Q. When pulling a trailer, ensure that turn signals and brake lights are functioning before use. Inspect the trailer to ensure tires are inflated appropriately, and it is correctly connected to the towing vehicle.

- R. Drivers must be alert and familiar with vehicle operation when driving. Field Personnel may refuse to drive or ride under conditions in which they feel do not meet safety standards.
- S. If in place, defer to park specific vehicle safety guidelines and procedures if using a park vehicle.

All employees should familiarize themselves with the steps to take and information to gather in case they are involved in a motor vehicle accident. These steps are outlined in detail on the Motor Vehicle Accident Reporting Kit (GSA Form 1627) found in the glove compartments of all government vehicles. The Motor Vehicle Accident Reporting Kit also serves as your proof of insurance. In brief, take steps to prevent another accident at the scene, call a doctor or ambulance if necessary and then notify a local police agency. Identify any witnesses to the accident and have them complete a Statement of Witness form (SF-9) found in the Motor Vehicle Accident Reporting Kit. The employee must report the accident as soon as possible to their immediate supervisor and inform them of any injuries or damage to property. An Operator's Report of Motor Vehicle Accident form (SF-91) found in the Motor Vehicle Accident Reporting Kit, must be completed at the scene of the accident, by the employee involved in the accident. The need for immediate medical attention may preclude you from completing this form or identifying any witnesses to the accident.

Hazardous Terrain

A routine part of much of the field work is traveling over rough terrain to access field sites. It is important to wear appropriate footwear. Footwear should protect field personnel from the environment as well as ankle/foot injuries. To minimize the risk of accidents, the following preventive actions are recommended:

- A. Choose a safe route based on information provided, local knowledge, navigational tools, environmental conditions and other safety considerations. If conditions are not safe for travel, either postpone the activity or determine how to modify your travel plan to ensure safe travel. Once you are on your way, safety practices for off-trail foot travel, especially for areas with steep slopes, rocky outcrops, hard surfaces, soft soil, wet vegetation, loose rock, mud, and tree litter, include:
 - When traveling on foot in groups, the slowest hiker should set the pace of the group. No employee should ever become overexerted or isolated from the group.
 - Stay in communication with other co-workers at all times.
 - Monitor your travel on a map and note landmarks. Do not become solely dependent on GPS units.
 - Constantly assess the terrain for hazards and plan ahead to avoid them by going around, over or under them.
 - Rocky outcrops may not be visible on aerial photos and should be avoided.
 - Adjust your walking pace to the terrain and place your feet carefully to maintain stable footing.
 - Stay balanced by keeping weight over the arches of your feet while keeping your head as level as possible when you walk
 - Maximize friction by applying maximum boot-sole contact to the ground.

- Use toe kicks or herring-bone footsteps when traveling straight uphill.
- Shorten stride when traveling uphill.
- Use the “rest-step” technique of taking a moment to breathe with your weight shifted to the downhill leg when traveling uphill on steep slopes.
- Traverse slopes on an angle where practical.
- Sidestep up or downhill where you can’t traverse, keeping the majority of your weight on your uphill foot.
- Consider using a walking stick or pole.
- Carry any tools or walking stick on the downhill side of your body.
- Do not rely on rock handholds to support your weight. Rocks may become loose, causing a serious fall.
- Test each step and establish stable footing.
- Keep knees slightly bent and shorten your stride when descending, particularly when the surface is slick.
- Wear gloves to grab onto stable vegetation to prevent hand punctures.

To avoid eye injuries due to twigs and branches:

- Avoid standing up too fast from a bent-over or crouched position.
- Wear eye protection.
- Maintain adequate spacing from other individuals on brushy trails to avoid branches “whip lashing” into your face.

Employees are more vulnerable when they are distracted or fatigued. To avoid injury in this circumstance:

- Remain alert and observant. Be aware of your surroundings and alert for hazardous conditions.
- Focus on what you are doing at all times.
- Get adequate rest, including at least 6 hours of sleep during off-work hours.
- Take rest breaks as needed, at least 15 minutes for every 2 hours of strenuous activity.
- Dehydration can cause fatigue, so drink plenty of water before, during, and after the work day. The basic rule is to drink one liter of water or more for every one hour of strenuous work.
- Eat prior to becoming hungry.
- Stretch during breaks to prevent muscle soreness and injuries.

When necessary, the crew leader will make a determination that access to the sampling site is not possible and sampling of that site will be avoided.

B. Equipment should be distributed equitably among crew members for transport from the vehicle to the site; if determined to be necessary by the crew leader, more than one trip to transport equipment should be made.

Carrying loads during foot travel:

- Distribute the load so the majority of the weight is in the center of your backpack and your pack balanced.
 - Be aware of the shift in your center of gravity due to the load you carry.
 - Use proper lifting and ergonomic techniques while putting on and taking off your load/pack. Ask a co-worker for assistance.
 - Keep at least one hand free while hiking to assist in regaining balance in case of a slip or fall.
 - Do not carry awkward or unbalanced loads when walking these terrain types.
 - Make sure backpacks are balanced with the center of gravity low to help with stability.
- C. To the greatest extent possible, travel between the vehicle and the sample site should occur only during daylight hours.
- D. Only in unusual circumstances (as determined by the crew leader) should a crew member travel alone over hazardous terrain.
- E. Appropriate footwear should be worn. Open-toed sandals and flip-flops should be avoided.
- E. During aquatic surveys, when traveling over any extensive distance, appropriate footwear should be worn instead of waders or hip boots.

Dangerous Plants/Animals

Sampling at some sites will include risks associated with dangerous animals and/or plants. Poison ivy is likely to be common along many travel routes used by the sampling crew, as well as in riparian vegetation. Poison ivy on tree trunks offer particular risks since they are often unnoticed. Poison sumac is a plant occupying boggy areas and should also be avoided. Other plants of concern include wild parsnip, stinging nettle, and various vines, shrubs and trees with thorns. Faunal risks in network parks include venomous snakes (e.g. cottonmouth, copperheads, timber rattlesnakes, pygmy rattlesnakes, prairie rattlesnakes), bison, and rabid mammals of any number of species. To minimize the risks associated with dangerous animals and plants during the field season, the following measures are recommended:

- A. All field survey personnel should receive training in field identification, avoidance of, and first aid for, dangerous plants and animals which may be encountered during the field season.
- B. Crew members should inform their crew leader of any known allergies and keep appropriate medical relief handy. The field first aid kit, at a minimum, should contain a supply of Benadryl or other itch relief medication.
- C. The crew leader should make all crew members aware of site or situation specific dangers as they are noted. Similarly, field crew members should inform the crew leader as soon as they are discovered.
- D. Field crew members should be aware of their surroundings and try to avoid harmful plants when possible. When walking through woodland areas it is good practice to stay several meters behind other crew members to avoid tree limbs swinging back.
- E. Snake chaps will be provided for all employees in areas where terrestrial venomous snakes are known to occur.

- F. Field crew members should be aware of the location of bison and understand bison behavioral warning signs. Field crew members should work with park staff to determine timing of bison calving and rutting, when bison are more unpredictable and dangerous.

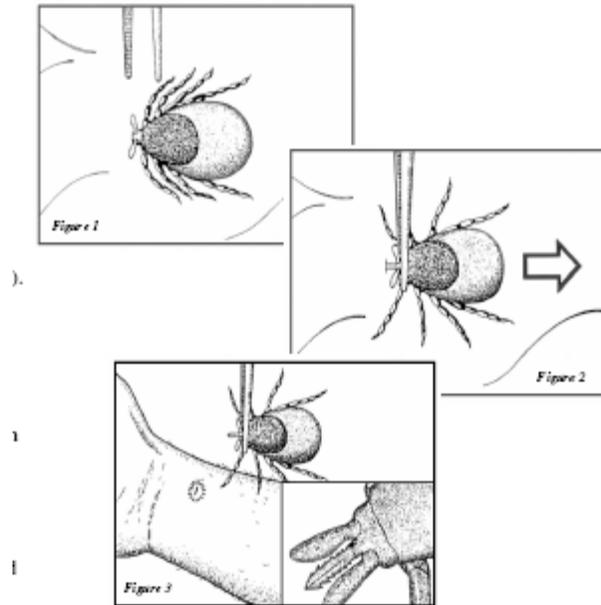
Insects and Spiders

Mosquitoes are known vectors of potentially fatal human viral diseases including West Nile Virus, Eastern Equine Encephalitis, St. Louis Encephalitis, and Western Equine Encephalitis. Ticks are capable of transmitting serious diseases to human as well, including Lyme disease, Ehrlichiosis, anaplasmosis, tick-borne typhus (Rocky Mountain Spotted Fever) and tularemia. Repellents should be used to minimize the risk of exposure.

Although most spiders are completely harmless and pose no threat to people, bites from some species (black widow, brown recluse) may result in severe damage requiring medical attention. To avoid bites from spiders: 1) wear gloves if working in an area where spiders are likely to live, 2) avoid wood or rock piles and dark areas where spiders may live, and 3) if a spider gets on you, brush it off and do not crush it.

Troublesome insects and related arthropods include mosquitoes, bees, ticks and chiggers are abundant in many Heartland Network parks. Light colored clothing should be worn when ticks are present to make them easier to spot before they reach the skin. Careful body checks each evening can help prevent them from embedding. Insect repellents such as those containing N,N-Diethyl-meta-toluamide (DEET) are highly effective for personal protection against insects. However, DEET is generally ineffective for repelling ticks and chiggers. Creams and lotions containing DEET with less than 40% active ingredient work in repelling insects. Higher concentrations of DEET, particularly in aerosol form are not any more effective, and since DEET may be applied directly to the skin, lesser amounts of active ingredients are recommended. Repellents containing permethrin are highly effective for repelling all arthropods, including ticks and chiggers. Permethrin-based repellents should only be applied to clothing as directed and never applied directly to the skin.

- A. DEET or other FDA-approved repellent should be used to prevent insect bites.
- B. Field personnel should perform self body checks each night after sampling.
- C. The following diagram illustrates the proper procedure for removing attached ticks, with instructions for doing so:



- (1) Grasp the tick’s mouthparts against the skin, using pointed tweezers (Figure 2). Pull back slowly and steadily with firm force.
 - (a) Pull in the reverse of the direction in which the mouthparts are inserted, as you would for a splinter (Figure 2 above).
 - (b) **BE PATIENT** – The long, central mouthpart (called the hypostome) is inserted in the skin. It is covered with sharp barbs, sometimes making removal difficult (Figure 3 above, inset).
 - (c) Most ticks secrete a cement-like substance during feeding. This material helps secure their mouthparts firmly in the flesh, further adding to the difficulty of removal.
 - (d) It is important to continue to pull steadily until the tick can be eased out of the skin (Figure 3).
 - (e) **DO NOT** pull back sharply, as this may tear the mouthparts from the body of the tick, leaving them embedded in the skin. If this happens, do not panic. Embedded mouthparts are comparable to having a splinter in your skin. Mouthparts alone cannot transmit disease because the infective body of the tick is no longer attached. However, to prevent the chance of secondary infection, it is best to remove them. Seek medical assistance if necessary.
 - (f) **DO NOT** squeeze or crush the body of the tick because this may force infective body fluids through the mouthparts and into the wound site.
 - (g) **DO NOT** apply substances such as petroleum jelly, finger nail polish, finger nail polish remover, repellents, pesticides, or a lighted match to the tick while it is attached. These materials are either ineffective or worse, might agitate the tick and cause it to force more infective fluid into the wound site.
 - (h) Commercially available “gadgets” for removing ticks generally are ineffective and should not be used.

- (2) Following removal of the tick, wash the wound site (and your hands) with soap and water and apply an antiseptic.
- D. If bitten, the area should be monitored for several days for rashes or redness. If a rash develops medical attention may be needed.
- E. Both topical or pill forms of Benadryl or some type of anti-histamine may be used to relieve the irritation caused by insect/spider bites.
- F. Field crew members with known severe allergic reactions should carry an epinephrine-pen with them and alert the field crew leader of their allergy.

Lightning Strike

Severe thunderstorms can appear suddenly in the Mid-west. In parks where crew members are working in open prairie, lightning is a major threat. To minimize risks associated with lightning strikes, the following measures should be taken:

- A. Field crews are required to leave the field and seek immediate shelter upon the first hearing of thunder or observation of lightening. Remember “if thunder roars go indoors.”
- B. Field crews are required to remain indoors, or in other acceptable shelter, for at least 30 minutes after the last clap of thunder is heard or lightening is observed.
- C. Crews should be within 1 mile of their vehicle at all times if inclement weather has been forecast.
- D. Make sure that you are not the highest object in the area, discard any large conductors (e.g. the 7.5 m telescoping survey pole used during bird surveys) if you are caught in a thunderstorm.

Tornadoes

A **tornado watch** means weather conditions are such that tornadoes or severe storms can be expected to develop. Alert fellow employees of this condition and tell them to keep an eye on the sky while working in the field. During the watch, be on alert for the sudden appearance of violent winds, rain, hail, or funnel shaped clouds. When in doubt, take cover, as rain or dust often obscures tornadoes. Field crews should remain vigilant of changing weather conditions and in radio contact with the host park if the National Weather Service has issued a Tornado Watch. At the supervisor’s discretion, field work may be suspended at anytime weather conditions warrant doing so. A **tornado warning** means that a tornado has been observed in that area. When a tornado warning is broadcast, or if a funnel shaped cloud is seen, move immediately to a shelter or other protective cover. All field work is prohibited when the National Weather Service has issued a Tornado Warning.

Hypothermia

Onset of hypothermia can be rapid and produce potentially fatal complications in a matter of minutes. Given rapidly changing weather conditions, hypothermia can be a serious risk to field personnel. To minimize risks:

- A. Avoid prolonged exposure to cold weather or water.

- B. Each field crew should carry a space blanket in their first aid kit at all times.
- C. Crew leaders are responsible for monitoring weather conditions and adjusting or postponing sampling plans as appropriate.
- D. Prior to leaving the vehicle for a sampling site, the crew leader must ensure that crew members are properly clothed and that emergency supplies are taken to the site.

HYPOTHERMIA

(Information taken from the Mayo Clinic web site: MayoClinic.com)

- Stumbles
- Mumbles
- Fumbles
- Grumbles

Introduction

Hypothermia occurs when more heat escapes from your body than your body can produce. Signs and symptoms of hypothermia may include gradual loss of mental and physical abilities. Severe hypothermia can lead to death.

These behaviors may be a result of changes in consciousness and motor coordination caused by hypothermia. Other hypothermia symptoms may include:

For most people, hypothermia isn't a serious risk. Still, each year nearly 700 people in the United States die of hypothermia. Prolonged exposure to cold air or cold water temperatures are common causes.

- Slurred speech
- Abnormally slow rate of breathing
- Cold, pale skin
- Fatigue, lethargy or apathy

When you're outdoors enjoying such activities as camping, hiking, hunting, fishing, boating and skiing, be aware of weather conditions and whether you or others with you are wet and cold. If you get cold and wet, move indoors and get warm and dry early — before you develop hypothermia.

The severity of hypothermia can vary, depending on how low your core body temperature goes. Severe hypothermia eventually leads to cardiac and respiratory failure, then death.

Signs and symptoms

Hypothermia usually occurs gradually. Often, people aren't aware that they need help much less medical attention.

Causes

Unlike other warm-blooded animals that have a layer of fur or blubber to keep them warm, you need an extra layer of clothing to keep you warm when it's cold outside. Without that extra layer of clothing, more heat escapes from your body than your body can produce. If too much heat escapes, the result is hypothermia. Exposure to cold water and certain medical conditions also can cause hypothermia.

Common signs to look for are **shivering**, which is your body's attempt to generate heat through muscle activity, and the "**umbles**":

Your normal core body temperature is usually right around 98.6 F. In hypothermia, your body fails to maintain a normal temperature. An internal body temperature of 95 F or lower signals hypothermia.

The cause of hypothermia usually is extended exposure to cold temperatures or a cool, damp environment. Other contributing causes include inadequate clothing and neglecting to adequately cover your extremities, particularly your head — a disproportionate amount of heat is lost through your head.

Hypothermia in milder weather

Hypothermia can happen not just in cold winter weather, when there are low temperatures or low wind chill factors, but under milder conditions as well. A rain shower that soaks you to the skin on a cool day can lead to hypothermia if you don't move inside to warm up and dry off. If you stay outside, evaporation of the water from your skin further cools your body, lowering your internal temperature. A wind blowing over the wet parts of your body greatly increases evaporation and cooling.

An accidental fall into cold water is especially likely to lead to hypothermia. Hypothermia may develop within minutes of being exposed to cold water, or it may take several hours, depending on the water temperature. Water doesn't have to be icy cold to cause hypothermia. Your body loses heat more quickly in water than in air. Any water temperature lower than your body temperature causes your body to lose at least some heat.

Risk factors

Being in extreme cold, wearing wet clothes — especially in the presence of wind — and being in cold water can all play a part in increasing your chances of hypothermia. In addition, other factors make you more vulnerable:

- **Advanced age.** People age 65 and older are especially vulnerable because they may have other illnesses or take medications that can interfere with the body's ability to regulate temperature.
- **Very young age.** Children usually lose heat faster than adults do. Children have a larger head-to-body ratio than adults do, making them more prone to heat loss through the head. Children may also ignore the cold because they're having too much fun to think about it. And they may not have the judgment to dress properly in cold weather or to get out of the cold when they feel cold. Infants may have a special problem with the cold because they have less efficient mechanisms for generating heat.
- **Mental impairment.** People with Alzheimer's disease or another illness that causes mental impairment may not be aware of the risks of being out in the cold. Wandering is not uncommon among people with Alzheimer's, and some affected people may stray away from home and be unable to find their way back on their own. Being stranded leaves them vulnerable to the weather.
- **Alcohol and drug use.** Alcohol may make your body feel warm

inside, but it lowers your body's ability to retain heat. Both alcohol and drugs such as marijuana can keep your blood vessels dilated, restrict your shivering response, impair your judgment and alter your awareness of weather conditions.

- **Certain medical conditions.** Some health disorders affect your body's ability to respond to cold or to produce heat. Examples include untreated underactive thyroid (hypothyroidism), stroke, severe arthritis, Parkinson's disease, trauma, spinal cord injuries, burns, blood vessel or nerve disorders that affect sensation in your extremities (for

example, peripheral neuropathy in people with diabetes), dehydration and any condition that limits activity or restrains the normal flow of blood. Older adults are more likely to have one or more of these risk factors.

- **Water conditions.** Factors contributing to your risk of hypothermia in cold water include the temperature of the water and the length of time you spend in it. Rescue time is crucial when a person accidentally falls into cold water. Chances of survival are affected by how cold the water is: The colder the water, the less the chance of survival.

Water temperature	Time until exhaustion or unconsciousness	Expected time of survival in the water
Under 32 F (icy waters)	Less than 15 minutes	Less than 15 to 45 minutes
32.5 to 40 F (Lake Superior in spring)	15 to 30 minutes	30 to 90 minutes
40 to 50 F (Maine coastal waters in spring)	30 to 60 minutes	1 to 3 hours
50 to 60 F (Central Pacific coastal waters year-round)	1 to 2 hours	1 to 6 hours
60 to 70 F (Gulf of Mexico in winter)	2 to 7 hours	2 to 40 hours
70 to 80 F (Gulf of Mexico in spring and fall)	3 to 12 hours	3 hours to indefinite
More than 80 F (Key West coastal waters in summer)	Indefinite	Indefinite

Source: United States Search and Rescue Task Force

When to seek medical advice

The signs and symptoms of the person suffering from exposure to the cold are

the strongest indicators of hypothermia. Seek immediate medical care for any person who has been exposed to cold air or water and who is shivering, appears disoriented, shows a lack of coordination, has cold and pale skin, appears tired, and is slurring speech. Try to keep the person warm and dry, preferably indoors or at least out of the wind, until help arrives.

Complications

Complications depend on how low your body temperature falls. If you are in water, you may lose consciousness and drown before your temperature drops low enough to cause death by hypothermia. Other complications of hypothermia may include:

- Frostbite
- Loss of limbs
- Coma

The lower your core body temperature, the greater your chance of complications and permanent damage.

Treatment

Seek immediate medical attention for anyone who appears to have hypothermia. Until medical help is available, follow these hypothermia treatment guidelines for caring for someone who is affected.

What to do

- **Move the person out of the cold.** Preventing additional heat loss is crucial. If you're unable to move the person out of the cold, shield the person from the cold and wind as best you can.
- **Remove wet clothing.** If the person is wearing wet clothing, remove it and replace it with a dry covering. Cover the person's

head. Try not to move the person too much. Cut away clothing if you need to.

- **Insulate the person's body from the cold ground.** Lay the person face-up on a blanket or other warm surface.
- **Monitor breathing.** A person with severe hypothermia may appear unconscious, with no apparent signs of a pulse or breathing. If the person's breathing has stopped or appears dangerously low or shallow, begin cardiopulmonary resuscitation (CPR) immediately if you're trained.
- **Share body heat.** To warm the person's body, remove your clothing and lie next to the person, making skin-to-skin contact. Then cover both of your bodies with a blanket.
- **Provide warm beverages.** If the affected person is alert and is able to swallow, have the person drink a warm, nonalcoholic beverage to help warm the body.

What not to do

Don't apply direct heat. Don't use hot water, a heating pad or a heating lamp to warm the person. Instead, apply warm compresses to the neck, chest wall and groin. Don't attempt to warm the arms and legs. Heat applied to the arms and legs forces cold blood back toward the heart, lungs and brain, causing the core body temperature to drop. This can be fatal.

- **Don't massage or rub the person.** Handle people with

hypothermia gently because they're at risk of cardiac arrest.

- **Don't provide alcoholic beverages.** Alcohol lowers the body's ability to retain heat.

What a doctor may do

A doctor will be able to take steps to warm the body from the inside out, if necessary. One method may involve giving the person warm fluids intravenously.

In severe cases of hypothermia, a process called hemodialysis may restore normal body temperatures quickly. Hemodialysis is a medical procedure that removes extra fluid, chemicals and wastes from the blood by filtering the blood through an artificial kidney. It's often used in people with kidney failure. In a hypothermia situation, the blood is removed purely to warm it rapidly outside the body and then have it returned to the body.

Prevention

For people most at risk of hypothermia — people who are older, who have mental or physical impairments, or who are homeless — community outreach programs and medical and social support services can be of great help. Identifying and checking in on vulnerable people and groups, avoiding prolonged exposure to the cold, and ensuring adequate heating are good steps to take toward hypothermia prevention. Monitoring bracelets may provide assistance for people who have a tendency to wander from home.

Avoid excessive alcohol consumption and the use of illegal substances, because these may increase your risk of hypothermia. Also, don't drink alcohol

and operate a boat or other watercraft. Alcohol can impair your ability to navigate the waters, increasing your risk of an accident and of falling into cold water.

Staying healthy in cold weather

Before you or your children step out into cold air, remember the advice that follows with the simple acronym COLD — cover, overexertion, layers, dry:

- **Cover.** Wear a hat or other protective covering to prevent body heat from escaping from your head, face and neck. Cover your hands with mittens instead of gloves. Mittens are more effective than gloves are because mittens keep your fingers in closer contact with one another.
- **Overexertion.** Avoid activities that would cause you to sweat a lot. The combination of wet clothing and cold weather can give you chills.
- **Layers.** Wear loose fitting, layered, lightweight clothing. Outer clothing made of tightly woven, water-repellent material is best for wind protection. Wool, silk or polypropylene inner layers hold more body heat than cotton does.
- **Dry.** Stay as dry as possible. In the winter, pay special attention to places where snow can enter, such as in loose mittens or snow boots.

During cold-weather months, keep emergency supplies in your car in case you get stranded. Supplies may include several blankets, matches, candles and

some foodstuffs, such as granola bars or crackers. A cell phone also can come in handy. If your car is stuck in a snowbank, be careful about leaving the engine running, because infiltration of carbon monoxide inside the car may pose a silent danger.

Cold-water cautions

Water doesn't have to be extremely cold to cause hypothermia. Any water that's colder than body temperature causes heat loss. Water that's colder than 70 F can quickly begin to cause hypothermia. The following tips may increase your survival time in cold water, if you accidentally fall in:

- **Wear a life jacket.** If you plan to ride in a watercraft, wear a life jacket. A life jacket can help you stay alive longer in cold water by allowing you to float without using energy and providing some insulation.
- **Don't panic.** If you're unable to swim to safety, stay calm. Unnecessary movements require you to exert extra energy and lose body heat.
- **Position your body to minimize heat loss.** Use a body position known as the heat escape lessening position (HELP) to reduce heat loss while you wait for assistance. Hold your knees to your chest to protect the trunk of your body. If you're wearing a life jacket that turns your face down in this position, bring your legs tightly together, your arms to your sides and your head back.
- **Huddle with others.** If you've fallen into cold water with other people, keep warm by facing each other in a tight circle.
- **Don't remove your clothing.** Buckle, button and zip up your clothes. Cover your head if you have a hood. The layer of water between your clothing and your body will be warmed and help insulate you.
- **Don't attempt to swim unless you're close to safety.** Unless a boat, another person or a life jacket is close by, stay put. Swimming expends extra energy, lowers body temperature and can shorten survival time.

Sun and Heat

The most prevalent hazard during the field season is likely to be exposure to heat during the summer months. Staff should ensure that they have enough water to last through the work day, at minimum 2 gallons/person for an 8 – 10 hour day. Heat exhaustion and heat stroke are very serious and potentially lethal conditions that can be avoided by proper hydration, resting and by dressing appropriately. Staff should be encouraged to wear loose, light-colored and non-restrictive clothing during summer months. Dressing in layers is also recommended as clothing can be removed or added for comfort.

- A. Wear a hat, a liberal coating of sunscreen (15 SPF or higher), and plenty of drinking water should be sufficient to prevent sunburn and related heat stress.
- B. Take notice of your fellow employees for any signs of heat exhaustion or heat stroke.

C. Drink often even when you don't feel thirsty.

HEAT EXHAUSTION

(Information taken from the Mayo Clinic web site: MayoClinic.com)

Introduction

Heat exhaustion is a condition whose symptoms may include heavy sweating and a rapid pulse, a result of your body overheating. It's one of three heat-related syndromes, with heat cramps being the mildest and heatstroke being the most severe.

Causes of heat exhaustion include exposure to high temperatures, particularly when combined with high humidity, and strenuous physical activity. Without prompt treatment, heat exhaustion can progress to heatstroke, a life-threatening condition. Fortunately, heat exhaustion is preventable.

Signs and symptoms

Signs and symptoms of heat exhaustion may come on suddenly and resemble those of being in shock. Your skin may feel hot and moist and appear flushed. Other possible heat exhaustion symptoms include:

- Heavy sweating
- Faintness
- Weak, rapid pulse
- Low blood pressure
- Nausea
- Low-grade fever
- Headache
- Dark urine

Causes

Your body's heat combined with environmental heat results in what's

called your core temperature — your body's internal temperature. Your body needs to regulate the heat gain (and in cold weather, heat loss) from the environment to maintain a core temperature that's normal, approximately 98.6 F (37 C).

Impaired cooling mechanism

In hot weather, your body cools itself mainly by sweating. The evaporation of your sweat regulates your body temperature. However, when you exercise strenuously or otherwise overexert in hot, humid weather, your body is less able to cool itself efficiently.

As a result, your body may develop heat cramps, the mildest form of heat-related illness. Signs and symptoms of heat cramps usually include heavy sweating, fatigue, thirst and muscle cramps. Prompt treatment usually prevents heat cramps from progressing to heat exhaustion.

You usually can treat heat cramps by drinking fluids containing electrolytes (such as Gatorade or other sports drinks), getting into cooler temperatures, such as an air-conditioned or shaded place, and resting.

Other causes

Besides hot weather and strenuous activity, other causes of heat exhaustion include:

- **Dehydration**, which impedes your body's ability to sweat and maintain a normal temperature

- **Alcohol use**, which can affect your body's ability to regulate your temperature
- **Overdressing**, particularly in clothes that don't allow sweat to evaporate easily
- **Obesity**. Carrying excess weight can affect your body's ability to regulate its temperature and cause your body to retain more heat.

When to seek medical advice

If you think you're experiencing heat exhaustion, then first try to cool off by:

- Moving to a cooler place
- Drinking cool water or sports drinks
- Resting with your legs elevated above heart level

Contact your doctor if your signs or symptoms worsen or if they don't improve within 30 minutes. Seek immediate medical attention if your body temperature reaches 104 F (40 C) or higher.

Complications

Untreated, heat exhaustion can progress to heatstroke, a life-threatening condition that occurs when your body temperature reaches 104 F (40 C) or higher. Heatstroke requires immediate medical attention to prevent permanent damage to your brain and other vital organs or death.

Treatment

In most cases, you can treat heat exhaustion yourself by doing the following:

- **Rest in a cool place.** Getting into an air-conditioned building is best, but at the least, find a shady spot. Rest on your back with your legs elevated higher than your heart level.
- **Drink cool fluids.** Stick to water or sports drinks. Don't drink any

Risk factors

Anyone can develop heat exhaustion, but certain factors increase your sensitivity to heat. They include:

- **Young or old age.** Infants and children younger than 4 and adults older than 65 are at higher risk of heat exhaustion. The body's ability to regulate its temperature isn't fully developed in the young and may be inhibited by illness, medications or other factors in older adults. Both age groups tend to have difficulty remaining hydrated, which also increases risk.
- **Certain medications.** Drugs that affect your body's ability to stay hydrated and respond appropriately to heat include those that narrow your blood vessels (vasoconstrictors, such as ergotamine), regulate your blood pressure by blocking adrenaline (beta blockers, such as atenolol), rid your body of sodium and water (diuretics, such as hydrochlorothiazide), alleviate allergy symptoms (antihistamines), calm you (tranquilizers, such as phenothiazines, butyrophenones and thioxanthenes), or reduce psychiatric symptoms such as delusions (neuroleptics, such as olanzapine).

beverages that have alcohol or caffeine, either of which can contribute to fluid loss.

- **Apply cool water to your skin.** If possible, take a cool shower or soak in a cool bath. Don't use alcohol on your skin.
- **Loosen clothing.** Remove any unnecessary clothing and make sure your clothes aren't binding.

If you don't begin to feel better within a half-hour using these treatment measures, seek prompt medical attention. You may be given intravenous (IV) fluids to help you rehydrate. Immersion in cold water, misting your skin, and placing you in front of fans or using cold or ice packs and cooling blankets are some of the techniques that may be used to bring down your body temperature.

Prevention

You can take a number of precautions to prevent heat exhaustion and other heat-related illnesses. When temperatures climb, remember to:

- **Wear loose fitting, lightweight, light-colored clothing.** Excess, dark or tight clothing holds in heat and doesn't let your body cool properly because it inhibits sweat evaporation.
- **Avoid sunburn.** If you're going to be outdoors, wear a lightweight, wide-brimmed hat or use an umbrella to protect yourself from the sun, and apply sunscreen to any exposed skin. Having a sunburn reduces your body's ability to rid itself of heat.

- **Seek a cooler place.** Being in an air-conditioned building, even for just a few hours, is one of the best ways to prevent heat exhaustion. If your home doesn't have an air conditioner, consider spending time at a library or shopping mall. At the least, find a well-shaded spot. Fans alone aren't adequate to counter high heat and humidity.
- **Drink plenty of fluids.** Staying hydrated will help your body sweat and maintain a normal body temperature.
- **Take extra precautions with certain medications.** Ask your doctor or pharmacist whether the medications you take make you more susceptible to heat exhaustion and, if so, what you can do to keep your body from overheating.
- **Avoid hot spots.** When parked in the sun, your car can reach a temperature of more than 160 F (71 C). Let the car cool off before you drive it. Never leave children or anyone else in a parked car in hot weather for any period of time.

It's best not to exercise or engage in any strenuous activity in hot weather, but if you must, follow the same precautions and rest frequently in a cool spot. Taking breaks and replenishing your fluids during that time will help your body regulate your temperature.

If you're otherwise healthy, your body can adapt to heat after several weeks, and its ability to regulate its temperature becomes more efficient. You'll still need

to take precautions, but working or exercising in heat should become more tolerable.

HEATSTROKE

(Information taken from the Mayo Clinic web site: MayoClinic.com)

Introduction

Heatstroke is a life-threatening condition that occurs when your body temperature reaches 104 F (40 C) or higher.

Heatstroke can be brought on by high environmental temperatures, by strenuous physical activity, or by other conditions that raise your body temperature. Whatever the cause, you'll need immediate medical attention to prevent brain damage, organ failure or death.

Heatstroke is the escalation of two other heat-related health problems: heat cramps and heat exhaustion. In these conditions, you develop signs and symptoms that are milder than those of heatstroke. You can prevent heatstroke if you receive medical attention or take self-care steps as soon as you notice problems.

Signs and symptoms

Heatstroke symptoms include:

- **High body temperature.** A body temperature of 104 F (40 C) or higher is the main sign of heatstroke.
- **Cessation of sweating.** This is often one of the first signs that your body temperature is too high. In heatstroke brought on by hot weather, your skin is hot and dry to the touch. However, in heatstroke brought on by

strenuous exercise, your skin usually feels moist.

- **Hyperventilation.** Your breathing may become rapid and shallow.
- **Rapid heart rate and pulse (tachycardia).** While your blood pressure usually remains normal, your pulse may increase to around 130 beats a minute, well above the normal level for adults (60 to 100 beats a minute). This is because heat stress places a tremendous burden on your heart to help cool your body.
- **Neurological symptoms.** You may have seizures, lose consciousness, slip into a coma, hallucinate, or have difficulty speaking or understanding what others are saying.
- **Muscle cramps or weakness.** Your muscles may feel tender or cramped in the early stages of heatstroke, but may later go rigid or limp.

Causes

Heatstroke is the escalation of two less serious heat-related conditions. If you don't take steps to treat these lesser conditions quickly, your condition may worsen and become heatstroke:

- **Heat cramps.** Heat cramps are caused by initial exposure to extreme temperatures or physical exertion. Signs and symptoms of heat cramps usually include profuse sweating, fatigue, thirst and muscle cramps. This condition is common in warmer weather or with moderate to heavy physical activity. You can

usually treat heat cramps by drinking fluids containing electrolytes (Gatorade or other sports drinks), resting and getting to a cool spot, like a shaded or air-conditioned area.

- **Heat exhaustion.** Heat exhaustion occurs when you don't act on the signs and symptoms of heat cramps and your condition worsens. Signs and symptoms of heat exhaustion include a headache, dizziness or lightheadedness, nausea, skin that feels cool and moist, and dark urine. Often with heat exhaustion, you can treat the condition yourself by following the same measures used to treat heat cramps. If your symptoms persist, seek medical attention immediately.

The cause of your heatstroke depends on the activities you do that bring on your condition. Heatstroke can occur in these ways:

- **Environmental conditions.** In a type of heatstroke called nonexertional heatstroke, your condition is caused by extreme environment temperatures that cause your body temperature to increase. You may be doing some light or moderate activity, but activity is not the primary cause of your heatstroke. This type of heatstroke is typical in warmer weather.
- **Strenuous activity.** In a type of heatstroke called exertional heatstroke, your condition is caused by strenuous activity that increases your body temperature.

You can suffer exertional heatstroke even if you're accustomed to working or exercising in very hot temperatures.

In either exertional or nonexertional heatstroke, your condition can be brought on by:

- Wearing excess clothing that doesn't allow your sweat to evaporate easily
- Drinking alcohol, which can affect your body's ability to regulate your temperature
- Dehydration

Risk factors

Anyone can suffer from heatstroke, but several factors may place you at greater risk:

- **Young or old age.** Your ability to cope with extreme heat depends of the vitality of your central nervous system. In the very young, the central nervous system is not fully developed, and in older adults, the central nervous system begins to deteriorate, which makes your body less able to cope with changes in body temperature. Both age groups usually have difficulty remaining hydrated as well, also increasing risk.
- **Genetic response to heat stress.** To some degree, the way your body responds to extreme heat is determined by genetics. Researchers believe that your genes may play a vital role in determining how your body will

- respond in extremely hot conditions.
- **Certain medications.** Some medications place you at a greater risk of heatstroke and other heat-related conditions because they affect your body's ability to stay hydrated and respond to heat.
 - **A urine test** to check the color of your urine, because it's usually darker if you have a heat-related condition, and to assess your kidney function, which can be affected by heatstroke
 - **Muscle function tests** to check for rhabdomyolysis — damage to your muscle tissue

Be careful in hot weather if you take medications that narrow your blood vessels (vasoconstrictors, such as ergotamine), regulate your blood pressure by blocking adrenaline (beta blockers, such as atenolol), rid your body of sodium and water (diuretics, such as hydrochlorothiazide), or reduce psychiatric symptoms like delusions (neuroleptics, such as olanzapine).

When to seek medical advice

If you think you have the beginning of heatstroke, first try to cool yourself and replenish your water and salt levels. If your condition has progressed past heat cramps and heat exhaustion and you feel any of the symptoms of heatstroke, seek immediate medical attention.

Screening and diagnosis

It's usually apparent to doctors if you have heatstroke, but they may order laboratory tests to confirm their diagnosis. These tests include:

- **A blood test** to check for low blood sodium or potassium and the content of gases in your blood to see if there's been any damage to your central nervous system
- **X-rays and other imaging tests** to check for other damage to your internal organs
- **Immerse you in cold water.** Your doctor may immerse your body in a bath of cold water or ice water to quickly lower your temperature. This method has fallen out of favor with some doctors because it restricts access to your body if additional medical evaluation or treatment

Complications

The most immediate complication of heatstroke is shock. Shock occurs when your body doesn't get enough blood flow, which can damage your organs if it's not treated quickly.

If you don't act quickly on the other symptoms of heatstroke, you could die or suffer damage to your brain or other vital organs. In response to heatstroke, these organs swell, and if you don't cool your body temperature quickly, the damage from this swelling could be permanent.

Treatment

Heatstroke treatment centers on cooling your body to a normal temperature quickly to prevent or reduce damage to your brain and vital organs. To do this, your doctor may:

needs to be done, such as inserting an intravenous (IV) line or performing chest compressions.

- **Use evaporation cooling techniques.** Some doctors prefer to use evaporation instead of immersion to lower your body temperature. In this technique, your doctor mists cool water on your skin and fans warm air over your body to evaporate the water on your skin.
- **Pack you with ice and cooling blankets.** Another method is to wrap you in a special cooling blanket and pack your groin, neck, back and armpits with ice packs to lower your temperature.
- **Stop your shivering.** If any treatments to lower your body temperature make you shiver, your doctor may give you a muscle relaxant, such as benzodiazepine. Shivering increases your body temperature, making treatment ineffective.

Prevention

Although heatstroke is serious, you can easily prevent it. In hot weather, remember to:

- **Wear loose fitting, lightweight clothing.** Wearing excess clothing or clothing that fits tightly won't allow your body to cool properly by allowing your sweat to evaporate.
- **Seek a cooler environment.** A good way to start cooling off is to get to a cooler environment,

like an air-conditioned building or a shady spot.

- **Drink plenty of fluids.** Staying hydrated will help your body sweat and maintain a normal body temperature.
- **Take extra precautions with certain medications.** Several medications can affect your body's ability to stay hydrated. These include medications that narrow your blood vessels (vasoconstrictors, such as ergotamine), regulate your blood pressure by blocking adrenaline (beta blockers, such as atenolol), rid your body of sodium and water (diuretics, such as hydrochlorothiazide), or reduce psychiatric symptoms like delusions (neuroleptics, such as olanzapine).
- **Avoid being inside a hot car.** When parked in the sun, your car can reach a temperature of over 160 F (71 C). Getting into an environment this hot can be dangerous. Never leave children or anyone else in a parked car in hot weather for any period of time.

It's best not to exercise or do any strenuous activity in hot weather, but if you must, follow the same precautions and rest frequently in a cool spot. Taking breaks and replenishing your fluids during that time will help your body regulate your temperature.

Self-care

If you notice signs of heat emergencies early, you can take action to lower your

body temperature and prevent your condition from elevating to heatstroke. In a heat emergency, you can take these steps for yourself and for others:

- **Get to a shady or air-conditioned place.** Remaining in the heat will worsen your condition.
- **Cool off with damp sheets and a fan.** Cool the person by covering him or her with damp sheets or by spraying with cool water. Direct air onto the person with a fan.
- **Rehydrate and replenish your salt intake.** Keep in mind that

the symptoms of heat-related illnesses are caused not only when you become dehydrated, but also when you lose salt through sweating. Sports drinks will replenish both water and salt, or you can drink salted water (1 teaspoon of salt for each quart of water). The amount you'll need to drink to rehydrate varies from person to person, so sip slowly and call your doctor if you're concerned.

- **Don't drink beverages with alcohol or caffeine to rehydrate.** These drinks may interfere with your body's ability to control your temperature.

Fast/Deep Water

Some stream sampling segments may be visited which have fast and/or deep water in them. Sampling in locations which are too deep or too fast for wading could result in injury or drowning. The use of waders or hip boots should be used with caution in areas of swift current or moderate depth, because waders may fill with water and restrict movement. To minimize health and safety risks associated with sampling in fast and/or deep waters, the following steps should be taken:

- A. Prior to sampling, the crew leader should ensure that all crew members who are to enter the stream are physically fit to do so and are aware of any specific sampling risks at the site.
- B. Prior to sampling, the crew leader should make a determination as to whether the site can be sampled by wading without undue risks. If a negative determination is reached, the site should be revisited at another time or not sampled.
- C. Life preservers should be used by all field personnel **AT ALL TIMES** while using a boat/canoe, electro-shocking, or wading in fast current.
- D. All field crew members should wear chest waders outfitted with waist belts and felt soles or cleats should be used in rocky areas. Check state regulations limiting the use of felt soles in certain waterway.

Slippery Substrate

Sampling at some sites may be hazardous due to slippery substrate. To minimize the risks associated with slippery substrates, the following measures are recommended:

- A. The crew leader should factor the degree of slipperiness of the substrate into decisions as to whether a site can be sampled and any extra precautions to be taken by the field crew.

- B. All wading gear should have felt soles and/or cleats. Check state regulations limiting the use of felt soles in certain waterway.

High Bacteria Levels in Water

When sampling in areas downstream of sewage or other organic waste inputs, potentially dangerous bacterial levels may exist. In urban areas, the presence of such inputs may be clearly evident by smell, observation of solids and floatables, and/or the presence of sewage fungus on bottom substrates. However, in some areas, potentially dangerous bacterial levels could be present in a stream without any direct evidence. To minimize the health risks associated with high bacterial levels in streams, the following measures should be incorporated into field surveys:

- A. During development of the itinerary, the crew leader should examine the 303d list, 305b report, NPDES discharge permits, and investigate through state agencies any known pollution problems in the watershed being sampled. Using this information, a determination should be made as to whether special safety precautions are necessary.
- B. Prior to entering the stream, the crew leader should make note of land management activities (grazing, for instance) and any evidence of high bacterial levels and inform the field crew.
- C. The use of gloves should be maximized during the sampling process.
- D. Open wounds should not be exposed to contact with stream water.
- E. After exposure to stream water, all crew members should wash their hands in isopropyl alcohol and clean water prior to consuming any food or drink.

Communication

All HTLN field crews will inform a minimum of two park employees prior to initiating field work in a particular park. HTLN staff should inquire regarding any unusual safety concerns, and report on the time and place of expected field work. Network and park staff should determine the preferred communication method, test radios, and exchange cell phone numbers. All check in/out procedures required by a park will be adhered to by HTLN field crews. In addition, HTLN field crews will file a backcountry travel plan, and follow all contacting requirements while in backcountry, that are required by the host park. Generally, backcountry travel within the HTLN is limited to BUFF and OZAR.

The field crew leader will establish radio contact with MROCC following steps outlined in SOP#2 prior to and immediately following backcountry expeditions, and river floats. Field crews are required to carry a portable two-way radio with them in the field. Radios are pre-programmed for each of the parks in the Heartland Network. Group numbers and programmed channels are listed on the keypad cover of each radio. Radios will primarily be used to speak with fellow crew members but may also be used to communicate with park staff. Some parks may require a key code in addition to the programmed frequency. See SOP #1 “Using the DPHx Portable Radio” for proper use of Heartland Network radios. Employees are required to read the operation manuals of the DPHx Portable two-way radio, and become familiar with their operations and proper radio etiquette, (see SOP #1 Using the DPHx Portable Radio). Though it is not required, it is strongly

recommended that one or more crew members carry a cell phone, and that contact information is shared with crew members, appropriate HTLN staff, and park personnel.

Safety Training

This section identifies the minimum safety training required for all network staff – permanent and seasonal. Every employee is responsible for completing their own training, as well as their subordinates. In addition to the training outlined below, an annual review of the Heartland Network Safety Plan by all employees is required.

Mandatory Training for all New Employees

Defensive Driving:

Defensive Driving Course (GSA) – 6 hours online; refresher every 2 years

First Aid:

Office safety (DOI-Learn) - 45 min. online; refresher every year

Wilderness First Aid (National Safety Council) – 30 min. video and book; refresher every year

Basic First Aid – many training options; refresher as required to keep certificate current

Adult CPR/AED – many training options; refresher as required to keep certificate current

Aquatic Safety Requirements

Motorboat Operator (MOCC) Refresher (DOI-Learn) - 4 hours online (mandatory for employees working for the aquatic program; refresher every 5 years)

Motorboat Operator (MOCC) Practical (OZAR or BUFF) - 4 hours instructor lead (mandatory for project supervisors working for the aquatic program, optional for others)

Electrofishing Safety (USFWS) – 2 day instructor lead or correspondent course (mandatory for project supervisors working for the aquatic program, optional for others)

Exotic Plant Management Program and Fire Safety Requirements

Fire Fighter Training (2003) – 36 hours online and 8 hours instructor lead (mandatory for employees working for the fire program). Online at <http://training.nwcg.gov/course.html>.

Introduction to Wildland Fire Behavior (2006) – 8 hours online (mandatory for employees working for the fire program). Online at <http://training.nwcg.gov/course.html>.

Chainsaw Safety Training – 4 hours instructor lead (mandatory for employees working for the EPMT and fire programs; annual refresher).

Optional Training Opportunities

Defensive Driving:

Defensive Driving Course (Safety Council of the Ozarks) – 4 hours instructor lead

First Aid:

Online CPR at <http://www.emergencyuniversity.com/> - GSA pricing available
Adult CPR/AED/First Aid (American Red Cross) – 7 hours instructor lead
Adult CPR/AED/First Aid Re-certification (American Red Cross) – 4 hours instructor lead
First Aid and Preparedness (American Red Cross) – 4 hours instructor lead
Blood-borne Pathogens (DOI-Learn) - 1 hour online
Blood-borne Pathogens (American Red Cross) – 2 hours instructor lead
Arthropod-borne diseases and prevention (HTLN staff) – 2 hours instructor lead
Wilderness First Aid (American Red Cross) – 16 hours instructor lead
Online First Aid at <http://www.firstaidweb.com/>
Online CPR at <http://www.firstaidweb.com/>
Online First Aid at <http://www.emergencyuniversity.com/> - GSA pricing available
Online AED at <http://www.emergencyuniversity.com/> - GSA pricing available
Supplemental First Aid Information at
<http://www.mayoclinic.com/health/FirstAidIndex/FirstAidIndex>

Local Training Facilities

Safety Council of the Ozarks, 1111 South Glenstone, Springfield, MO
American Red Cross, 1545 N. West Bypass, Springfield, MO 65802
Chesterfield Family Center, 2511 W. Republic Road, Springfield, MO 65807

Responding to an Incident

Responding to Medical Emergencies

Proper procedures for responding to any kind of medical emergency include:

1. Respond to the best of your abilities, ensuring your own safety first, before attempting to assist someone else.
2. Call 911 first in an emergency situation if you are in the front country. If you are in the backcountry, call dispatch. You will need to work with dispatch to determine the best course of action for evacuating the patient. When you contact dispatch, be prepared with the following information:
 1. Your name
 2. Your affiliation (NPS Heartland Network)
 3. Location
 4. Sex and age of patient (do not say patient's name over the radio)
 5. Situation—signs, symptoms, what seems to be wrong
 6. Patient vital signs (see Medical Incident Size-up Card in first-aid kit)
 7. Phone number

In the rare instance when there is no communication, you may need to go for help. If three total crew members are present, one person should stay with the patient and the other should go for help. Both parties should have some form of

communication device. If only two people are present, the uninjured person should do what is possible to stabilize the injured person—make sure s/he has food, water, a communication device, and other emergency items in reach—before going for help. To help guide rescue efforts including aerial response, flag the area profusely prior to leaving and make sure you have the information needed to guide emergency assistance back to the injured person.

3. Contact Colleagues
 - a. Inform crew leader and crew members that you or someone with you is injured. Let them know if you are at risk. Describe potential risks for emergency responders.
 - b. Once emergency responders are underway and as soon as it is safely possible inform the HTLN program manager, field coordinator, or safety office of the situation.
4. Monitor the patient while waiting for emergency responders.
 - a. Use Medical Incident Size-up Card (located in the first aid kit) to communicate key information to emergency responders and keep the form for follow-up investigations.
 - b. Leave your phone or communication device powered on in case dispatch or someone else needs to contact you.
5. Position and wait. While waiting for emergency response, position yourself in an area that is safe and visible so that the rescue team can find you.
6. Get medical treatment. If a hospital visit is necessary, someone should go with the patient to the hospital. A coworker can help with paperwork, logistics, and morale.

When evacuation occurs, rely on emergency personnel to provide guidance on how uninjured crew members leave. Otherwise all crew members should leave the area when the patient is evacuated. If two crew members are present, the uninjured person should accompany the injured person to the medical facility and provide assistance as s/he is able. If the crew consists of more than three people, individuals may elect to stay behind, but only if they are in an area where they can easily exit the field, and they have proper means for doing so. Regardless of the number of crew members, crews should maintain frequent contact with HTLN staff to provide updates and receive instruction.

Aerial evacuations may limit the number of persons who can ride on the aircraft. If some crew members are required to hike out, care should be used in determining the course of action. It may be better to spend a night in the field than to hike out in the dark. Work with dispatch and emergency personnel to determine the best course of action for all crew members.

Medical Forms

Accidents and/or injuries that occur on the job are reported on a government forms either a CA-1 (Federal Employee's Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation) or CA-2 (Federal Employee's Notice of Occupational Disease and Claim for Compensation) form filled out on the Safety Management Information System (SMIS) website at: <https://www.smis.doi.gov>. The employee fills out the form online and

the supervisor is notified by email that his/her portion of the claim is ready to be filled out. Once completed by the supervisor the claim is forwarded to the Midwest Region claims coordinator who reviews and forwards the claim to the Office of Worker's Compensation Program (OWCP).

If injured, concern yourself with paperwork only once your condition has been stabilized. If your supervisor is not present, seek out assistance from other HTLN program staff and complete as much of the paper forms listed below as you can (many of these can be completed and should be completed through the SMIS program).

1. Paper forms that will aid in gathering information for reporting an accident and/or injury that occurred on the job in SMIS can be obtained from the U.S. Office of Personnel Management (OPM) website (<http://www.opm.gov/>).
2. A compensation form must be completed, either a CA-1 or CA-2. Each form has sections for you, a witness and your supervisor.
3. You must have your supervisor authorize medical treatment and complete a CA-16 form (Authorization for Exam/Treatment) AND you submit this form completed to the Medical Provider. **If the official supervisor is unavailable, your field coordinator or field crew leader may authorize treatment.**
4. Provide the OWCP1500 "Health Insurance Claim Form" to your provider, though they may not use it.
5. If your injury requires time off work, ask the physician to fill out the CA-17 form, which indicates what activities you may or may not perform while on duty. Note: Have your supervisor or work leader fill out the first portion of the CA-17 describing what activities are a normal part of your job. The treating physician should then complete the second portion of the CA-17.
6. For clarification, refer to CA-10 "What a Federal Employee Should Do When Injured At Work."

Reporting

1. Contact your supervisor and field coordinator as soon as possible to communicate the medical emergency. Inform coworkers immediately if they too may be at risk.
2. Report all incidents of any type to the program manager (near misses, injury, accident, disease, or other incident threatening someone's safety) even if they do not involve HTLN personnel (e.g., witnessed injury to park visitor).
3. For additional reporting guidance, refer to NPS Director's Order #50B (NPS 2008) and NPS Reference Manual #50B: Occupational Safety and Health Program.
4. As early as possible it is important that the program manager or their designee contact the park safety officer and Superintendent if an injury happened in a park.

Lost coworker(s)

The minimum crew size for HTLN field projects is two people. Working alone in the field may be allowed if authorized in advance by the program manager. If it is absolutely necessary for a person to work in the field alone, this person must:

- Carry reliable communication equipment
- Communicate with others throughout the day about where s/he will be working, planned travel routes, and where and when to rendezvous with the rest of the crew or return to duty station.

If a person fails to communicate or return to a rendezvous point within 30 minutes of the designated time:

1. Attempt to contact the overdue person on the phone or radio.
2. If this effort is unsuccessful, and searching is deemed necessary, notify HTLN personnel and the agency contact prior to beginning the search.
3. Begin searching where the person was known to be working, using the travel route the person was taking.
4. If the person is not located within 2 hours or before dark, contact park dispatch. Dispatch will contact park officials who will determine when to initiate search and rescue operations.

If you are working alone and get lost or injured:

1. Stay as close as possible to the area you are supposed to be in. Stay put and wait for others to assist you. If possible, flag your location to draw the attention of searchers.
2. Continue attempts to contact the rest of the crew, HTLN staff, or park dispatch.

Responding to a Non-Emergency Medical Incident

If a crew member receives an injury that is not a medical emergency, the severity of the injury will determine the cause of action. First, the injury should be treated. The crew leader and the injured party should confer to determine whether the injured person can continue work or will use sick leave. Notify the field coordinator as early as possible describing the injury. If the injury requires time off work, notify the HTLN program manager promptly.

Paperwork (CA-1) should be filled out for all but the smallest scratches and bruises by the end of the day of the injury if possible or as soon as feasible when you have returned from the field. Even if a claim is not immediately (or ever) filed, it is necessary to later establish that the incident leading to debilitation (if any) occurred while performing official duties. Although paperwork is not required for minor scratches and bruises, these incidents and any “close calls” should be reported to your supervisor by the end of the field trip.

Follow all Motor Vehicle Accident Reporting requirements which pertain to both emergency and non-emergency vehicle incidents. See Motor Vehicle Accident Reporting Kit GSA Form 1627 (Rev 10/06) located in all government vehicle glove compartments.

Responding to a vehicle incident involving a Medical Emergency

If you or other HTLN personnel are involved in a vehicle accident, immediately seek appropriate medical care if needed. Care for injuries by getting prompt medical treatment. Call 911 first if the situation warrants. All injuries that warrant compensation require CA-1 paperwork to be filled out, preferably on the day of the accident.

Follow all Motor Vehicle Accident Reporting requirements which pertain to both emergency and non-emergency vehicle incidents. See Motor Vehicle Accident Reporting Kit GSA Form 1627 (Rev 10/06) located in all government vehicle glove compartments.

Responding to a Park Visitor's Medical Emergency

No one on the HTLN staff has a medical position (i.e., no staff have medical treatment in their job description); consequently, employees are not required to render any first aid or medical assistance to a park visitor, park staff, or even to someone on a HTLN field crew. HTLN supports first aid and safety training as a way to educate employees on the potential risks of your job and steps you can and should take to prevent injury to you and your colleagues. However, choosing to lend aid is ultimately and always your personal decision.

Unless emergency personnel are on scene or have been notified for response, take the necessary actions to notify emergency personnel about the incident. Be able to provide the location of the incident, number of individuals involved, seriousness of the injuries if possible, and if there are any hazards that emergency personnel need to be aware of when responding on scene (e.g. fuel spills, fires, and wounded wildlife). You are required to stay on scene, unless your own safety is in jeopardy, until released by responding emergency personnel.

Good Samaritan Laws are in effect in one form or another in all fifty states of the United States of America. These laws indicate that no person who administers emergency care in good faith at or near the scene of an emergency will be held liable for any civil damages as a result of any action or omission by the person administering care, except for gross negligence, provided that the care is rendered without remuneration (wages or salary) or expectation of remuneration. However, someone who knowingly provides care that exceeds their level of training, even if they are not actually negligent, could be liable even under Good Samaritan protection. Never administer first aid to an injured person that is beyond your level of first aid training.

Responding to non-malicious and/or malicious illegal activity

Should you encounter *non-malicious* (and perhaps unintended) unlawful activity (e.g., picking wildflowers, hiking off-trail, walking a dog in wilderness), you may choose your course of action which will depend upon what land agency you are working. Depending on the situation, you may decide to kindly explain to the visitor that the activity is not permitted and/or report the activity to the park's Resource/Visitor Protection Division or agency law enforcement personnel.

Should you encounter *intended and/or malicious* illegal activity (or anywhere, while on or off the job), you must rely on common sense and instinct to react appropriately and safely. Animal poaching, driving motorized vehicles in a non-motorized area and leaving food unattended are among a myriad of possible illegal activities you could encounter on federal lands. The best course of action in all such situations is to avoid contact, leave the area, and call law enforcement or 911 immediately. Contact information for each park is located in 'park contact' information sheet provided in the vehicle safety binder.

The potential for encountering unlawful and/or dangerous behavior is more likely in the front-country and at campsites or campgrounds that are accessible by vehicle. Extra attention to situational awareness to identify, evaluate and comprehend what is happening around you is an essential element to managing such risks.

Safety around the Office

Many employees that work out in the field do not consider the office a place of safety concern. There are many potential safety hazards in the office. Slips and falls are the number one type of accident in the Department of the Interior. Falling objects is another way injuries may occur in the office.

Safety Starts at Your Desk.

Being cautious at your desk can prevent injuries. By practicing the following steps employees will minimize their risk of injury at the office. Injury at the office can happen immediately (falls) or over a long period of time (carpel tunnel or damage to the eyes).

- A. Do not lean back in office chairs. Leaning too far back may cause the chair to tip over and cause possible injury to the occupant.
- B. Adjust office chairs to your personal preference. Maintaining good posture will prevent shoulder and neck soreness.
- C. Adjust the computer monitor so that you do not have to look up or down to view it.
- D. Keeping the monitor an arms length away helps to prevent damage to your eyes. If the monitor is too bright adjust it or place a filter over it.
- E. When working at a computer for a long period of time it is good practice to rest your eyes by looking and focusing on distant objects.

Around the Office

The leading cause of injury around offices is from falls. Other potential hazards include falling objects, minor cuts, smashed fingers, office fires or back injuries from picking up heavy objects.

- A. Keep areas around the office clean and free from obstacles like boxes, stacks of paper or electrical/phone cords.
- B. Load file cabinets and book shelves properly. When loading a file cabinet only open one drawer at a time and start with the bottom drawer to ensure proper weight distribution.
- C. Do not place heavy objects up on shelves or in window sills.
- D. In the event of an office fire, evacuate the building or, if possible, extinguish the fire with a fire extinguisher located near one of the exits if it is safe to do so. Refer

to the Emergency Action Plan and know the buildings escape routes (which should be clearly marked throughout all buildings) for the building where your office is located.

- E. When lifting heavy objects lift with your legs and ask for assistance if needed.

Acknowledgement of Safety Plan Receipt and Review

I have received and thoroughly reviewed the Heartland Network Safety Plan. I am aware of the hazards associated with driving and field work, understand hazard mitigation approaches, and agree to work in a manner that protects my own safety, as well as the safety of co-workers. I have informed my field leader of medical conditions that may affect my ability to work safely in the field. I have also developed a mitigation plan for personal safety issues that may affect my ability to work in the field.

Signature _____ Date _____

Helpful Documents

These documents/links are listed to provide staff addition first aid information to be used to compliment the Heartland Network safety plan.

- A. First Aid and CPR certification is available from the Red Cross at <http://www.redcross.org/services/hss/courses/>
First Aid and CPR training are provided periodically at WICR
- B. Heat Stress and Heat stroke. <http://medical.smis.doi.gov/HEAT.html>
- C. West Nile Virus handout <http://medical.smis.doi.gov/virus2.pdf>.
- D. Poison Ivy factsheet
<http://medical.smis.doi.gov/POISON%20IVY%20FACT%20SHEET.pdf>.
- E. Lyme disease. <http://www.mayoclinic.com/health/lyme-disease/DS00116>
- F. Safe Handling of Wildlife.
http://www1.nrintra.nps.gov/BRMD/Wildlife_Health_Management/Wildlife_Management/Handling_Wildlife.cfm
- G. Other conditions and health concerns. <http://www.mayoclinic.com>

Acknowledgement

This safety plan is based on Safety Plans and Standard Operating Procedures developed by the National Capital Region Network, The Greater Yellowstone Inventory and Monitoring Network, and a host of other network and park safety plans. Job Hazard Analyses are based on JHA from the United States Forest Service. Fact sheets embedded in the document where taken from the web site MayoClinic.com.

Standard Operating Procedures

SOP #1 Using the DPHx Portable Radio

Version 0.01 (January 1, 2008)

Revision History Log:

Previous Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #

This Standard Operating Procedure (SOP) gives step-by-step instructions for using the DPHx radio used by the Heartland Network for monitoring work on National Park Service lands. This SOP is intended to compliment but not replace the instruction manual accompanying the radio. Operators should read the instruction manual prior to using the DPHx digital radio. The SOP also includes instruction on proper usage and general radio etiquette. Radios are an important tool, and all Heartland Network employees are encouraged to understand their proper usage and general radio etiquette.

I. Radio Description and Overview

The DPHx digital portable radio is capable of digital, analog, or mixed-mode operation. It is capable of storing 400 individual channels in 25 different user groups. Battery charges last a minimum of 18 hours and the radio is designed to be weatherproof. Due to the topography of some of the parks in the Heartland Network users may experience areas with little to no “service”. Usually in parks where this is likely repeaters have been strategically stationed to minimize these “dead” areas. Usually repeaters operate on a different transmission frequency, so users will have to change channels when using a repeater. In some instances radio communication may not be possible, requiring the user to move to a different or higher location. It is recommended that when field personnel arrive at a park they complete a radio check to determine if the radio is working properly. Some parks use key codes that have to be programmed into the radio to allow communication.

RF Energy Exposure:

This two-way radio uses electromagnetic energy in the radio frequency spectrum to provide communications between two or more users over a distance. RF energy is the form of electromagnetic energy used in the DPHx radio. When used properly, RF energy

levels emitted by the DPHx radio is not great enough to cause biological damage. All RF energy levels are in compliance with FCC standards and meet guidelines set forth by the American National Standards Institute, and the Institute of Electrical and Electronic Engineers.

II. Radio Use

The DPHx radio should be used for official use only. Communications on the radio should be brief and to the point. When not being used radios should be kept in the protective leather housing designed to be worn on a belt or may be placed in the users pack. The DPHx is designed to be weather proof but unnecessary exposure to harsh conditions should be prevented.

Basic Operation Procedures:

These basic procedures should be followed when using the DPHx radio.

1. Turn the radio on by turning the volume knob clockwise. A beep sounds, indicating the radio is operational.
2. Select a channel by turning the 16-position channel selector knob.*
3. Adjust squelch and volume by turning the squelch knob clockwise until you hear noise. Set the volume to a comfortable level. Then turn the squelch knob counterclockwise until the noise stops. This is called the threshold squelch setting.
4. Press the PTT (Push-To-Talk) switch. Talk in a normal voice with the microphone one to two inches from your mouth. Release the PTT switch to stop transmitting.

*Channels are divided into 5 groups. Different park channels are located on different groups. To change groups turn the radio off. Remove the battery pack and slide the front faceplate down exposing the LCD display screen and keypad. Re-install the battery pack and turn the unit on. To determine which group is currently in, push the # key. To change groups push #, group number (1-5) and wait 5 seconds or push ENT.

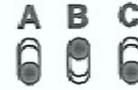
Advanced Operation Procedures:

Several features are available on the DPHx radio. Only the most relevant features with a high probability of use will be covered here. For a complete overview of all features please refer to the DPHx owner's manual.

Scan Operation

Scan operates only while the radio is not transmitting. The radio checks for signals on channels in the preset scan list, as well as the channel selected by the channel selector knob. When a signal is detected, scanning stops and the message is received. The received channel is shown in place of the transmit channel. Once the signal ends, the radio continues to monitor the channel for the preset scan delay time before it resumes scanning.

1. Slide **Switch B up** for scanning preset channels.
2. Slide **Switch C down**.
3. **Switch A** can be **up or down**. (Low or High power position)



Change the Scan List

You may add or remove channels from the scan list. Scanning fewer channels in your selected group can be beneficial by eliminating time spent scanning irrelevant channels. It is recommended that you change the scan list for each park if the scan mode is used. To make changes to the scan list follow these steps.

1. Slide **Switches A, B and C down**.
2. Select a channel to be added or removed from the scan list by turning the channel selector knob. If the channel is already on the scan list, **SCN** appears in the display above the channel identifier.
4. Press the **ENT** key to add a channel to the scan list. A short beep sounds and **SCN** appears in the display. The radio must be able to pick up the channel before it can be added to the scan list.
5. Press the **CLR** key to remove a channel from the scan list. A short beep sounds and **SCN** disappears from the display.



Priority Scan

Priority Scan enables the radio to receive on any preset channel while monitoring for a message on designated priority channels. The radio samples each priority channel at a preset rate (.25-2.0 seconds) regardless of activity on any other channel. Priority Scan operates only while the radio is not transmitting and can be used in combination with the scan operation.



When **Switch C** is **up**, the display flashes **SCN**. If a message is received on a priority channel, the Priority Indicator lights, and the radio receiver locks onto that channel for the duration of the transmission, unless a higher priority channel interrupts.

HI / Low Power

Each channel in the radio can be individually programmed to always transmit in low-power mode, regardless of the position of the radio's top switch (or keypad **FCN** menu setting). If the programming for the channel allows high-power transmissions, the power level can be selected with the **A switch**.



III. Radio Etiquette

Allow a split second before beginning a transmission. Be brief and to the point – keep the channel open for others to use. Speak directly and clearly into the microphone 2-3 inches away from your mouth. Use the name of the person you are contacting and identify yourself as well: "Shasta to Bob." Acknowledge that you have heard the communication: "This is Bob. Go ahead."

GENERAL RADIO TERMINOLOGY

20 = Location: what is your 20?
 Acknowledge = Confirm that you understand my message
 Affirmative = Yes, confirm
 Check/Copy that = Understood
 Correction = I made a mistake. Correct version is...
 Do you read/Copy = Called you once or more, reply please
 Go ahead = Listening, proceed with your message
 Negative = No
 Out = My message ended, no reply expected
 Over = Message completed, reply expected
 Read back = Repeat this message back to me
 Roger = Yes, confirm
 Say again = Repeat last message
 Stand-by = Busy, please pause for a moment
 That is correct = Yes, confirm
 Wilco = Message understood, will comply
 Words twice = Send every phrase twice
 " " (silence) = I have nothing to say

IV. Equipment Maintenance and Storage

Maintenance

The DPHx radio is designed for rugged use and is designed to be weatherproof. Battery life is estimated around 18 hours during normal use. Batteries can be charged while attached to the radio or by themselves. If you remove the battery make sure the radio is turned off and once removed ensure the prongs are free of debris.

Storing the DPHx Radio

When not being used in the field radio's should be stored in the closet at the I&M office.

V. References

DPHx Digital Portable Radio Owner's Manual. RELM Wireless Corp. West Melbourne, Florida 32904

Table 1.

Group Channels are defined below. R = repeater, D = digital service, N = analog service.

Group 1		Group2		Group 3	
Channel	Park	Channel	Park	Channel	Park
1	OZAR	1	TAPR-D	1	PIPE-D
2	EMIN-R	2	TAPR-RN	2	EFMO-D
3	SKYL-R	3	TAPR-RD	3	EFMO-R
4	STEG-R	4	HOME	4	HEHO-D
5	MTVE-R	5	AGFO	5	---
6	HART-R	6	AGFO-R	6	---
7	ARPO	7	SCBL	7	---
8	WICR-R	8	SCBL-R	8	---
9	WICR-RN	9	---	9	---
10	GWCA	10	---	10	---
11	PERI	11	---	11	---
12	BUFF	12	---	12	---
13	BUFF-R1	13	---	13	---
14	BUFF-R2	14	---	14	---
15	HOSP	15	GCU-D	15	GCU-D
16	HOSP-R	16	GCU	16	GCU-D

Group 4		Group 5	
Channel	Park	Channel	Park
1	LIHO-D	1	NWS-1
2	HOCU	2	NWS-2
3	CUVA-D	3	NWS-3
4	CUVA-RD1	4	NWS-4
5	CUVA-RD2	5	NWS-5
6	---	6	NWS-6
7	---	7	NWS-7
8	---	8	NWS-8
9	---	9	NWS-9
10	---	10	NWS-10
11	---	11	---
12	---	12	---
13	---	13	---
14	---	14	---
15	GCU-D	15	---
16	GCU	16	---

SOP #2 HTLN MROCC Communication Plan

Version 0.01 (May 1, 2012)

Revision History Log:

Previous Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #

This Standard Operating Procedure (SOP) gives instructions for communicating with the Midwest Regional Ozark Communication Center (MROCC) that staff of the Heartland Network will follow when conducting field monitoring work on National Park Service lands at Buffalo National River (BUFF), George Washington Carver National Monument (GWCA), Hot Springs National Park (HOSP), Ozark National Scenic Riverways (OZAR), Pea Ridge National Military Park (PERI), Wilson’s Creek National Battlefield (WICR), and other networks parks requiring such communications. This SOP is intended to compliment but not replace any park specific communication in place. Understanding of communication requirements is especially critical when backcountry work is to be undertaken.

Contact information:

Midwest Regional Ozark Communication Center (MROCC)
 Buffalo National River Headquarters
 402 North Walnut, Suite 136
 Harrison, Arkansas 72601
24-hour emergency dispatch 877-692-1162

HTLN call signs:

David Bowles – Heartland 1
 Hope Dodd – Heartland 2
 Jan Hinsey – Heartland 3
 Tyler Cribbs – Heartland 4
 EPMT – HTLN 323
 Terrestrial Projects – to be determined

Day trips – before departure from WICR crews will contact MROCC dispatch via telephone or e-mail and inform them of plans for the day, including an estimated time of return to WICR. Upon returning to WICR, crews will contact MROCC dispatch via telephone to close their travel plan. Contact MROCC only when actually working in the

park. For example, a visit to the BUFF headquarters in Harrison would not necessitate contacting MROCC.

Multi-day trips – The project manager or their designee will inform MROCC of their travel plans via email prior to departure. As general practice, the project manager or their designee will radio “in service” at the beginning of the day – giving a brief synopsis of the proposed schedule to include: number of personnel working that day, activities and general area (i.e. for BUFF: Pruitt or Ponca, etc) and the estimated time they will go “out of service.” The project manager or their designee will then call MROCC and announce “off-duty” upon the close of the work day or upon return to their lodging.

If there is cell or landline service, this call will be done by telephone. If it is necessary to drive for service (short distances) it may be acceptable to make this phone call (in a safe manner) from an area with decent cell service. Otherwise, this call can be made via radio. An example of an acceptable radio message is: “This is HTLN 323, we are in-service for today, we will be working in the Pruitt area cutting trees, our estimated out of service will be 1730, thanks.”

If there is a change in plans, or if you plan on visiting several areas in the day, MROCC will be informed via phone or radio of the change. For example: “This is HTLN 323, we have finished our work in the Pruitt area and will be moving to Lost Valley for the remainder of the day, estimated out of service still 1730, thanks.”

If there are plans for a day in which you are scouting sampling or treatment locations (which may involve driving to multiple locations in the park) contact MROCC and notify them of your plans to be in/near the vehicle for most of the day and give them a general area. Example: “This is HTLN 323, we will be in Middle District most of today, estimated out of service is 1730.”

Overnight travel – crews will contact MROCC dispatch supervisor via email (Mr. Louie Stoops, 870-365-2714, louie_stoops@nps.gov) (with cc’s: to their supervisors and park contacts) prior to departure and give a brief synopsis of their travel plans including dates of arrival and departure, cellular telephone number of personnel, lodging (especially important if lodged in park housing), type of work and vehicle(s) being used (including description and license). **Be sure to include an official emergency contact numbers in your travel itinerary submitted to MROCC. The recommended emergency contact number is the HTLN WICR phone number (417) 732-6438. The point of contact at the emergency number should be your immediate supervisor or Mike DeBacker.** Crews will always carry at minimum one digital, two-way portable radio, or have a base radio mounted in a service vehicle. Ideally, crew members should carry their personal cell phones, if available. If satellite phones are available, crews must always have these accessible and in working order. All crew members will be properly instructed on the basic procedures of how to contact MROCC through each of these channels, prior to beginning field work. A list of commonly used police radio codes is shown below. These codes should be used in radio conversations with MROCC to the extent practical.

Police Radio codes:

10-7A	Out of service at home
10-7B	Out of service - personal
10-7od	Out of service - off duty
10-8	In service/available for assignment
10-9	Repeat last transmission
10-10	Off duty
10-10A	Off duty at home
10-11	Identify this frequency
10-12	Visitors are present (be discrete)
10-13	Advise weather and road conditions
10-14	Citizen holding suspect
10-15	Prisoner in custody
10-16	Pick-up prisoner
10-17	Request for gasoline
10-18	Equipment exchange
10-19	Return/returning to the station
10-20	Location?
10-21	Telephone: _____
10-21a	Advise home that I will return at _____
10-21b	Phone your home
10-21r	Phone radio dispatch
10-22	Disregard the last assignment
10-22c	Leave area if all secure
10-23	Standby
10-24	Request car-to-car transmission
10-25	Do you have contact with _____?
10-26	Clear
10-29h	Caution - severe hazard potential
10-30	Does not conform to regulations
10-32	Drowning
10-34	Assist at office
10-35	Time check
10-36	Confidential information
10-37	Identify the operator
10-39	Can _____ come to the radio?
10-40	Is _____ available for a telephone call?
10-42	Check on the welfare of/at _____
10-43	Call a doctor
10-45	What is the condition of the patient?
10-45	A Condition of patient is good
10-45B	Condition of patient is serious
10-45C	Condition of patient is critical
10-45D	Patient is deceased
10-46	Sick person [ambulance enroute]
10-49	Proceed to/Enroute to _____
10-50	Under influence of narcotics/Take a report
10-51	Subject is drunk
10-52	Resuscitator is needed
10-53	Person down
10-54	Possible dead body

10-55	Coroner's case
10-56	Suicide
10-56A	Suicide attempt
10-57	Firearm discharged
10-58	Garbage complaint
10-59	Security check./Malicious mischief
10-60	Lock out
10-61	Miscellaneous public service
10-62	Meet a citizen
10-62B	Civil standby
10-63	Prepare to copy
10-64	Found property
10-65	Missing person
10-66	Suspicious person
10-67	Person calling for help
10-68	Call for police made via telephone
10-71	Shooting
10-72	Knifing
10-73	How do you receive?
10-79	Bomb threat
10-80	Explosion
10-86	Any traffic?
10-87	Meet the officer at _____
10-88	Fill with the officer/Assume your post
10-91	Animal
10-91a	Stray
10-91b	Noisy animal
10-91c	Injured animal
10-91d	Dead animal
10-91e	Animal bite
10-91g	Animal pickup
10-91h	Stray horse
10-91j	Pickup/collect _____
10-91L	Leash law violation
10-91V	Vicious animal
10-96	Out of vehicle-ped, send backup
10-97	Arrived at the scene
10-98	Available for assignment
10-100	Civil disturbance - Mutual aid standby
10-101	Civil disturbance - Mutual aid request

11-00 Codes

11-24	Abandoned automobile.
11-25	Traffic hazard
11-27	10-27 with the driver being held.
11-28	10-28 with the driver being held
11-40	Advise if an ambulance is needed
11-41	An ambulance is needed
11-42	No ambulance is needed
11-48	Furnish transportation
11-54	Suspicious vehicle

11-55	Officer is being followed by automobile
11-56	Officer is being followed by auto containing dangerous persons
11-57	An unidentified auto appeared at the scene of the assignment
11-58	Radio traffic is being monitored. Phone all non-routine messages
11-65	Signal light is out
11-66	Defective traffic light
11-71	Fire
11-78	Aircraft accident
11-79	Accident - ambulance dispatched
11-80	Accident - major injuries
11-81	Accident - minor injuries
11-82	Accident - no injuries
11-83	Accident - no details
11-84	Direct traffic
11-85	Tow truck required
11-96	Checking a suspicious vehicle
11-98	Meet: _____
11-99	Officer needs help

900 Series Codes

904	Fire
904A	Automobile fire
904B	Building fire
904G	Grass fire
909	Traffic problem; police needed
910	Can handle this detail
925	Suspicious vehicle
932	Turn on _____ mobile relay at _____
933	Turn off mobile relay
949	Burning inspection at _____
950	Control burn in progress/about to begin/ended
951	Need fire investigator
952	Report on conditions
953	Investigate smoke
953	A Investigate gas
954	Off the air at the scene of the fire
955	Fire is under control
956	Assignment not finished
957	Delayed response of __ minutes
980	Restrict calls to emergency only
981	Resume normal traffic
1000	Plane crash
3000	Road block

Other Codes

Code 1	Do so at your convenience
Code 2	Urgent
Code 3	Emergency/lights and siren
Code 4	No further assistance is needed
Code 5	Stakeout
Code 6	Responding from a long distance

Code 7	Mealtime
Code 8	Request cover/backup
Code 9	Set up a roadblock
Code 10	Bomb threat
Code 20	Officer needs assistance
Code 22	Restricted radio traffic
Code 30	Officer needs HELP - EMERGENCY!
Code 33	Mobile emergency - clear this radio channel

Phonetic Alphabet

A Adam	N Nora
B Boy	O Ocean
C Charles	P Paul
D David	Q Queen
E Edward	R Robert
F Frank	S Sam
G George	T Tom
H Henry	U Union
I Ida	V Victor
J John	W William
K King	X X-ray
L Lincoln	Y Yellow
M Mary	Z Zebra

Appendices

Appendix 1. Emergency contacts for parks in the Heartland Network

TABLE 1. Emergency Centers (contact numbers)

Park	Facility	Number
ARPO	DeWitt City Hospital & Nursing Home	(870) 946-3571
BUFF	North Arkansas Regional Medical Center	(870) 414-4000
BUFF	Baxter Regional Medical Center	(870) 508-1001
CUVA	Akron General	(330) 945-3117
CUVA	UHH Bedford Medical Center	(440) 735-3900
CUVA	Sagamore Hills Medical Center	(330) 468-0190
EFMO	Prairie du Chien Memorial Hospital	(608) 357-2000
GWCA	Freeman Hospital	(417) 347-1111
HEHO	Mercy Hospital	(319) 339-0300
HOCU	Adena Urgent Care Center	(740) 779-4000
HOME	Beatrice Community Hospital	(402) 223-3344
HOSP	National Park Medical Center	(501) 321-1000
HOSP	St. Joseph's Mercy Health Center	(501) 622-1000
LIBO	Memorial Hospital	(812) 482-0322
OZAR	Advanced Healthcare Medical Center	(573) 663-2511
OZAR	St. Francis Mt. View	(417) 934-7000
OZAR	Salem Memorial District Hospital	(573) 729-6626
OZAR	Shannon County Medical Clinic	(573) 325-4237
PERI	Northwest Medical Center of Benton County	(479) 553-1000
PIPE	Pipestone County Medical Center	(507) 825-5811
TAPR	Newman Regional Health	(620) 340-6177
WICR	Cox Medical Center South	(417) 269-6000

Emergency Information for ARPO
Special Information:

Contacts: 911 for emergencies

Park Headquarters: (870) 548-2207

Park Superintendent: Ed Wood (870) 548-2207 / Ed_Wood@nps.gov

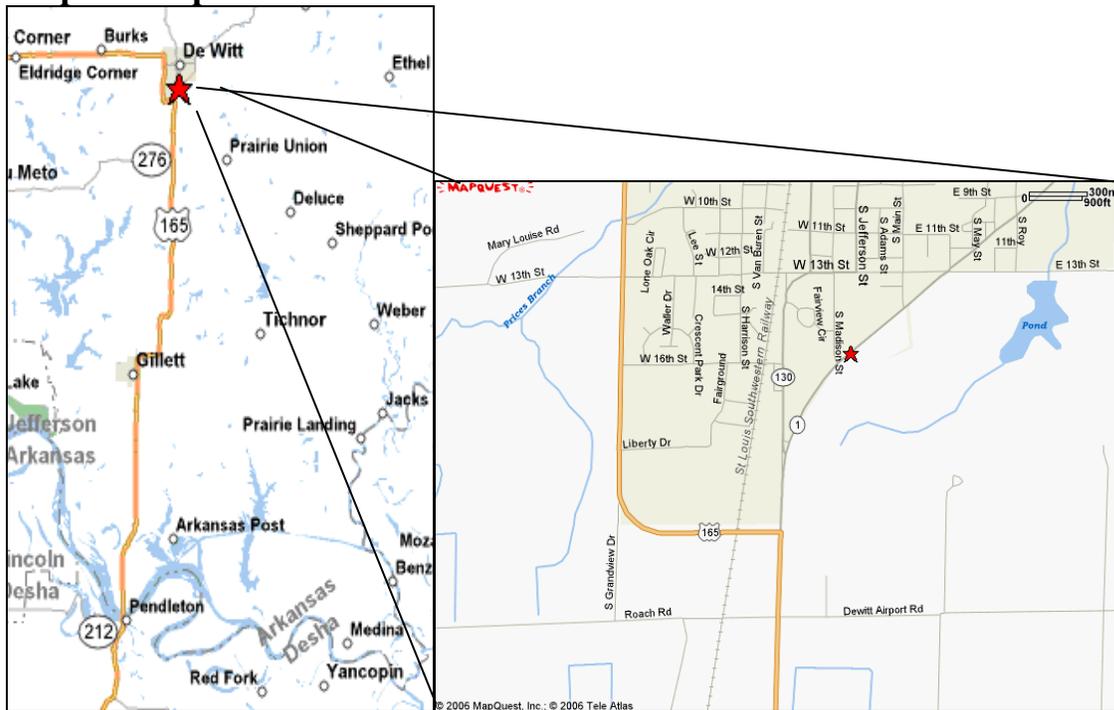
Local Hospitals/Clinics

DeWitt City Hospital & Nursing Home (870) 946-3571

1641 S Whitehead Dr

De Witt, AR 72042

Map to Hospital



Directions to hospital

Instruction	For	Toward
Depart Arkansas Post National Memorial on SR-169 (West)	0.8 mi	
Turn LEFT to stay on SR-169	2.1 mi	
Turn RIGHT (North) onto US-165 [SR-1]	17.8 mi	
Keep STRAIGHT onto SR-1 [SR-152]	0.6 mi	
Arrive DeWitt City Hospital & Nursing Home, 1641 S Whitehead Dr, De Witt, AR 72042		

Emergency Information for BUFF

Special Information: Depending on where you are at on the park sampling, there will be different medical facilities closest to your location. Your route to the nearest medical facility is dependent on your location in the park. Know your route before entering the field.

Contacts: 911 for emergencies

Park Headquarters: (870) 365-2700

Park Superintendent: Kevin Cheri (870) 365-2706 / Kevin_Cheri@nps.gov

Local Hospitals/Clinics

North Arkansas Regional Medical Center (870) 414-4000

620 N Main St

Harrison, AR 72601

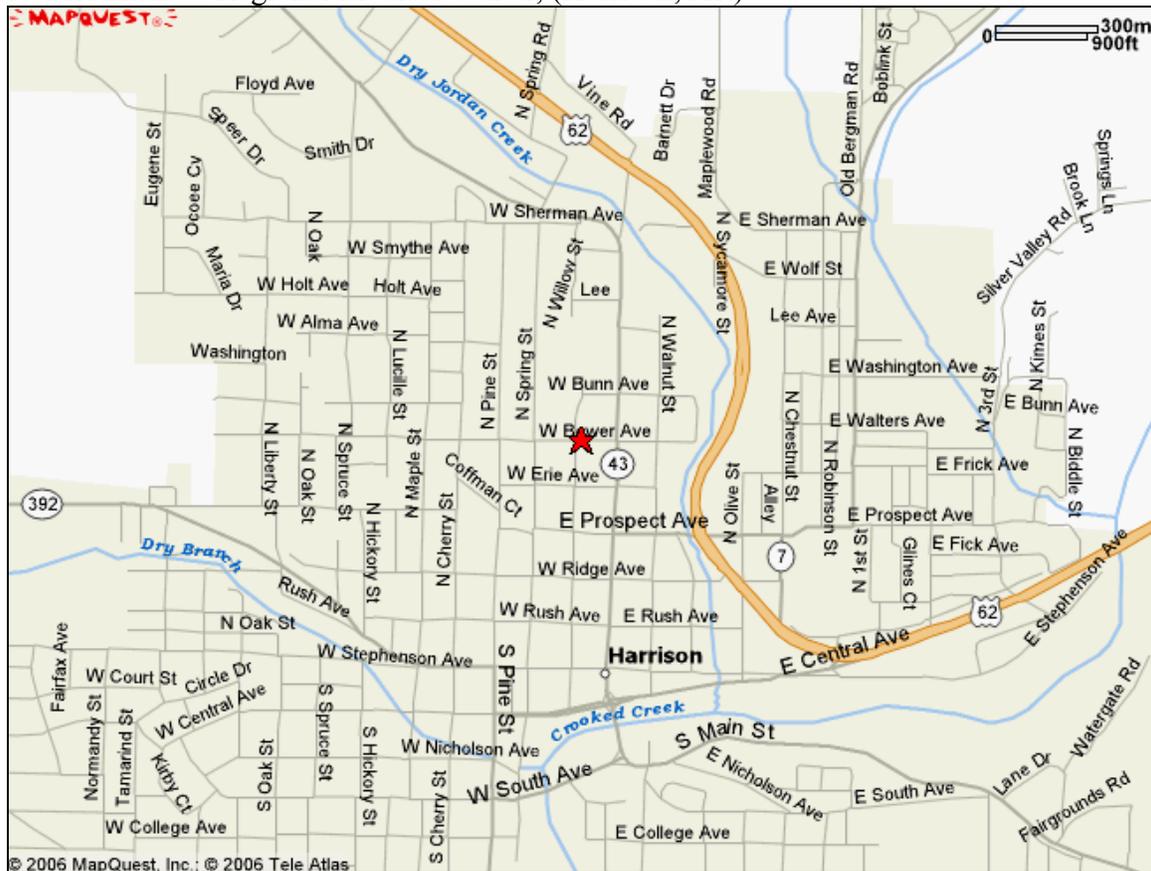
Baxter Regional Medical Center (870) 508-1001

624 Hospital Dr

Mountain Home, AR 72653

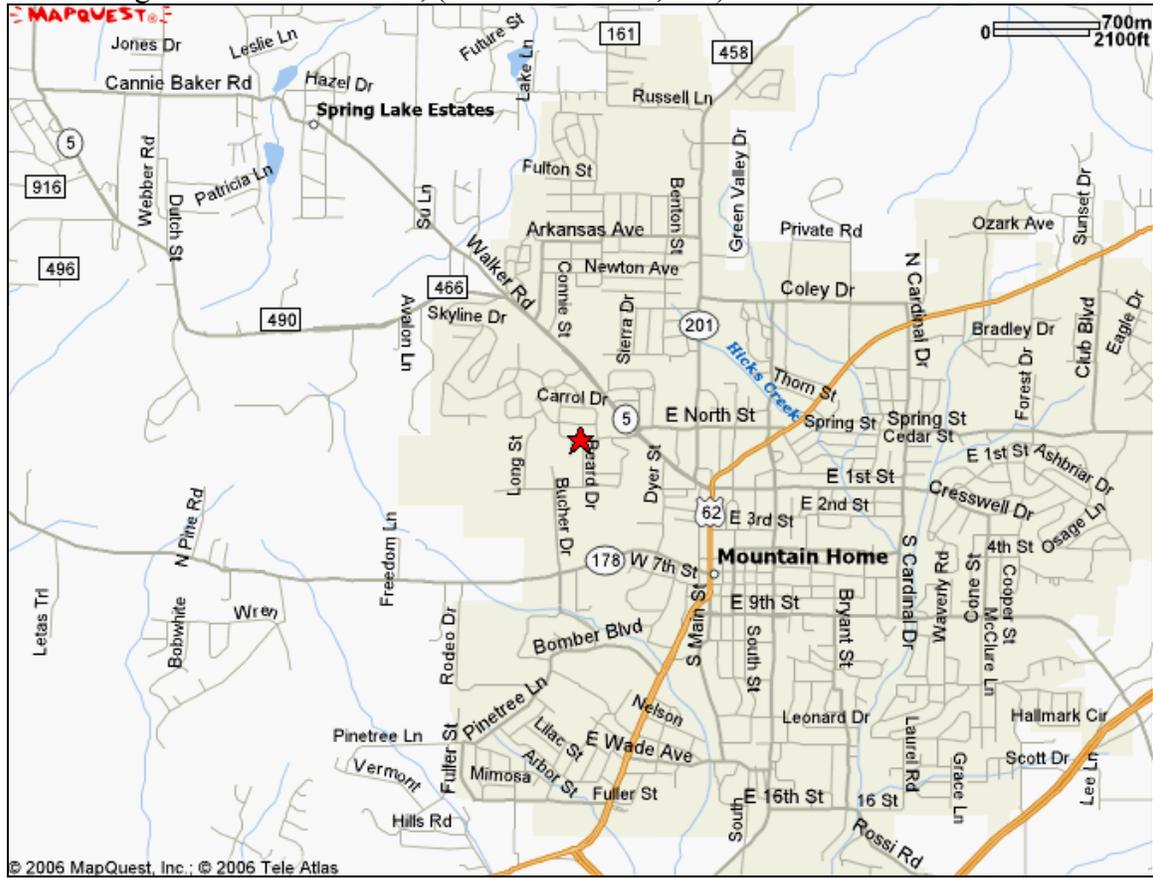
Maps to Local Hospitals/Clinics

North Arkansas Regional Medical Center, (Harrison, AR)



Maps to Hospitals cont'd

Baxter Regional Medical Center, (Mountain Home, AR)



Emergency Information for CUVA

Special Information: Depending on where you are at on the park sampling, there will be different medical facilities closest to your location. Your route to the nearest medical facility is dependent on your location in the park. Know your route before entering the field.

Contacts: 911 for emergencies

Park Headquarters: (440) 526-5256

Park Superintendent: Stan Austin (440) 546-5903 / Stan_Austin@nps.gov

Local Hospitals/Clinics

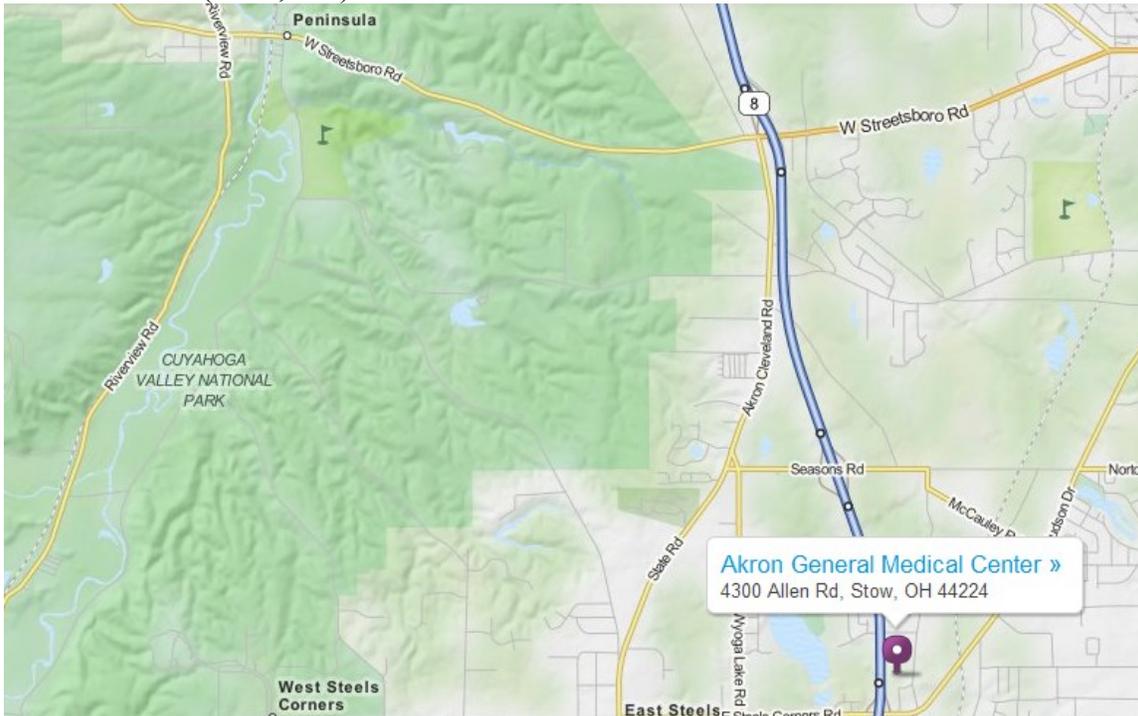
Akron General
4300 Allen Road
Stow, OH 44224

UHHS Bedford Medical Center (440) 735-3900
44 Blaine Ave
Cleveland, OH 44101

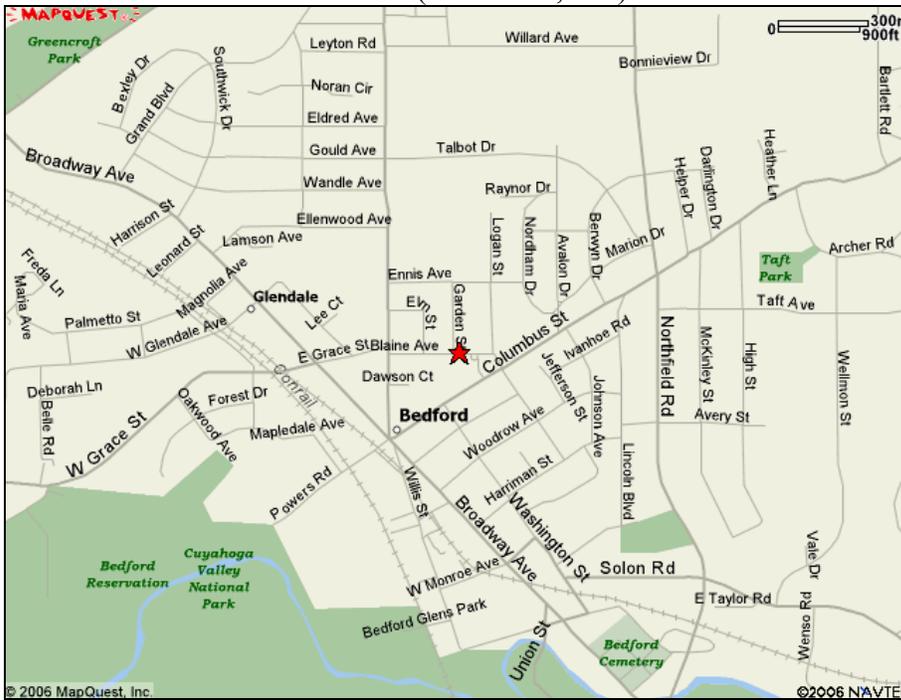
Sagamore Hills Medical Center (330) 468-0190
863 W Aurora Rd
Northfield, OH 44067

Maps to Hospitals

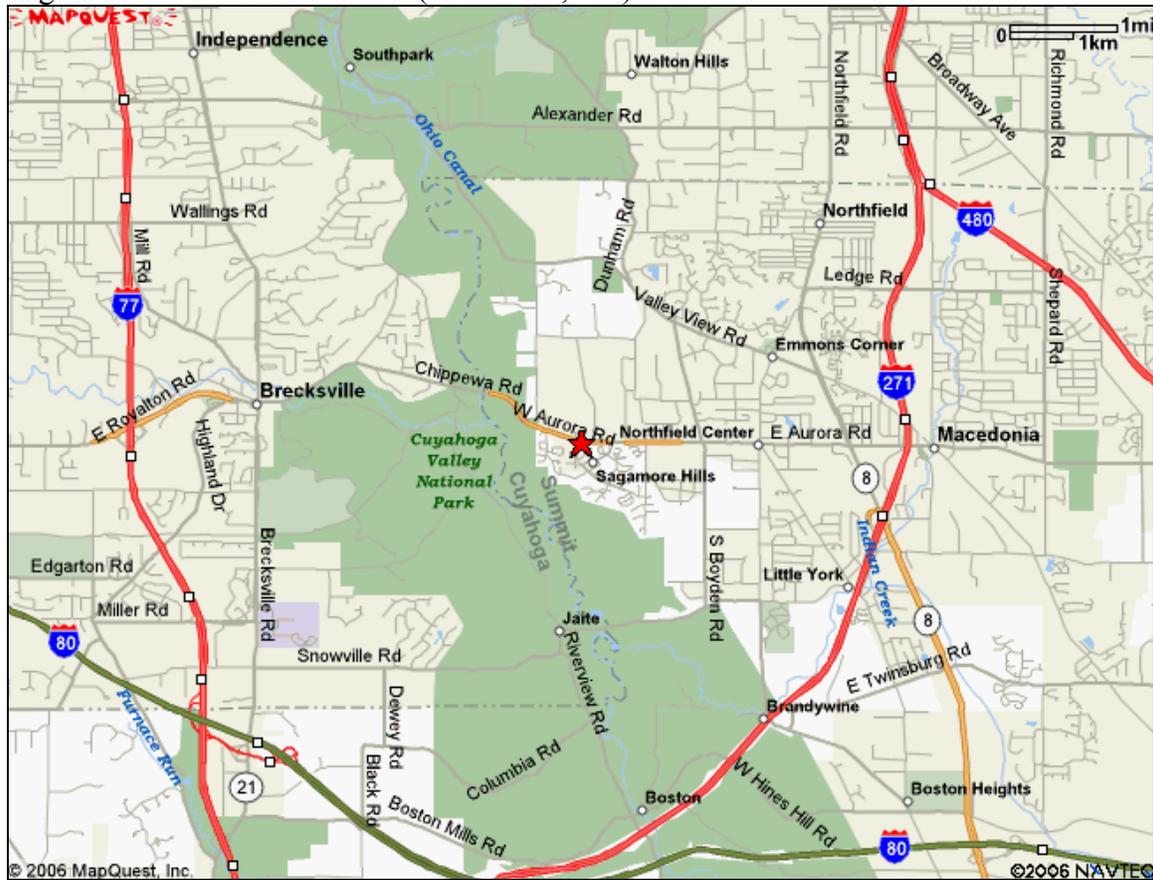
Akron General (Stow, OH)



UHHS Bedford Medical Center (Cleveland, OH)



Sagamore Hills Medical Center (Northfield, OH)



Emergency Information for EFMO

Special Information:

Contacts: 911 for emergencies

Park Headquarters: (563) 873-3491

Park Superintendent: Jim Nepstad (563) 873-3491 / Jim_Nepstad@nps.gov

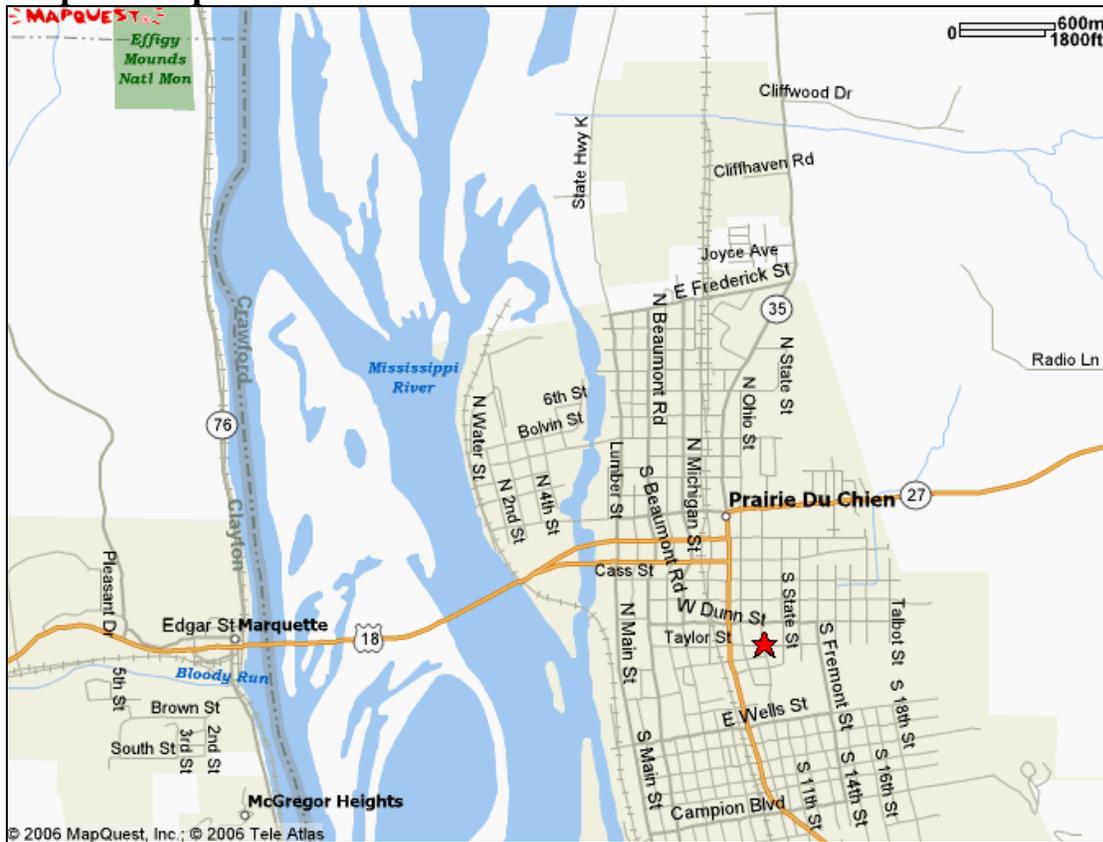
Local Hospitals/Clinics

Prairie du Chien Memorial Hospital (608) 357-2000

705 E Taylor St

Prairie Du Chien, WI 53821

Map to Hospital



Directions to Hospital

Instruction	For	Toward
Depart Effigy Mounds National Monument on Local road(s) (South)	0.2 mi	
Turn LEFT (East) onto SR-76	3.2 mi	
Keep STRAIGHT onto Water St	98 yds	
Turn LEFT (East) onto US-18	1.9 mi	
Turn RIGHT (South) onto US-18 [SR-35]	0.3 mi	
Turn LEFT (East) onto E Taylor St	0.1 mi	
Arrive Prairie du Chien Memorial Hospital, 705 E Taylor St, Prairie du Chien, WI 53821		

Emergency Information for GWCA

Special Information: Storm shelter – multi-purpose room in the discovery center at GWCA

Contacts: 911 for emergencies

Park Headquarters: (417) 325-4151

Park Superintendent: James Heaney (417) 325-4151 / James_Heaney@nps.gov

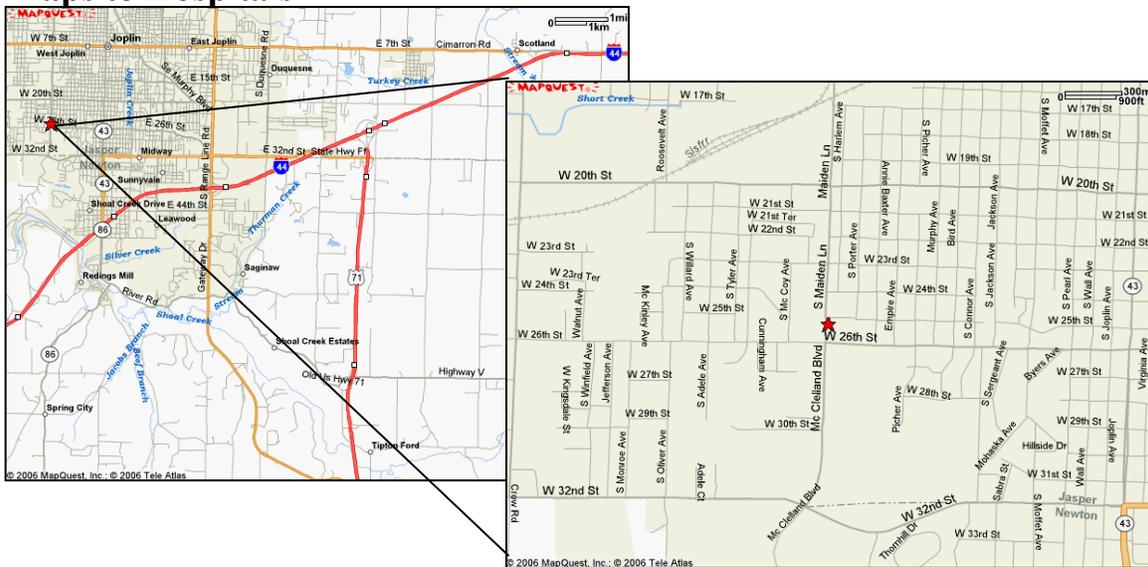
Local Hospitals/Clinics

Freeman Hospital (417) 347-1111

1102 W 32nd St

Joplin, MO 64804

Maps to Hospitals



Directions to Hospital

Instruction

Depart George Washington Carver National Monument on Local road(s) (South)

- Turn LEFT onto Carver Rd
- Turn LEFT (West) onto SR-V
- Take Ramp (RIGHT) onto US-71
- Take Ramp (RIGHT) onto I-44
- At exit 6, turn RIGHT onto Ramp
- Take Ramp (RIGHT) onto I-44 Bus [SR-43]
- Turn LEFT (West) onto W 32nd St

Arrive Freeman Hospital, 1102 W 32nd St, Joplin MO 64804

For

76 yds

- 1.0 mi
- 4.4 mi
- 4.6 mi
- 5.4 mi
- 0.1 mi
- 1.4 mi
- 0.7 mi

Toward

- US-71 / Joplin
- I-44 / Tulsa
- MO-86 / MO-43 / Joplin / Racine
- MO-43 / Joplin

Emergency Information for HEHO Special Information:

Contacts: 911 for emergencies

Park Headquarters: (319) 643-2541

Park Superintendent: Pete Swisher (319) 643-7870 / Pete_Swisher@nps.gov

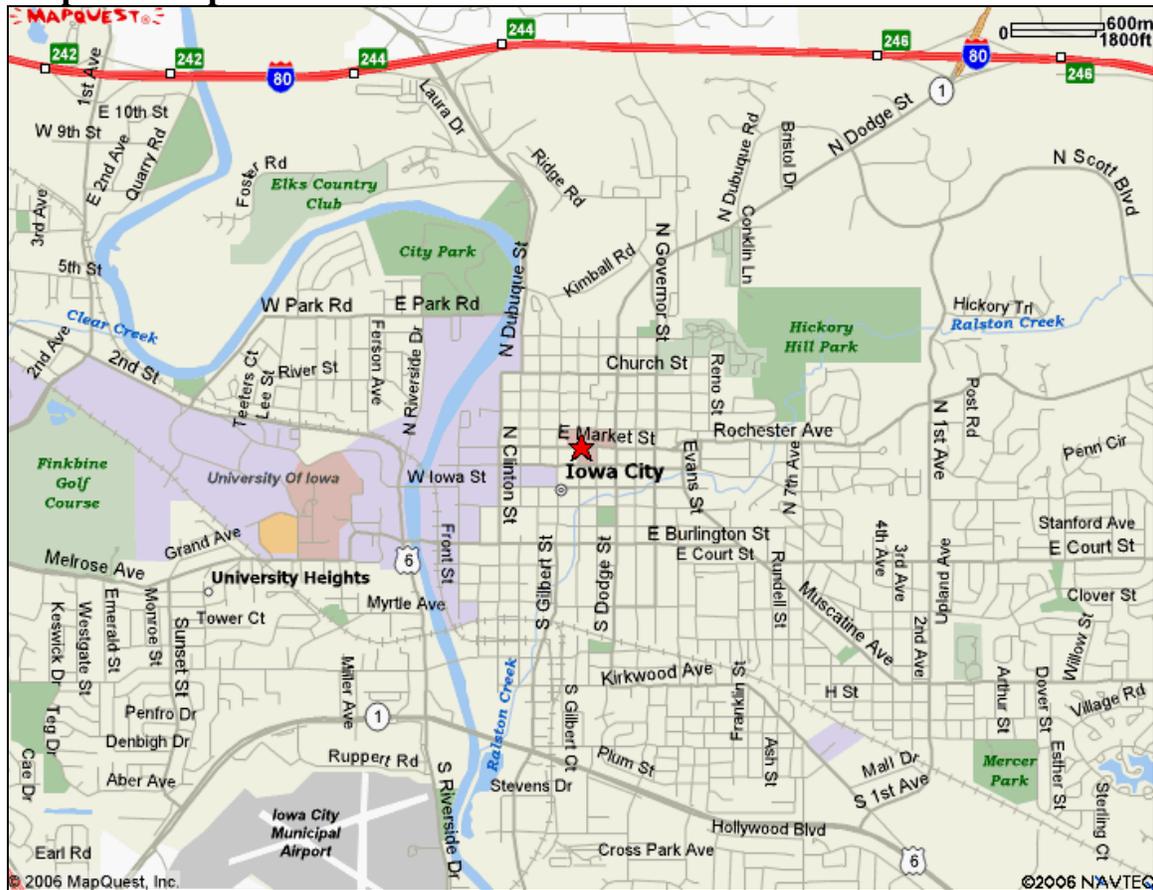
Local Hospitals/Clinics

Mercy Hospital (319) 339-0300

500 E. Market St

Iowa City, IA 52245

Maps to Hospitals



Directions to Hospital

Instruction	For	Toward
Depart Herbert Hoover National Historic Site on CR-X30 [Downey St] (South)	0.4 mi	
Take Ramp (RIGHT) onto I-80	7.9 mi	I-80
At exit 246, turn RIGHT onto Ramp	0.3 mi	IA-1 / Dodge St / Mt Vernon
Bear LEFT (West) onto Local road(s)	21 yds	
Turn LEFT (South) onto SR-1 [N Dodge St]	0.1 mi	
Keep RIGHT to stay on SR-1 [N Dodge St]	2.2 mi	
Turn RIGHT (West) onto E Market St	0.1 mi	
Arrive Mercy Hospital, 500 E Market St, Iowa City, IA 52245		

Emergency Information for HOCU Special Information:

Shelters In case of Severe Weather

- Administration Basement
- Maintenance Restroom
- Resource Management Basement
- Visitor Center Restrooms
- Mound Area-Nearest borrow pit
- In other areas seek the lowest area possible such as ditches, road sides etc....

Contacts: 911 for emergencies

Park Headquarters: (740) 774-1126

Park Superintendent: Jennifer Pederson (740) 774-1126 / Jennifer_Pederson@nps.gov

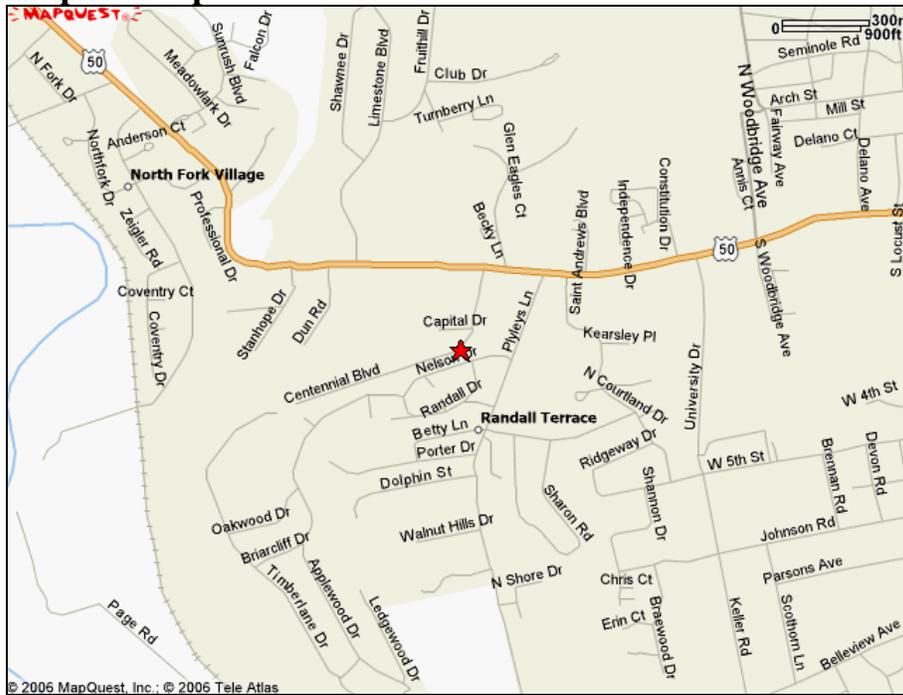
Local Hospitals/Clinics

Adena Urgent Care Center (740) 779-4000

55 Centennial Blvd

Chillicothe, OH 45601

Map to Hospital



Directions to Hospital

Instruction	For	Toward
Depart Mound City Group National Monument on Local road(s) (South)	0.1 mi	
Turn left onto OH-104	1.9 mi	
Turn sharp right onto Orange St	0.2 mi	
Turn left onto Piatt Ave	0.8 mi	
Turn right onto Arch St	0.1 mi	
Arch St becomes N Woodbridge Ave.	0.3 mi	
Turn right onto Western Ave/US-50.	0.6 mi	
Turn left onto Centennial Blvd	0.08 mi	
Arrive Adena Urgent Care Center, 55 Centennial Blvd, Chillicothe, OH 45601		

Emergency Information for HOSP

Special Information:

Contacts: 911 for emergencies

Park Headquarters: (501) 624-3383

Park Superintendent: Josie Fernandez (501) 623-2824 / Josie_Fernandez@nps.gov

Local Hospitals/Clinics

National Park Medical Center (501) 321-1000

1910 Malvern Avenue

Hot Springs, AR 71901

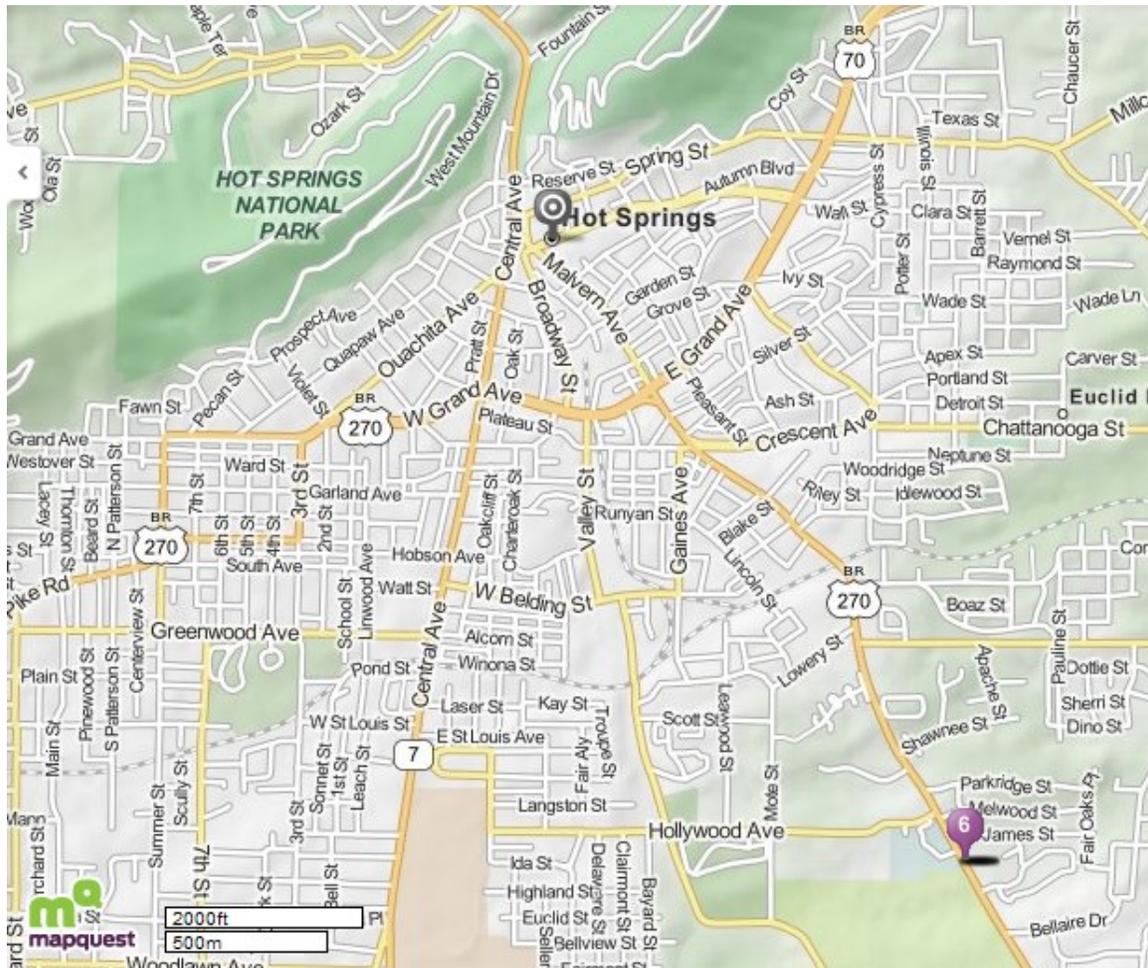
St. Joseph’s Mercy Health Center (501) 622-1000

300 Werner Street

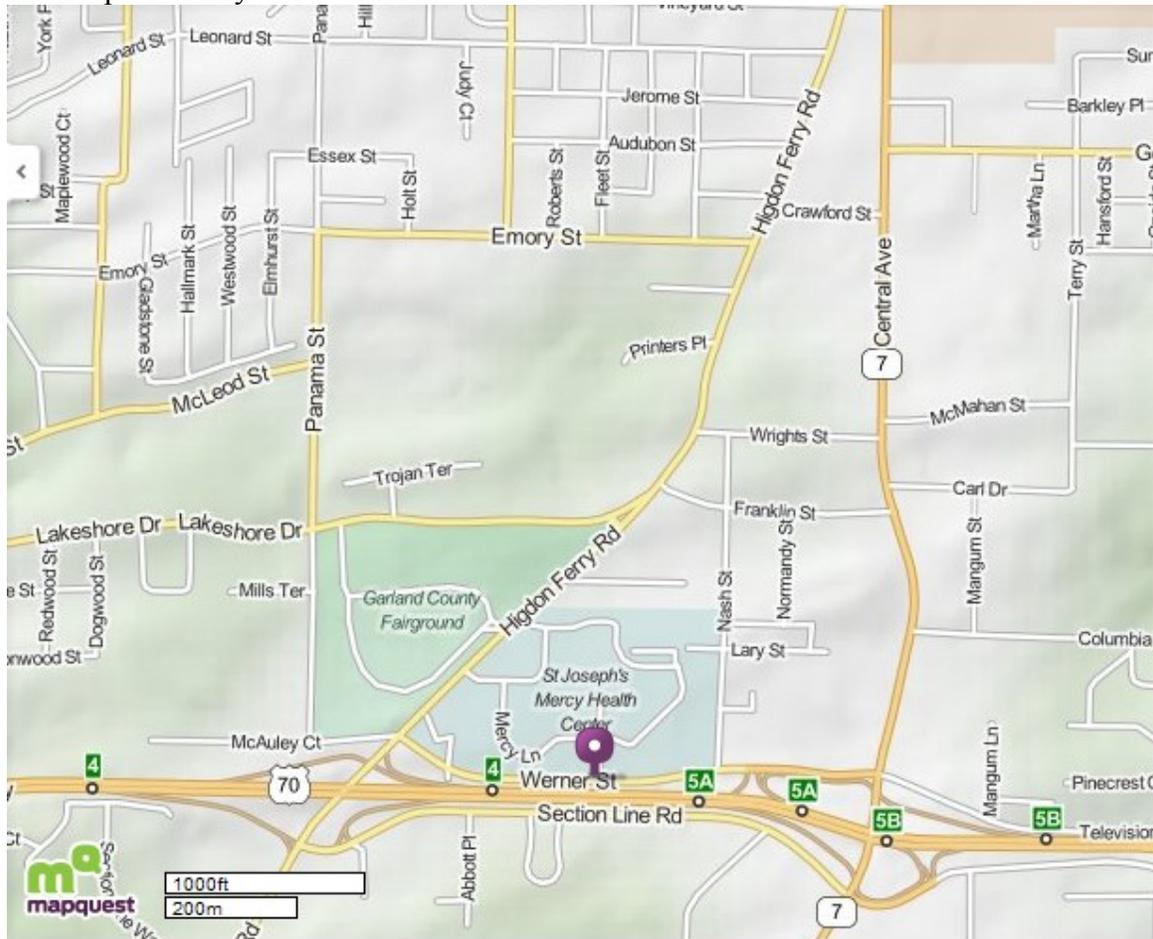
Hot Springs, AR 71913

Maps to Hospitals

National Park Medical Center



St. Joseph's Mercy Health Center



Emergency Information for LIBO

Special Information:

Contacts: 911 for emergencies

Park Headquarters: (812) 937-4541

Park Superintendent: Kendell Thompson (812) 937-4541 /
Kendell_Thompson@nps.gov

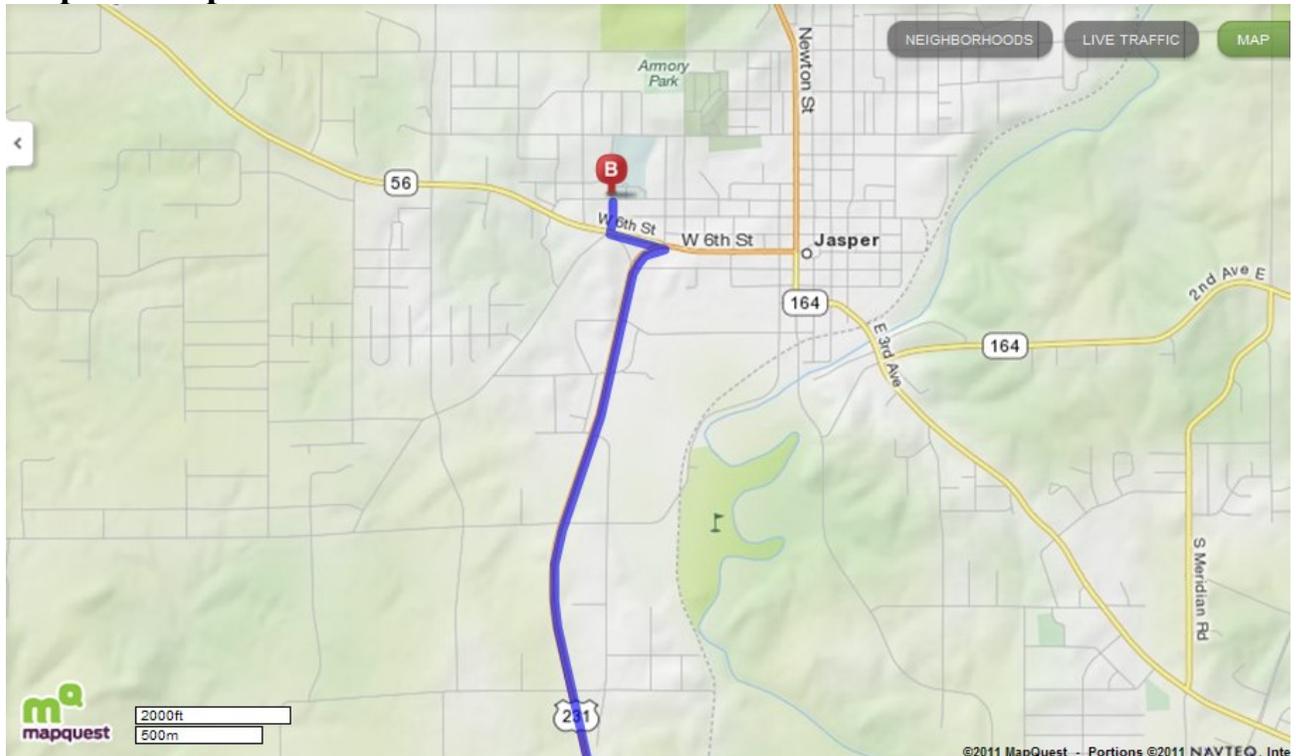
Local Hospitals/Clinics

Memorial Hospital (812) 482-0322

800 W 9th St

Jasper, IN 47546

Maps to Hospitals



Directions to Hospital

Instruction	For
Depart Lincoln Boyhood National Memorial on SR-345 [300 E] (North)	0.2 mi
Turn left onto IN-162	1.3 mi
Merge onto US-231 N via the ramp on the left.	20.1 mi
Turn sharp left onto W 6th St/IN-56.	0.2 mi
Take the 1st right onto Dorbett St.	0.1 mi
Take the 1st left onto W 9th St.	
Arrive Memorial Hospital, 800 W 9th St, Jasper, IN 47546	

Emergency Information for OZAR

Special Information: Depending on where you are at on the park sampling, there will be different medical facilities closest to your location. Your route to the nearest medical facility is dependent on your location in the park. Know your route before entering the field.

Contacts: 911 for emergencies

Park Headquarters: (573) 323-4236

Park Superintendent: Reed Detring (573) 323-4852 / Reed_Detring@nps.gov

Local Hospitals/Clinics

Advanced Healthcare Medical Center (573) 663-2511

100 Highway 21 N.

Ellington, MO 63638

St. Francis Mt. View (417) 934-7000

100 W US Highway 60

Mountain View, MO 65548

Salem Memorial District Hospital (573) 729-6626

35629 Highway 72 N

Salem, MO 65560

Shannon County Medical Clinic (573) 325-4237

1008 N Highway 19

Winona, MO 65588

Emergency Information for PERI
Special Information:

Contacts: 911 for emergencies

Park Headquarters: (479) 451-8122

Park Superintendent: John Scott (479) 451-8122 / John_C_Scott@nps.gov

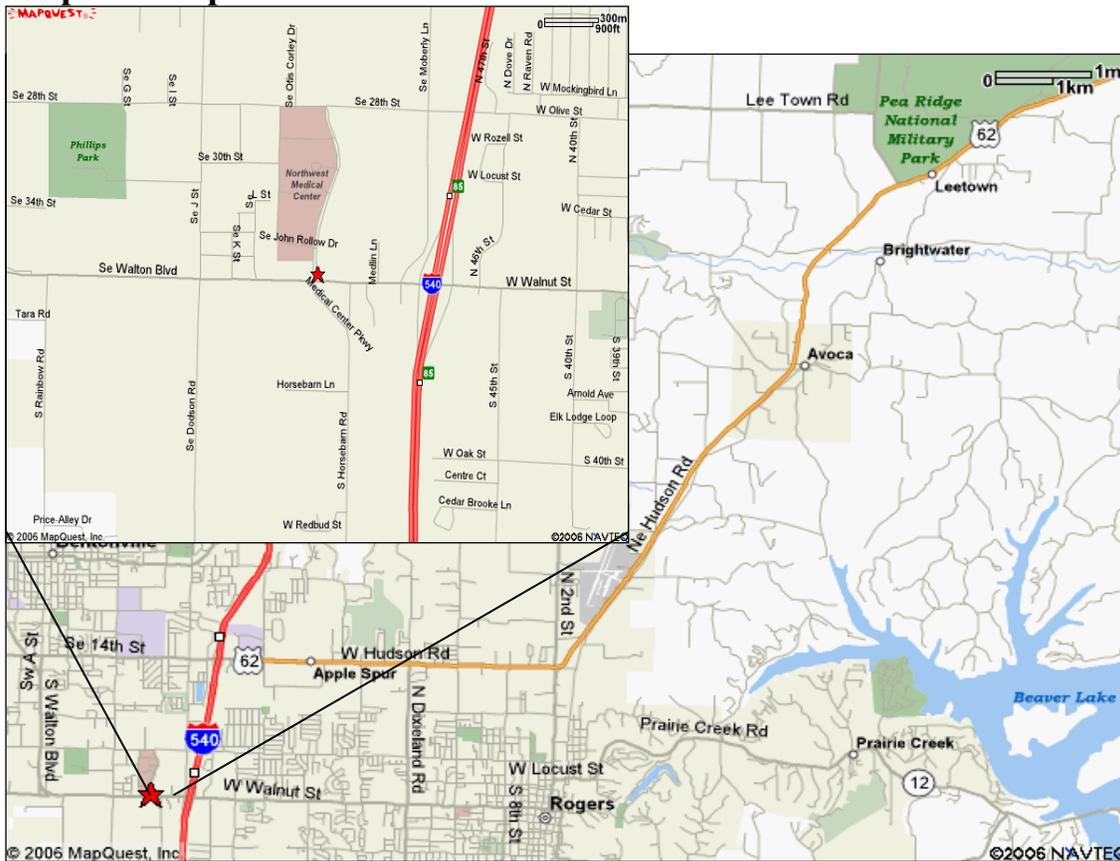
Local Hospitals/Clinics

Northwest Medical Center of Benton Co. (479) 553-1000

3000 Medical Center Pkwy

Bentonville, AR 72712

Maps to Hospitals



Directions to Hospital

Instruction	For	Toward
Depart Pea Ridge National Military Park on US-62 (West)	11.7 mi	
Merge onto I-540 via the ramp on the left	1.2 mi	Centerton/Springdale/Fayetteville
Take the US-71 exit (85)	0.3 mi	
Turn right into SE Walton Blvd/US-71Br	0.3 mi	
Turn right onto Medical Center Pky	0.3 mi	
Turn left	0.01 mi	
Arrive Northwest Medical Center of Benton Co. 3000 Medical Center Pkwy, Bentonville, AR 72712		

**Emergency Information for PIPE
Special Information:**

Contacts: 911 for emergencies

Park Headquarters: (507) 825-5464

Park Superintendent: Glen Livermont (507) 825-5464 / Glen_Livermont@nps.gov

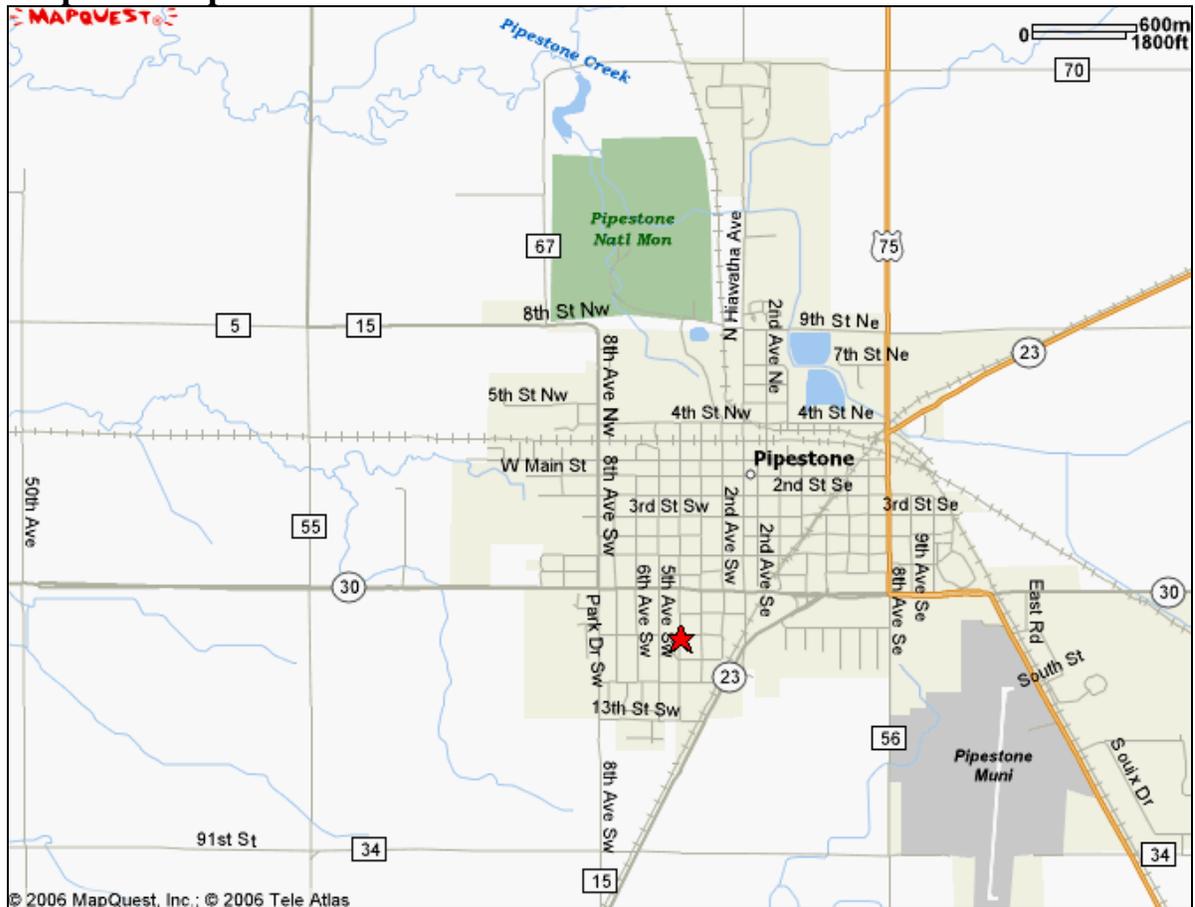
Local Hospitals/Clinics

Pipestone County Medical Center (507) 825-5811

916 4th Ave SW

Pipestone, MN 56164

Maps to Hospitals



Directions to Hospital

Instruction	For	Toward
Depart Pipestone National Monument on Local road(s) (South)	0.1 mi	
Bear LEFT (South) onto Local road(s)	0.4 mi	
Turn RIGHT (South) onto Local road(s)	0.4 mi	
Road name changes to 2nd Ave (NW)	0.8 mi	
Turn RIGHT (West) onto 9th St SW	0.1 mi	
Arrive Pipestone Medical Center, 916 4th Ave SW, Pipestone, MN 56164		

**Emergency Information for TAPR
Special Information:**

Contacts: 911 for emergencies

Park Headquarters: (620) 273-6034

Park Superintendent: Wendy Lauritzen (620) 273-6034 / Wendy_Lauritzen@nps.gov

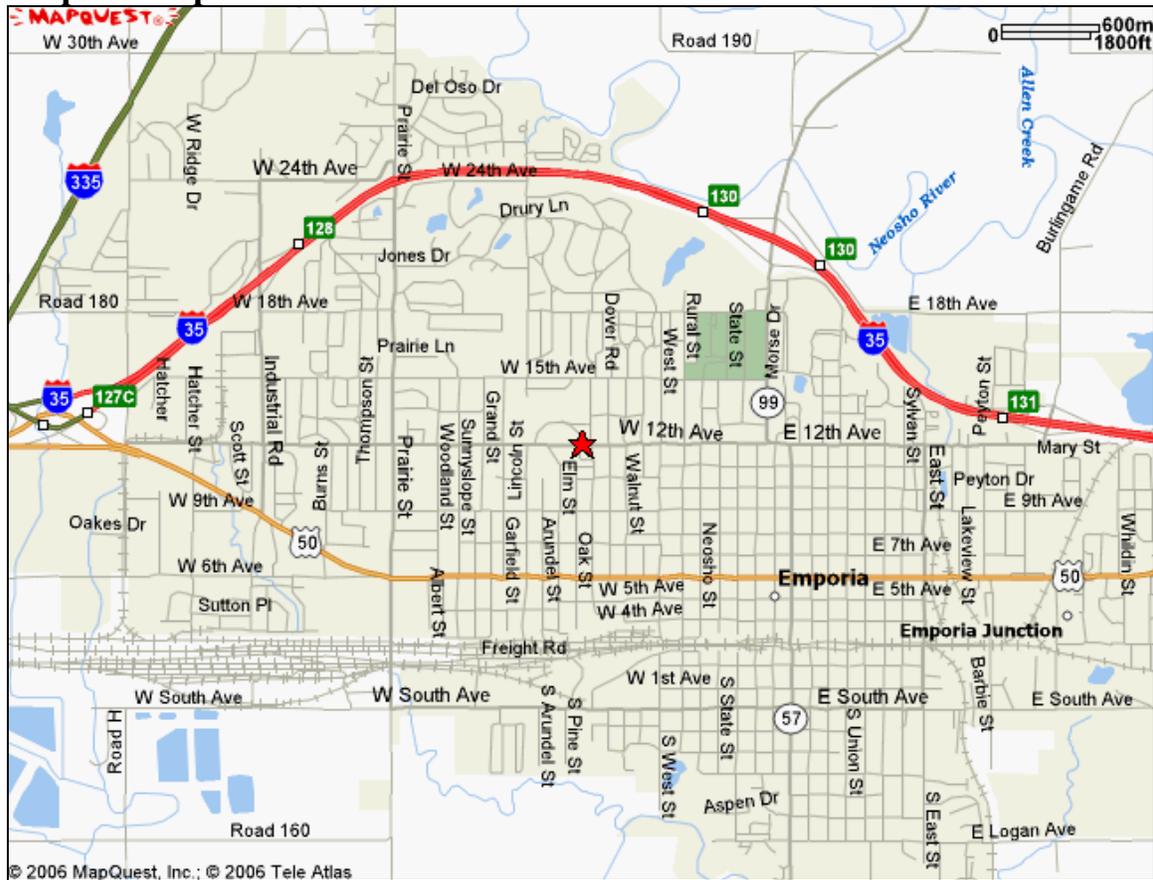
Local Hospitals/Clinics

Newman Regional Health (620) 340-6177

1127 Chestnut St

Emporia, KS 66801

Map to Hospital



Directions to Hospital

Instruction	For	Toward
Depart Tallgrass Prairie Preserve on SR-177 [SR-57] (South)	2.4 mi	
Turn LEFT onto Ramp	120 yds	US-50
Turn RIGHT (East) onto US-50 [SR-57]	19.7 mi	
Turn LEFT onto Chestnut St	0.5 mi	
Arrive Newman Regional Health, 1127 Chestnut St Emporia, KS 66801		

Emergency Information for WICR

Special Information:

Contacts: 911 for emergencies

Park Headquarters: (417) 732-2662

Park Superintendent: Ted Hillmer (417) 732-2662 / T_John_Hillmer@nps.gov

Local Hospitals/Clinics

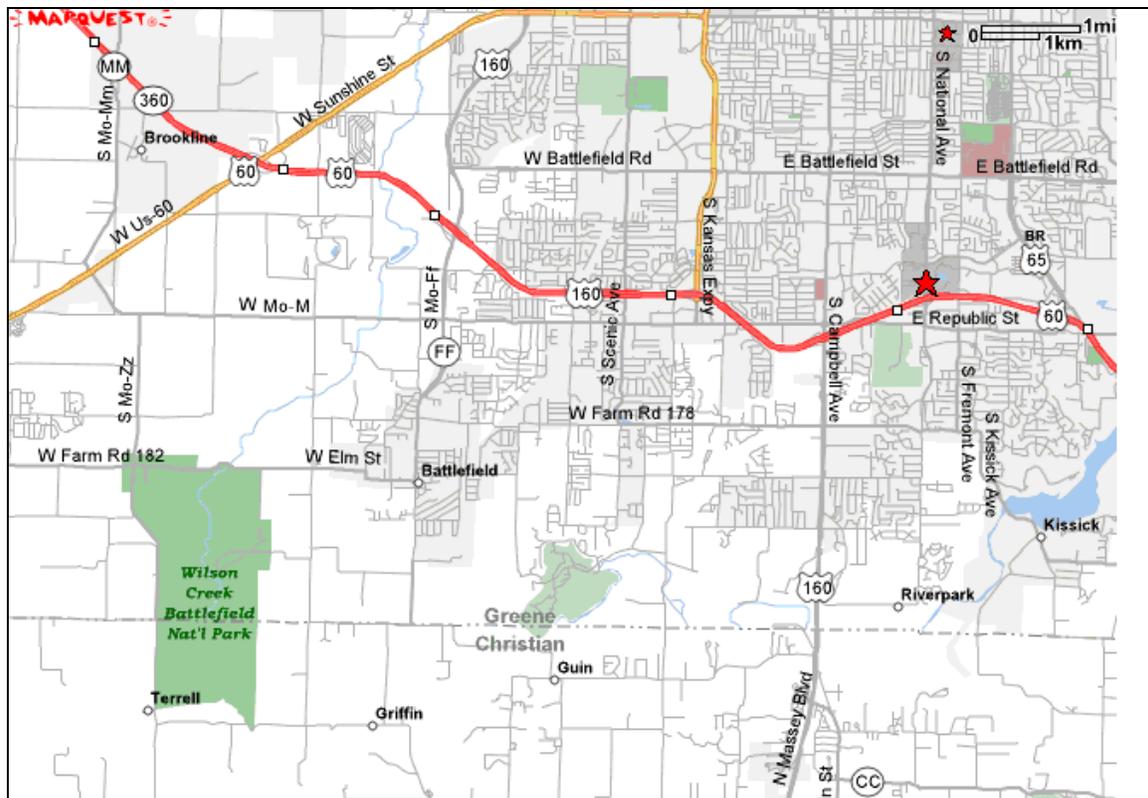
Cox Medical Center South (417) 269-6000

3801 S National Ave

Springfield, MO 65807

Maps to Hospitals

Cox South



Directions to Hospitals

Cox South Hospital

Instruction	For	Toward
Depart Wilson's Creek National Battlefield on Local road(s) (West)	0.4 mi	
Bear RIGHT (North-West) onto SR-ZZ	2.4 mi	
Turn RIGHT (East) onto SR-M	3.0 mi	
Turn LEFT (North) onto SR-FF	0.8 mi	
Turn RIGHT onto Ramp	0.2 mi	US-60 / US-160 / Rogersville
US-160/US-60 [James River Freeway]	3.6 mi	
Road name changes to US-60 [James River Fwy]	1.1 mi	
Keep RIGHT onto Ramp	0.3 mi	National Ave
Turn LEFT (North) onto S National Ave going through a diamond interchange	0.2 mi	
Turn Right and go under S National Avenue following ambulance entrance signs to Hospital		
Arrive Cox South, 3801 S National Ave Springfield, MO 65807		

Appendix 2. Job Hazard Analyses

Field Work

U.S. Department of the Interior National Park Service	1. WORK PROJECT/ACTIVITY Field Work	2. LOCATION Heartland Network Parks	3. UNIT Terrestrial/Aquatic
JOB HAZARD ANALYSIS (JHA)	4. NAME OF ANALYST	5. JOB TITLE	6. DATE PREPARED
7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS	
DRIVING TO THE JOBSITE	Dusty, winding, narrow roads	Drive confidently and defensively at all times. Go slow around corners, occasionally clearing the windshield.	
	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.	
	In an unfamiliar vehicle	Check brakes, steering, seatbelts, fluid levels, lights. Use maintenance checklist in vehicle logbook.	
	Stormy weather, near confused tourists	Inquire about conditions before leaving the office. Be aware of oncoming storms. Drive to avoid accident situations created by the mistakes of others.	
	When angry or irritated	Attitude adjustment; change the subject or work out the problem before driving the vehicle. Let someone else drive.	
	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.	
	Sick or medicated;	Let others on the crew know you do not feel well. Let someone else drive.	
	On wet or slick roads	Drive slow and safe, wear seatbelts.	
	Animals on road	Drive slowly, watch for other animals nearby.	
COMMUNICATION	Safety, crew unity	Talk to each other. Let other crewmembers know when you see a hazard. Avoid working near known hazards. Always know the whereabouts of fellow crewmembers. Carry a radio and spare batteries.	
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.	

		Wear laced boots with good traction.	
	Falling objects	Wear your hardhat for protection from falling limbs, and from tools and equipment carried by other crewmembers. Stay out of the woods during extremely high winds.	
	Damage to eyes	Watch where you walk, especially around trees and brush with limbs sticking out. Exercise caution when clearing limbs from tree trunks. 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.	
	Poisonous Snakes	Be cautious when in areas where poisonous snakes are known to occur. Wear snake chaps to prevent snake bites. If bitten remain calm and contact park personnel.	
Line Officer's Signature		Title	Date

Temperature Extremes / Dehydration

U.S. Department of the Interior National Park Service	1. WORK PROJECT/ACTIVITY Field Work	2. LOCATION Heartland Parks	3. UNIT
JOB HAZARD ANALYSIS (JHA)	4. NAME OF ANALYST	5. JOB TITLE	6. DATE PREPARED
7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS	
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.	
		<p>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.</p> <p>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.</p>	
	Severe Environmental Heat Loads	Maintain adequate water intake by drinking water periodically in small amounts throughout the day. Some overhydration is strongly recommended.	
		Allow approximately 2 weeks with progressive degrees of heat exposure and physical exertion for substantial acclimatization. Acclimatization is necessary regardless of an employee's physical condition (the better one's physical condition, the quicker the acclimatization).	
		<p>Tailor the work schedule to fit the climate, the physical condition of employees, and mission requirements.</p> <ul style="list-style-type: none"> 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. 	

Environmental Health Considerations (CONT'D)	Wet Bulb Globe Temperature (WBGT) Index	Curtail or suspend physical work when conditions are extremely severe (see attached Heat Stress Index).
		<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).</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>
	Cold Extremes	Cover all exposed skin and be aware of frostbite. While cold air will not freeze the tissues of the lungs, slow down and use a mask or scarf to minimize the effect of cold air on air passages.
		<p>Additional measures to avoid cold weather problems are:</p> <ol style="list-style-type: none"> a. Dress in layers with wicking garments (those that carry moisture away from the body) and a weatherproof slicker. A wool outer garment is recommended. b. Take layers off as you heat up; put them on as you cool down. c. Wear head protection that provides adequate insulation and protects the ears. d. Maintain your energy level. Avoid exhaustion and over-exertion which causes sweating, dampens clothing, and accelerates loss of body heat and increases the potential for hypothermia. e. Acclimate to the cold climate to minimize discomfort. f. Maintain adequate water/fluid intake to avoid dehydration.

<p>Dehydration a. Excessive heat 95° to 100° temperatures. b. Long physically demanding work shifts. c. Not consuming enough liquid</p>	<p>Muscle cramps, lightheaded or dizziness, fatigue.</p>	<p>Drink adequate amounts of liquids or ingest fruits that replace the loss of carbohydrates. This will benefit the government by reducing employee illness, injury and agency provided medical care.</p>	
<p>10. LINE OFFICER SIGNATURE</p>	<p>11. TITLE</p>		<p>12. DATE</p>

HEAT STRESS INDEX																
RELATIVE HUMIDITY	Actual Thermometer Reading (F°)															
	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102	104
(Equivalent Temperature)																
10%	68	70	72	75	77	78	80	82	85	87	89	91	93	95	97	98
20%	70	72	75	77	79	81	84	86	88	90	93	95	97	99	101	104
30%	73	75	77	78	80	83	85	87	90	92	95	98	101	105	108	110
40%	74	76	78	79	81	85	87	89	92	96	100	104	106	110	117	120
50%	75	77	79	81	84	86	90	93	96	100	105	108	110	120	125	132
60%	75	77	80	83	86	89	92	95	100	106	111	120	125	132		
70%	75	77	81	85	89	91	96	100	106	115	122	128				
80%	76	78	83	86	91	95	100	106	114	122						
HUMIDITY F°	Below 80		80 - 90			90 - 105			105 - 130			Above 130				
DANGER CATEGORY	NONE		CAUTION			EXTREME CAUTION			DANGER			EXTREME DANGER				
NONE	Little or no danger under normal circumstances.															
CAUTION	Fatigue possible, if exposure is prolonged and there is physical activity.															
EXTREME CAUTION	Heat cramps and heat exhaustion, if exposure is prolonged and there is physical activity.															
DANGER	Heat cramps or exhaustion likely; heat stroke possible, if prolonged and there is physical activity.															
EXTREME DANGER	HEAT STROKE IMMINENT!															

NOTE: Add 10° F when protective clothing is worn and add 10° F when in direct sunlight.

Insect and poisonous plants

U.S. Department of the Interior		1. WORK PROJECT/ACTIVITY	2. LOCATION	3. UNIT
National Park Service		Insect Stings and Bites / Poisonous Plants	Heartland Network Parks	
JOB HAZARD ANALYSIS (JHA)		4. NAME OF ANALYST	5. JOB TITLE	6. DATE PREPARED
7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS		
Avoiding / Treating Tick Bites	Lyme Disease, Rocky Mountain Spotted Fever, etc.	<p>A. Spray clothing with insect repellent as a barrier.</p> <p>B. Wear light colored clothing that fits tightly at the wrists, ankles, and waist.</p> <p>C. Each outer garment should overlap the one above it.</p> <p>D. Cover trouser legs with high socks or boots.</p> <p>E. Tuck in shirts.</p> <p>F. Search the body on a regular basis, especially hair and clothing; ticks generally do not attach for the first couple of hours.</p> <p>G. If a tick becomes attached, pull it by grasping it as close as possible to the point of attachment and pull straight out with gentle pressure. Wash skin with soap and water then cleanse with rubbing alcohol. Place the tick in an empty container for later identification, if the victim should have a reaction. Record dates of exposure and removal.</p> <p>D. Do not try to remove the tick by burning with a match or covering it with chemical agents.</p> <p>G. If you can not remove the tick, or the head detaches, seek prompt medical help.</p> <p>H. Watch for warning signs of illness: a large red spot on the bite area; fever, chills, headache, joint and muscle ache, significant fatigue, and facial paralysis are reactions that may appear within two weeks of the attack. Symptoms specific to Lyme disease include: confusion, short-term memory loss, and disorientation.</p>		
Avoiding / Treating Bee Stings	Allergic reactions, painful stings	<p>A. Be alert to hives in brush or in hollow logs. Watch for insects traveling in and out of one location.</p> <p>B. If you or anyone you are working with is known to have allergic reactions to bee stings, tell the rest of the crew and your supervisor. Make sure you carry emergency medication with you at all times.</p> <p>C. Wear long sleeve shirts and trousers; tuck in shirt. Bright colors and metal objects may attract bees.</p> <p>D. If you are stung, cold compresses may bring relief.</p> <p>E. If a stinger is left behind, scrape it off the skin. Do not use tweezers as this squeezes the venom sack, worsening the injury.</p> <p>F. If the victim develops hives, asthmatic breathing, tissue swelling, or a drop in blood pressure, seek medical help immediately. Give victim antihistime, (Benadryl, chlo-amine tabs).</p>		

Avoiding / Treating Mosquito Bites	Skin irritation, encephalitis	<p>A. Wear long sleeves and trousers.</p> <p>B. Avoid heavy scents.</p> <p>C. Use insect repellents. If using Permethrin, do not apply directly to skin, apply to clothing only.</p> <p>D. Carry after-bite medication to reduce skin irritation.</p>
Avoiding/Treating chiggers	Skin irritation, blisters, possible infection	<p>A. Wear long sleeves and trousers. Especially in tall grass.</p> <p>B. Use insect repellents.</p>
10. LINE OFFICER SIGNATURE	11. TITLE	12. DATE

Camping

U.S. Department of the Interior	1. WORK PROJECT/ACTIVITY	2. LOCATION	3. UNIT
National Park Service	Camping	Heartland Network Parks	
JOB HAZARD ANALYSIS (JHA)	4. NAME OF ANALYST	5. JOB TITLE	6. DATE
7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS	
Improper Gear and/or equipment	Not prepared for adverse weather, hunger, or thirst.	Have adequate camping gear. Good tents, sleeping bags, etc. Have enough food in case you get stuck in camp longer than expected. Have a radio and keep in contact with home unit. Take an adequate supply of fresh water or take a water purifier/tablets. Boil water before using if other options are not available. Know how to operate cooking stoves safely.	
Hazards of camping in the field	Dangerous floral and fauna	Dispose of garbage properly. Don't camp in areas where bear use is evident. Cook away from sleeping camp. Do not cook or eat around tents. Be careful not to spill food. Store food away from camp, hang in trees if possible. Use the buddy system when leaving the immediate camp area.	
Checking in / Emergencies	Park staff unaware of your location	Check-in's are MANDATORY. Check-in's are required at both the beginning and the end of each day. If an emergency happens, use first-aid to deal with immediate life threatening situations and radio for help. Remain calm and use your best judgement in dealing with emergencies. When in doubt if a person needs medical attention...get them out of the field where medical attention is readily available Home office should have your itinerary, where you plan to go and when you plan on returning, as well as you route of travel.	
Hazardous Campsites	Injury	Choose campsites free of unsound trees or limbs, danger from rolling rocks, dangers of flash flooding.	
Diseases	Sickness	Always wash your hands before preparing and eating food. Always keep perishable food cold during trip; discard food of questionable safety.	
10. LINE OFFICER SIGNATURE		11. TITLE	12. DATE

Boat and Canoe Safety

Department of the Interior	1. WORK PROJECT/ACTIVITY	2. LOCATION	3. UNIT
National Park Service	Boat & Canoe Travel and Safety	Heartland Network Parks	Aquatic Program
JOB HAZARD ANALYSIS (JHA)	4. NAME OF ANALYST	5. JOB TITLE	6. DATE
	David E. Bowles	Aquatic Program Director	
7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS	
1. LOADING/UNLOADING	A. Slippery Footing B. Load Distribution and Limits	Use non-skid surface, if available. Common sense and responsible judgement. Wear proper foot gear, lift with legs and not back. Enter slowly and keep center of gravity low. Enter boat on operators command. Foot gear includes hip boots, knee boots or deck shoes. No hiking boots! Load in accordance with USCG and boat Requirements. Secure load properly.	
2. PREPARING TO DEPART AND ARRIVE	C. Fire from Fueling	Don't smoke while fueling and have a fire extinguisher on board. Turn engines off, have wipes ready to clean up any spills. Be certain boat is properly moored. Brief crew.	
3. UNDERWAY	D. Personal injury E. Collision	Be observant of other boat traffic in the surrounding area prior to getting underway.	
	F. Jump starting dead batteries (explosion/fire)	Check for fuel leaks, allow battery compartment to ventilate. Connect in proper sequence, positive terminal first, then ground somewhere other than the battery away from fuel and fuel lines.	
	G. Lost or Overdue	Have a radio and charts on board. Carry signal devices. File float plan. Know your limitations.	
	H. Exposure	Wear Exposure suits, survival suits, or PFD and adhere to weather and river conditions. Proper clothing includes: rain gear, polypro or cotton under garments and wool, duct or cotton/dacron blend over garments. Blue jeans are not recommended.	
	I. Capsizing/Person Overboard	PFD shall be worn by all on board. Use reasonable judgement of weather and river conditions. Remain seated or go ashore if needed. Inc. radio contact. Constant attention by the operator to course and river conditions.	
	J. High river flows	Use proper speed (not excessive) and watch for debris.	

	K. Collision with Floating or Submerged Object L. Fire M. Vessel Aground	Use kill switch. Post look out if needed. Be cautious of submerged boulders and trees. Keep equipment in good working order. Brief crew. Trim outboards, use only one outboard, raise the other.	
	N. Collision with other Boats O. Power Loss	Have safety equipment on board. Radio, tools, oars/paddles, exposure suit, fire extinguisher, extra fuel, clothing and food.	
10. LINE OFFICER SIGNATURE	11. TITLE		12. DATE

Electrofishing

Department of the Interior		1. WORK PROJECT/ACTIVITY	2. LOCATION	3. UNIT
National Park Service		Electrofishing	Heartland Network Parks	Aquatic Program
JOB HAZARD ANALYSIS (JHA)		4. NAME OF ANALYST	5. JOB TITLE	6. DATE
		David E. Bowles	Aquatic Program Leader	
7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS		
Equipment Preparation	Malfunctioning equipment	A. Pre-check waders or hip boots and rubber gloves for leaks. B. Take the time to do a pre-trip inspection of all equipment, checking to make sure equipment works properly, there are no loose connections, and batteries are charged.		
Equipment operation	Electrical shock	A. Wear waders or hip boots in good repair. B. Wear rubber gloves with proper voltage resistance. C. Operators of electroshock unit must have appropriate training in the operation of equipment. D. Operators must be trained in the prevention and treatment of electrical shock. E. Carry a first aid kit and Forest Service radio. F. Make sure the radio works. Call in to station for radio check; be aware that you may not be able to transmit to the station in some areas. G. Never electrofish alone. H. Coordinate movements with other crew members. I. Know where anode and cathode is at all times.		
Working in streams	Slips, falls	A. Use additional traction devices to improve footing, such as felt soles or cleats. B. Work only in water with safe velocity and depth. C. Use wading stick if necessary.		
	Hypothermia	A. Wear proper clothing in layers to maintain body temperature. B. Know how to recognize and treat hypothermia. C. Have extra protection available, in case of an emergency such as blankets and heating devices. D. Don't work under extremely adverse weather conditions		
	Heavy brush	A. Wear long sleeve shirts, full length trouser, hardhats and eye protection.		
Communications	Dead zones	A. Check radio communication periodically during assignment. B. Know where nearest communication is available. C. Reference Radio Communication JHA.		
10. LINE OFFICER SIGNATURE		11. TITLE		12. DATE

Stream Surveys

Department of the Interior		1. WORK PROJECT/ACTIVITY	2. LOCATION	3. UNIT
National Park Service		Fishery / Stream Surveys	Heartland Network Parks	Aquatic Program
JOB HAZARD ANALYSIS (JHA)		4. NAME OF ANALYST	5. JOB TITLE	6. DATE
7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS		
Stream / Fishery Surveys	Slips and falls	Use traction devices on shoes and waders. Move slowly, take your time.		
	Balance	Use a walking staff to provide a three point support.		
	Equipment	Secure packs and hip waders with quick release straps and be ready to discard, if an emergency arises. Do not work in waders in water greater than 3 feet deep or in swift water.		
	Hypothermia	Work in teams of two. Have warming devices available. Wear proper equipment that is in good condition. Be aware of signs of hypothermia, it's prevention, detection and treatment. Stay in tune to current weather and extended forecasts.		
	Insect bites/stings	Avoid wearing heavy fragrances. Carry first-aid and sting relief kits. Make sure all crew members are informed about others who are allergic and what to do if they need assistance. Carry necessary emergency medication.		
	Eye injuries	Travel with care through heavy brush. Use eye protection in brushy areas.		
	Scrapes and punctures	Wear proper clothing, long sleeved shirts and pants. No shorts.		
	Severe injury in remote locations	Carry a two-way radio and know how to use it.. Work in teams. Make sure at least 2 crew members are certified in first aid and CPR. Carry a first aid kit.		
	Blow-down / heavy debris	Be aware of your surroundings, including hanging or leaning debris that may be dislodged and fall.		
	High flow velocity	Evaluate a stream before entering. Follow the "rule of 10" 1) if stream is 1 foot deep and flowing @10 ft./sec, it is too hazardous to wade 2) if stream is 2 feet deep and flowing at 5 ft./second, it is too hazardous to wade. If you do enter a stream and discover it is too dangerous to wade, back out using your wading pole for balance.		
	Severe weather	Suspend measurements during lightning storms or when a storm is approaching.		
	Animal encounters	If any wild animal is encountered leave it alone and walk away to a safe distance. If charged, run away or climb a tree.		
10. LINE OFFICER SIGNATURE		11. TITLE		12. DATE

Appendix 3. Vehicle Inspection Form

Heartland Network Safety Plan

Vehicle Being Inspected _____

License Plate # _____

Inside

List problems/concerns

- Gauges and warning lights
- Brake pedal & parking
- Interior lights
- Horn
- Wipers/washers (incl. fluid)
- Heater/defroster
- Fuel level (Should Not Be Less Than ½ Tank)
- Seatbelts
- General cleanliness

Outside

- Dents
- Rust through
- Scratches
- Missing molding
- Windows (cracks and chips)
- General cleanliness

Front

- Headlights
- Directional signals
- Fluids (oil, brake, power steering, coolant)
- Transmission fluid level
- Belts and hoses (cracks, leaks)

Rear

- Tail lights and license light
- Directional signals
- Stop and back-up lights
- Hatch, tailgate or trunk lid

General

- Doors, hinges and latches
- Tires (tread and inflation) LF ___ psi LR ___ psi RF ___ psi RR ___ psi
- Previously unreported damage
- Fluid leaks under vehicle
- Object hanging or wedged under vehicle
- Mirrors
- Unusual Sounds

Date _____ Time _____

Signature of Person Preparing Report

Motor Vehicle Driving Policy - Frequently Asked Question

The intent of the Frequently Asked Question (FAQ) listing is to clarify questions related to the issuance of the revised Servicewide driving policy. The intent of the policy is to establish a limit on the amount of time an employee can operate a vehicle during official travel. If the employee is not on official travel, the policy does not apply. If the person(s) is not a NPS employee and is not driving a Government-furnished or Government-owned vehicle, e.g., contractors or other federal or private-sector employees, the policy does not apply. This document will not address all situations, so please continue to forward questions to WASO Office of Risk Management as necessary risk_management@nps.gov.

1. Q: What is considered a “duty day” according to this policy?

A: A “duty day” is the number of hours you are scheduled to work in a particular day as agreed upon by you and your supervisor.

2. Does the policy restrict operations such as snow plowing, law enforcement, or other operational driving activities occurring on duty, but not on official travel?

A: No, the policy does not pertain to day-to-day operational activities. The definition of official travel is: Travel under an official travel authorization from an employee’s official station or other authorized point of departure to a temporary duty location and return from a temporary duty location, between two temporary duty locations, or relocation at the direction of a Federal agency. Activities occurring outside of this definition are not covered by the travel policy. However, the concepts of Operational Leadership should be applied to all operational activities that pose a hazard to employees and controls implemented to reduce the risk to an acceptable level.

3. Q: My employee works an alternate work schedule of four 10 hour shifts per week and drives more than two hours to home and work each day. Is this in opposition to the 10 hour driving policy?

A: No, the policy only addresses driving while on official travel. Normal commuting to and from work is not official travel and is not addressed by this policy.

4. Q: In situations where an employee is unable to complete his/her travel within the authorized number of travel days due to a reason beyond his/her control (e.g. inclement weather or restrictions by Government officials), due to a physical handicap or special needs, or other acceptable reasons, may he/she be authorized and reimbursed for an overnight stay?

A: Yes, the DOI/NPS policy states the minimum official travel distance needed to receive reimbursement is 350 miles per day, when an employee is on official travel. However, if the employee determines based on conditions stated above that he/she needs to stay overnight and rest before that 350 miles, the employee is permitted to get a hotel room and seek reimbursement. These situations must be documented on the travel voucher and approved by the employee’s approving official per Federal Travel Regulations, Part 302-4.201-202 and 400-403. Allowances for subsistence and travel apply to both relocation travel and official travel.

Managing Long Drives and Fatigue Based on Scientific Evidence

Page 1 provides the most recent scientific findings on driving, fatigue, and managing long drives. Page 2 offers prevention measures to consider when making decisions about travel times.¹

Roadway crashes are the leading cause of workplace deaths making up 23% of all deaths, followed by falls (14%), being struck by equipment (10%) and homicide (10%).²

According to a 2003 Center for Disease Control and Prevention study, “driver fatigue has been identified as a leading contributor to roadway crashes among workers as well as the general population”.³ Risk factors identified as contributing to fatigue related crashes include night driving, duration of wakefulness, inadequate sleep, sleep disorders, and prolonged work hours (including time spent performing non-driving tasks).⁴

Data show a strong and consistent pattern of increases in crash risk as driving time increases. There is a consistent increase in crash likelihood after 5 hours of driving with the highest crash odds in the 11th hour of driving.⁵

Crash risk decreased in the 6th and 7th hour of driving among drivers who had taken a rest break between hours 2 and 6.⁶

Drowsiness slows reaction time, makes drivers less attentive and impairs decision making skills, all of which contribute to motor vehicle crashes.⁷

High predictors of falling asleep at the wheel include driving more than 10 consecutive hours, taking fewer than 8 hours off duty, and driving greater numbers of hours over a 7-day period.⁸

Periods of work longer than 8 hours have been shown to impair task performance and increase crashes. For example, performance appears worse with a 12-hour, 4-day week schedule than with an 8-hour, 6-day week.⁹

Moderate sleep deprivation produces impairments in cognitive and motor performance equivalent to prescribed levels of alcohol intoxication. After 17-19 hours without sleep, the performance (reaction times, response times, cognitive skills) were equivalent or worse than an individual with a .05 BAC (blood alcohol content).¹⁰

¹ Most research on driver fatigue focus on motor carrier industry employees

² Bureau of Labor Statistics, 2011 <http://www.bls.gov/iif/oshwc/foi/cfch0010.pdf>

³ Pratt, Stephanie, Work related Roadway Crashes: challenges and opportunities for prevention, NIOSH Hazard Review, DHHS, CDC, 2003

⁴ Pratt 2003

⁵ US Department of Transportation, Federal Motor Carrier Safety Administration, Hours of service and driver fatigue: driver characteristics research, May 2011

⁶ Lin et al. 1994, Kaneko and Jovanis 1992

⁷ Wheaton, AG, *et al*, Drowsy Driving—19 states and the District of Columbia, 2009-2010, *Morbidity and Mortality Report*, Centers for Disease Control and Prevention, January 4, 2013

⁸ McCartt *et al*. 2000

⁹ http://www.nhtsa.gov/people/injury/drowsy_driving1/drowsy.html#VI

¹⁰ Williamson and Feyer *Occup Environ Med*. Moderate sleep deprivation produces impairments in cognitive and motor performance equivalent to legally prescribed levels of alcohol intoxication, 2000 October, 57 (10) 649-655

