

Midwest Flooding Worker Health and Safety Plan

June 27, 2008

Version 2

**For Federal Employees and Federally Deployed Assets,
Including Contractors**

US DOL OSHA

Health and Safety Plan (HASP) for Supporting Response & Recovery Operations for Midwest Flooding

This document outlines the basic safety & health requirements for federal workers and contractors involved in response and recovery operations related to the recent Midwest flooding affecting Indiana, Iowa, Missouri, Illinois, and Wisconsin. This HASP provides overarching requirements and sets a baseline for worker safety & health protection. Individual agencies and contractors are responsible for developing HASPs specific to their operation for the protection of their own employees.

This HASP was developed using basic risk management principles to provide for the greatest level of protection for the greatest number of workers at risk. Specific operations or locations that contain actual or potential hazards not considered in the basic plan may require greater levels of protection. It is incumbent on each agency or contractor to have a competent person¹ conduct a job hazard analysis (JHA) prior to commencing work.

This HASP follows the basic principles outlined in OSHA's Safety & Health Program Management Voluntary Guidelines, which are as follows:

- Management commitment and employee involvement
- Worksite analysis
- Hazard prevention and control
- Safety & health training

Questions about specific OSHA standards mentioned in this document should be addressed to the local OSHA representative.

Agency and Contractor Safety & Health Plans

Each employer (agency and contractor) is responsible for the safety and health of its employees. Each agency and contractor must establish a safety & health plan commensurate with its operations and consistent with the principles outlined in this HASP. Each agency and contractor will designate a safety & health manager responsible for the implementation of the HASP.

Site specific safety and health plans (HASPS) developed by agencies and contractors must address the following:

- Situation Assessment
- Job Hazard Analysis
- Safety and Health Assessment – field monitoring

¹ OSHA defines a “competent person” as “one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.” (29 CFR 1926.32(f), emphasis added)

- Hazard control
- Personal protective equipment (PPE)
- Training
- Safety and health assessment – field monitoring
- Recordkeeping

OSHA's e-HASP 2 software is a recommended resource to be used for the development of such plans. This software can be downloaded directly from the following website: <http://www.osha.gov/dep/etools/ehasp/index.html>

Recordkeeping

Each employer is responsible for maintaining logs of all recordable injuries and illnesses (OSHA Form 300 or equivalent). Each recordable case shall be logged within seven (7) working days (29CFR 1904.29(b)(3)). A supplemental record shall be maintained for each case.

Incidents that have statutory reporting requirements shall be reported in conformance with those statutes. This includes, but is not limited to:

- Accidents involving worker fatalities or the hospitalization of three or more workers must be reported to OSHA within eight hours (1-800-321-6742).
- Spills or releases of hazardous materials or oil in excess of the reportable quantity must be reported to the National Response Center (1-800-424-8802).

Each employer is responsible for maintaining employee exposure records in accordance with 29 CFR 1910.1020. Additionally, employers should track incidents that do not rise to the level of a recordable injury or illness for the purposes of proactive accident prevention.

Protecting the safety and health of public and private sector workers who respond to disasters poses several challenges. Many different groups of workers may respond and be exposed to hazards not initially well defined or evolving over time. As risk assessment information becomes clearer, workers can be better advised of potential hazards. In some cases it may be necessary to collect further health information to track potential health effects. If indicated, employers may provide appropriate medical screening including biological monitoring. In order to provide these health communication and prevention services, employers should retain reliable records about the timing, location and nature of the employee activities and how the worker can be contacted once he/she has left the disaster location. Reliable contact information is especially important because the temporary nature of disaster response work often means that the routine mechanisms that employers use to communicate with workers in a typical workplace setting may not be in place.

Worker Rights and Responsibilities

It is the responsibility of the employer (agency or contractor) to provide a safe and healthful workplace for their employees. It is the responsibility of employees to comply with established work rules and to use assigned personal protective equipment.

Employees who identify hazards shall immediately notify their supervisor. Employees may refuse to perform tasks that create an imminent danger. Employees have a right to complain about unsafe or unhealthful working conditions to OSHA or other agencies with jurisdiction. Employees who file complaints will not be subject to any discrimination as a result of them exercising their rights.

All workers must adhere to the following work rules:

- Follow their employer's safety & health policies at all times.
- Follow supervisors' instructions and adhere to the chain of command.
- Follow personnel accountability instructions; check-in and check-out.
- Obtain vaccinations in conformance with the employer's medical direction.
- Promptly report all injuries, accidents, and near misses. Seek medical attention as needed.
- Report all unsafe conditions. Do not perform tasks until proper safety & health controls have been put into place. Employees may refuse to perform tasks that expose them to an imminent danger.
- Wear all personal protective equipment (PPE) needed for the task.
- Maintain constant awareness of your surroundings.

Situation Assessment

Note: Each HASP should have a section on situation awareness pertinent to the specific event. The text used in this Midwest flood HASP is appended below to serve as a template for subsequent documents.

The Midwest flooding incident response began in early June after severe thunder showers and torrential rain. The five affected states include Iowa, Missouri, Illinois, Wisconsin, and Indiana. The National Response Coordination Center has scaled back operations, which are now primarily accomplished through the Joint Field Offices throughout the region. Although the majority of affected areas have transitioned to recovery operations, some areas are still engaged in flood-fighting response efforts.

Job Hazard Analysis (JHA)

Each agency and contractor shall prepare JHAs for their operations. The JHA is typically developed and prepared by a team of personnel familiar with the specific task or operation. Generally accepted principles of risk management and hazard control shall be applied. The JHA will focus on risks to worker safety and health. Each identified hazard (actual or potential) will be addressed with appropriate mitigation strategies (i.e., hazard

controls). JHAs should serve as stand-alone documents as a reference for individual workers and supervisors performing the task or operation. The hazard control measures must be specific, clear, concise, and practical. Any required permits (i.e., confined space entry, hot work, etc.) shall be attached to the JHA. The employer shall keep copies of all JHAs for review by occupational safety & health professionals and by agencies having jurisdiction. The Specific Safety and Health Protection section of this HASP contains additional information that can be found on OSHA's homepage, <http://www.osha.gov/OshDoc/flood-tornado-recovery.html>, which can be used in drafting JHAs.

Exposure Monitoring

Exposure monitoring shall be performed based on a health risk assessment conducted by a qualified person². Personal monitoring should be the primary means of assessing worker exposure. However, in many cases direct reading or grab sampling can be used. In those cases documentation must clearly depict what the sampling represents. Employers should perform sampling if there is a doubt as to employee exposures. When samples are taken that represent an individual's exposure, contact information for that person should be obtained to ensure they can be notified of results and follow-up actions. Such personal information or identifiers should be removed before the sampling data is shared with other federal agencies or external entities.

Consideration should be given to contaminants likely to be present in the circumstances encountered. Building materials may contain silica, asbestos, or lead. Subsequent to a flood event, damp conditions and flooding contribute to the growth of mold³. When specific chemicals are known or suspected to be present in certain locations, the sampling protocol should address them. Screening may be conducted to determine if contaminants are present. Full-shift or short-term exposure personal monitoring of employees shall be conducted to determine actual occupational exposure levels.

It is important not to confuse occupational exposure limits with standards established for the protection of the public or the environment. Sampling strategy, risk communication, and public/media information should take this difference into account.

In addition to sampling performed by various agencies during their response activities, each employer (agency or contractor) shall conduct exposure monitoring (personal sampling or monitoring) as follows:

- When required by a specific standard (i.e., OSHA standards for lead, asbestos, benzene, etc.)
- When worker exposure is reasonably anticipated to be greater than the OSHA (or other applicable agency) action level for that substance (or 50% of the Permissible

² OSHA defines a "qualified person" as "one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project." (29 CFR 1926.32(m))

³ It should be noted that there are no regulatory standards that set quantitative exposure limits for mold.

Exposure Limit (PEL) or Threshold Limit Value (TLV)⁴ if no action level is specified)

- When necessary to assess and evaluate worker exposure, or to resolve worker complaints or concerns
- When necessary to verify the adequacy of the hazard control methods implemented

Sampling results will be provided to affected employees and shared among the cooperating agencies and contractors via the data collection mechanism developed. (Reminder – remove employee personal identifiers when sharing results to other agencies or employers)

Hazard Control

Hazards should be addressed according to the hierarchy of controls, listed below in descending order of preference:

- Elimination or substitution: Not a viable option for most hazards created by a natural disaster, although it may be considered for introduced hazards, such as for materials or processes brought in during the recovery operation.
- Engineering controls: Physical steps to reduce or eliminate exposure to a hazard, such as installation of a guard on a machine.
- Work-practice or administrative controls: Work rules or procedures that lessen the probability of an injury or illness. An example would be the use of wet methods when feasible to avoid creating dust.
- Personal protective equipment (PPE): Provision of protective equipment and garments is the least desirable method of protection, but in many instances it may be the only option possible.

Emergency Medical Services and First Aid

First aid services and provisions for medical care shall be made available by the employers (agencies and contractors) for every employee. Employers shall evaluate work areas and make arrangements for swift access to emergency medical care. It should be noted that in some affected areas public hospitals and emergency rooms may not be open or may have degraded levels of service. Additionally, many areas do not currently have reliable 911 services or timely emergency service response. Where the availability of emergency services cannot be assured, employers shall make alternate arrangements to include contracting medical care providers (including on-site trailers if necessary), coordinating with other agencies that have assets available, or contracting with private ambulance services.

⁴ PELs are established by OSHA. TLVs are published by the American Conference of Governmental Industrial Hygienists (ACGIH).

Each agency and contractor shall develop and maintain a list of current emergency contact numbers, including police, fire, and EMS, as well as designated employer representatives to be notified in case of emergency.

Where employees may need to be decontaminated following exposure to chemical or biological hazards, the employer (agency or contractor) shall make arrangement for suitable facilities, including a reliable source of clean water. Quick drenching shower facilities and eye washes (providing clean water) shall be provided as needed for workers exposed to injurious or corrosive chemicals. If employees need to be transported by emergency medical services due to life-saving medical priorities prior to being fully decontaminated, the ambulance crew and receiving hospital personnel shall be informed of the patient's status and likely contaminants. If time permits, at least outer garments should be removed and gross decontamination performed. The patient may also be wrapped in a suitable barrier, if not medically contraindicated.

Work-related illnesses, injuries and fatalities are recorded according the OSHA's Recordkeeping requirements (<http://www.osha.gov/recordkeeping/index.html>). (See *Recordkeeping* section above.)

Personal Protective Equipment (PPE)

The use of PPE must be properly assessed. Equipment must be properly selected for the hazard, and properly fitted for the employee. Employees must be trained in the equipment's uses and limitations, as well as proper donning and doffing techniques. Equipment must be inspected before each use and repaired or replaced as needed. PPE shall be maintained and stored in a clean and sanitary manner. Employers shall maintain adequate supplies for timely replacement of lost, worn, or broken PPE.

The following PPE may be needed during recovery operations:

- Foot Protection: Steel toe / heavy duty work shoes or boots, with consideration given to water protection in flooded areas
- Eye & face protection: Safety glasses, goggles, full face shields, or other suitable protection
- Head protection: Hard hat or helmet, in areas where overhead falling object or electrical hazards exist
- Appropriate work clothing: Providing protection from cuts & abrasions, irritation, and sunlight. Consideration should be given to heat stress issues (i.e., light colored, loose-fitting garments). The use of sunscreen or sun block may also supplement clothing for protecting worker from sunlight.
- Hand protection: Gloves suitable for the tasks being performed (balancing dexterity versus protection). Considerations include biological hazards (bloodborne pathogens), chemical hazards, and physical hazards (abrasion, cuts & punctures, heat).
- Hearing protection: Earplugs, earmuffs, or a combination, should be used when employees are exposed to high levels of ambient noise. Reference OSHA 29 CFR 1910.95.

- High visibility garments: While such garments may make a worker more conspicuous to approaching drivers, they do not offer any actual protection from traffic. Such garments must be used in conjunction with other traffic safety means.
- Respiratory protection: Where nuisance levels of dust or mold are present, use of an N95 filtering face piece is recommended. Charcoal-impregnated masks may provide additional comfort against nuisance odors. When airborne contaminants exceed, or may reasonably be expected to exceed, exposure levels the use of respiratory protection shall be required. Where contaminants such as lead, asbestos, or silica, are present, N100 or P100 air purifying respirators shall be used. Where other contaminants exist, specific filters or cartridges appropriate to the contaminant shall be used; combination cartridges and filters shall be used when multiple contaminants are present. Surgical masks and dust masks that are not NIOSH approved are not considered suitable respiratory protective devices. The use of respirators requires compliances with OSHA 29 CFR 1910.134, including the development of a Respiratory Protection Program, employee training, and fit testing. Voluntary use of respirators must conform to 29 CFR 1910.134(c)(2) and Appendix D. The use of self-contained breathing apparatus (SCBA) or other supplied-air respirators is beyond the scope of this HASP. The employer's Respiratory Program Administrator must address such uses individually.
- Protection from drowning: Employees working on, over, or near water that presents a drowning hazard shall wear appropriate life vests. Additional protections, such as a life saving skiff and a ring buoy shall be provided in accordance with 29 CFR 1926.106.
- Protection from insects, snakes, and plant life: Appropriate precautions such as high boots, thick gloves, skin covering, repellents, etc. shall be provided to employee potentially exposed to hazardous animals, insects, and plant life.

Specific circumstances, such as structural firefighting, confined-space entry, and response to hazardous materials releases, require specific PPE ensembles and procedures that are beyond the scope of this HASP. Operations such as cutting, burning, or welding also require additional PPE and procedures. Agencies or contractors addressing such hazards must conduct individual JHAs and assign appropriate PPE in conformance with applicable standards (i.e., OSHA, NFPA, etc.).

Training

All agency and contractor personnel engaged in response operations must be trained to recognize and avoid hazards. This training is composed of several elements:

- General training for disaster site workers
- Site-specific training
- Task specific training, including any mandated training requirements
- Pre-deployment and pre-job briefings

Site-specific training includes an overview of conditions specific to the locales where the employee will be deployed.

Task-specific training includes items such as hazard communication, PPE, use of tools, safety at elevations, etc. Training that is mandated by various agencies, such as OSHA, EPA, USCG, DOT, etc., shall be provided in accordance with those agencies' guidelines.

Pre-deployment and pre-job briefings are conducted on a daily basis by the worker's immediate supervisor to cover the day's work plan. The information available at <http://www.osha.gov/OshDoc/flood-tornado-recovery.html> should be used in developing appropriate safety and health training for employees.

Employers shall provide competent and qualified persons to provide the training as required by various standards. Although specific OSHA standards may indicate required training, as a minimum, employers should provide the following information to employees as part of safety and health training:

- 1) what are the hazards associated with the job and/or task
- 2) what are the health effects associated with those hazards
- 3) what are the control measures in place to reduce exposures or prevent injuries
- 4) what should an employee do if they suspect they are over-exposed to a hazard or if they become injured
- 5) what type of personal protective equipment is available or required, how does the employee properly put on and take off the PPE, and what are the limitations, maintenance requirements, and proper use of that PPE

Employers (agencies and contractors) shall maintain records of employee training available for inspection by agencies having jurisdiction. Training records include documentation such as, but not limited to, training certificates, attendance rosters, course curriculum matrices, etc.

The database or roster of rescue, recovery and reconstruction workers created by the training program could also have a supplemental benefit. The database would contain contact information to allow a range of additional services if needed. These might include 1) communication with workers about potential hazards identified at a later date, 2) tracking and investigating possible trends, and 3) targeting workers/volunteers that fit certain criteria for follow up. See the prior Recordkeeping section for additional details.

Safety Monitoring

Safety monitors are necessary to assure that the site safety plan is being implemented and also to determine if the job hazard analysis covered all the hazards. Field monitors can also make sure that control measures and PPE are effective.

General Safety & Health Provisions

Incident management and responder safety

Response operations should follow the principles of the Incident Command System (NIMS-ICS). The following criteria should be addressed:

- Unity of command
- Span of control
- Common terminology and plain language
- Personnel accountability
- Management by objective (planning cycle, incident action plans)

In addition to the safety & health manager responsible for administering their HASP, each agency and contractor shall designate a safety officer to oversee field operations. One or more assistant safety officers may be appointed as needed to cover large geographic areas, multiple shifts, or if specialty knowledge is needed for specific tasks. Agencies and contractors may coordinate the appointment of safety officers to maximize the use of safety and health resources.

Establish operational zones as needed:

- Hot zone or exclusion zone
- Warm zone or contamination reduction zone
- Cold zone or support zone

Establish sufficient perimeter security and access control to keep unauthorized persons out of hazardous areas.

Provide medical care and rehabilitation as needed to support the responders, following the guidance contained in this HASP.

Chemical hazard communication

Each agency and contractor will establish a hazard communication program in conformance with 29 CFR 1910.1200. Material safety data sheets (MSDS) will be maintained by the individual employers, and will be shared upon request with employees, other agencies, and other contractors. Employees shall be informed of the existence and location of MSDSs. Containers of chemicals shall be labeled with the contents, hazards, and target organs.

Hazardous materials spills, leaks, and releases (including oil)

The release, spill, or leak of any hazardous material (including oil) shall be reported to US EPA and/or USCG for appropriate handling. The cleanup of hazardous materials releases will be handled by properly trained and protected individuals in accordance with the requirements of 29 CFR 1910.120.

In case of unanticipated discoveries, such as tanks, drums, or cylinders of hazardous materials, or unexploded ammunitions, all work shall cease in the vicinity, the area shall be cordoned off, and appropriate public safety agencies shall be summoned.

Material handling and storage

The operation of powered industrial trucks shall conform to 29 CFR 1910.178, including provisions for operator training. Material storage shall conform to 29 CFR 1926.250.

Confined Space Entry

Work involving confined space entry shall conform to 29 CFR 1910.146. Any agency or contractor that will be performing confined space entry shall develop a specific plan and conduct a JHA prior to commencing work. Plans shall include space evaluation and established acceptable entry conditions; a permit system; training for entrants, attendants, and supervisors; atmospheric monitoring; and rescue / emergency services.

Heat and Cold stress⁵

Excessive heat presents a serious hazard for employees, especially when coupled with high humidity. When the body is unable to cool itself by sweating, several heat-induced illnesses such as heat stress or heat exhaustion and the more severe heat stroke can occur, and can result in death. High temperature and humidity, direct sun or heat, limited air movement, physical exertion, poor physical condition, some medicines, and inadequate tolerance for hot environments are all factors that can lead to heat stress.

To help prevent heat stress, workers and supervisors should be familiar with the signs and symptoms of heat-related illnesses, and should be monitored for same. Direct sun or other heat sources should be blocked, if possible. Cooling fans, air conditioning, or misting should be provided when possible. Regular rest periods should be permitted. Workers should drink about one cup of water every 15 minutes; avoid alcohol, caffeinated drinks, or heavy meals. Workers should wear lightweight, light-colored, loose-fitting clothes.

If a worker is exhibiting the signs or symptoms of heat-related illnesses, summon emergency medical services at once. While waiting for help to arrive, move the worker to a cool shaded area. Loosen or remove heavy clothing. Provide cool drinking water. Fan and mist the worker with water.

Cold stress may also become an issue under some circumstances surrounding flood response. This may become a concern where personnel become soaked with spray or water during night time or cloudy/breezy conditions. Additionally, flood response operations may extend into the late fall or early winter months when temperatures moderate even in the southern United States. Under such circumstances provisions to avoid hypothermia will need to be instituted.

⁵ Reference: OSHA Publication 3154, Heat Stress Quick Card.

Fall protection and falling object protection

Employees shall be protected from falls greater than six feet to a lower level. Fall protection such as guardrails, coverings over floor holes, or personal fall arrest systems shall be installed conforming to 29 CFR 1926 Subpart M.

A qualified person must determine if the walking / working surface is adequate to support the weight of workers, tools, and materials. This is especially important in areas that have been compromised by floodwaters or suffered structural damage from high winds.

Use of scaffolds shall conform to 29 CFR 1926 Subpart L. Use of ladders shall conform to 29 CFR 1926 Subpart X. The use of aerial lifts and scissor lifts shall conform to the applicable portions of 29 CFR 1926 as well as relevant ANSI standards.

Workers shall pay extra attention to the walking / working surfaces to minimize slip/trip/fall hazards. Extra care should be exercised when stepping into areas that are unstable or uneven, such as debris field, or where the surface cannot be visualized (i.e., if covered by water).

Objects that may dislodge and fall, especially broken glass, present a serious hazard to employees. Whenever possible, such objects or glass should be removed before employees work beneath them. If objects cannot be removed, then controls such as debris netting, sidewalk sheds, canopies, or catch platforms shall be installed.

Note: Specific applications, such as Blue Tarping, are addressed in a separate section of this HASP.

Demolition

In addition to the requirements for heavy equipment use, demolition activities shall conform to 29 CFR 1926 Subpart T. Employees shall not enter seriously damaged buildings or structures until a qualified person determines their safety and integrity. A survey shall be conducted prior to the commencement of demolition. All utilities shall be disconnected.

Heavy / construction equipment

A competent person shall inspect all equipment prior to use. Deficiencies shall be corrected before use, or the equipment must be tagged out of service. Operators shall have the experience, skills, and knowledge to safely operate the equipment assigned. While operating the equipment, operators shall not engage in any activities that may distract them from the task at hand. Equipment used for demolition shall be equipped with a demolition cage, wire screen, or equivalent structure to prevent materials or debris from breaking cab windows. Operable audible reverse indicators (i.e., backup alarms) shall be installed on all equipment. Spotters shall be used whenever necessary based on

site conditions and visibility from the cab. Any swing radius that presents a hazard to employees shall be barricaded or otherwise protected.

Ground personnel and pedestrians shall maintain a safe distance from heavy equipment, taking care to stay out of blind spots. Personnel shall wear high visibility garments, and should make eye contact with the operator before approaching.

Heavy equipment that is worked long shifts for an extended period of time may suffer breakdowns. Breakdowns and machine failures present a safety hazard as well as slowing the overall pace of work. Sufficient downtime for preventive maintenance needs to be considered during the planning cycle.

Also refer to specific sections of this HASP addressing cranes and rigging.

Hand and power tools

Tools shall be inspected prior to use. Damaged or defective tools shall be repaired or taken out of service. Tools should only be used for their intended purpose.

Be aware of carbon monoxide (CO) build-up if internal combustion engines are used in areas with limited ventilation.

Chain Saws

Before starting, check controls, chain tension, bolts, and handles to ensure proper function and adjustment. Start the saw on the ground or on another firm support with the brake engaged. Plan the cut; watch for objects under tension; use extreme care to bring objects safely to the ground. Plan where the object will fall; ensure that the fall area is free of hazards; avoid felling an object into other objects; and ensure that a clear retreat path is provided. Look for nails, spikes, or other metal objects before cutting. Clear away dirt, debris, small tree limbs, and rocks from the chain saw's path. Keep hands on handles and maintain secure footing. To control or prevent chain saw kickback, push-back, and pull-in, use saws that reduce these dangers through chain breaks, low kickback chains, etc.; do not use the saw's tip and keep any tip guards in place. Do not cut directly overhead. Shut off/release throttle prior to retreating. Shut off or engage chain saw brake when carrying a saw more than 50 feet or crossing hazardous terrain. Use Chaps, hearing protection, eye protection (for impact hazard), and fall protection as needed. See <http://www.bt.cdc.gov/disasters/chainsaws.asp> for more information.

Working On or Near Power Lines:

Several workers have died of electrocution following natural disasters. Workers and employers must take extreme caution while attempting to restore power or clear areas near downed power lines.

If you are working on or near power lines, the following steps may save your life:

- Ensure that all employees assessing and repairing electrical installations are qualified; a qualified employee is trained in and has demonstrated familiarity with the construction of the equipment to be accessed/repared and the hazards involved with their work.
- Lines thought to be deenergized may become energized for a number of reasons, including through backfeed from portable generator use; ensure that grounding procedures are accomplished and that all sources of electricity are isolated.
- Treat all power lines as energized until you have followed the required procedures for personally de-energizing and testing them with an appropriate testing device. Do not rely on "fuzzing" to determine if a power line has been de-energized.
- Verifying that a line is not energized may not ensure your safety. You must also ground lines on both the load and supply sides of the work area. Grounding is necessary to protect you from the hazards of feedback electrical energy from a secondary power source, such as a portable generator.
- When restoring power in underground vaults, added precautions are necessary to avoid explosion hazards. As vaults containing electrical connections are drained or pumped out, and energized, potentially explosive gases may form. If you are required to work in a utility vault, refer to the Confined Spaces section of this HASP.

Electrical safety

All electrical equipment, including generators, extension cords, lighting, and power tools, shall meet applicable OSHA, NFPA, and NEC standards. Ground fault circuit interrupters (GFCI) shall be installed on all 15A and 20A temporary wiring circuits.

Be aware of carbon monoxide (CO) build-up if generators are used in areas with limited ventilation.

Contractor staging areas

Contractors shall plan for and establish staging areas consistent with their assigned work. Staging areas shall provide sufficient room for the parking of equipment and vehicles. Office space, sanitation facilities, medical and first aid care, storage for PPE and other safety equipment, and other relevant factors shall all be taken into account. To the extent possible, the staging area should be laid out with traffic flow and pedestrian safety in mind. Staging areas should be provided with adequate lighting and security, and be graded and constructed for local weather conditions. If possible, staging areas should be located to minimize travel time to the work location.

Worker transportation and parking

Worker transportation to, and around, the jobsite may present safety hazards that can be reduced through proper planning.

Workers who drive in the course of their duties shall possess valid licenses appropriate for the vehicles they are driving (including a commercial driver's license, if required). Drivers shall comply with all applicable traffic safety regulations. Employers shall ensure compliance with state laws governing the use of seat belts. Vehicles, including watercraft, should be equipped with a sufficient number of seats for each passenger.

Extra care should be exercised when driving on roads that may have been damaged by the storm or flood waters. Roads may be washed out, undermined, or impassable. If possible, avoid driving into standing water due to the potential for unseen hazards. Be alert for debris and downed power lines. Traffic may be heavy, especially around checkpoints. Traffic signs may be knocked down or not visible, and traffic signal lights may be inoperative. Street signs and landmarks may not be available. Allow extra time when traveling and drive defensively. The use of cell phones while driving a vehicle is discouraged except under emergency circumstances.

Vehicles, including watercraft, should be equipped with the necessary emergency supplies depending on the application and distance from assistance. This may include flares/warning triangles, provisions to repair flat tires (e.g. Fix-a-Flat, portable air compressor, etc.), and first-aid kits.

Personnel will be provided with reflective safety vests if they will be working in high traffic areas.

USCG approved Personal Flotation Devices (PFD, life vests) will be provided to, and worn by, personnel involved with duties afloat.

Sufficient parking areas should be arranged for workers in a location convenient to where they report for work. Parking areas shall be adequately lit and graded.

Work Zone Safety

Personnel will be provided with reflective safety vests if they will be working in high traffic areas. Traffic management plans are necessary in highly congested areas such as debris sites. The employer should consult the Manual on Uniform Traffic Control Devices (MUTCD) for more detailed information on additional precautions.

Fire safety

Adequate fire extinguishers shall be provided at work sites and/or on work vehicles. JHAs should take into account the potential for fire and the need for a fire prevention plan. Consideration should be given to impediments such as limited public water supply (i.e., hydrants out of service, low water pressure), lack of 911 service, and delays in fire department response time.

When hot work is performed, a fire watch shall be provided. Hot work shall not be performed where hazardous atmospheres exist.

Safe storage areas for flammable and combustible liquids shall be provided. Such areas shall be clearly marked. Ignition sources shall be at least 25' away from such areas; smoking shall be prohibited. Containers shall be bonded and grounded during dispensing.

Smoking shall be prohibited in areas where there is a fire hazard, as well as where smoking may cause ingestion of contaminants.

Work-rest regimen, fatigue

Extended work shifts, unusual work hours, and lack of sleep all contribute to fatigue. Fatigue increases the likelihood of inattentiveness, which may cause accidents. Fatigue also contributes to stress. Employers (agencies and contractors) should take fatigue issues into account when scheduling work shifts.

A work-rest regimen is also an important element in the prevention of heat stress.

Psychological First Aid

Workers exposed to a traumatic incident, such as the widespread devastation wrought by a flood or the sight of disaster victims, may suffer psychological stress. It is important to recognize that this reaction is normal, and such feelings should be addressed and not ignored. Workers should be encouraged to talk about their feelings, maintain normal eating and sleeping habits, try to exercise and eat well balanced meals, drink plenty of non-caffeinated/non-alcoholic beverages, and take breaks whenever possible. Workers should communicate with friends, family, and loved ones, and also reach out to community- or faith-based organizations. Employers (agencies and contractors) should make available counseling and encourage workers to make use of it. For resources on this issue see:

http://www.osha.gov/SLTC/emergencypreparedness/resilience_resources/index.html

Alcohol and drug abuse

Persons who are under the influence of alcohol, certain prescription medications, or illicit drugs may present a safety hazard to themselves and others. Employers (agencies and contractors) shall establish policies governing alcohol and drug abuse. Operations that are under the jurisdiction of the Department of Transportation shall also comply with their regulations regarding alcohol and drugs.

Animal Bites, Stings and Aggressive Animal Behavior

Agencies must ensure that employees have training and access to the following preventive items.

- Use insect repellent containing DEET or Picaridin on exposed skin and wear long-sleeved pants and shirts.
- Discuss hazardous wildlife (e.g., alligators, poisonous snakes) concerns with personnel familiar with these matters (e.g., game wardens, animal control officers).
- Inspect areas for nests and stray animals.
- Remove all nearby sources of stagnant or standing water.
- Assume that all snakes are poisonous and that all animals are rabid.
- Be on guard for stray or wild animals, as they can exhibit unpredictable or aggressive behavior.
- Unless properly trained, do not attempt to take custody of animals—watch them from a safe distance while contacting animal rescue/control personnel.
- Be cautious about where you place your hands and feet. Do not put your hands in holes or under objects (e.g., lumber, scrap metal, overturned boats) without checking to see if snakes, insects, or other animals are present.
- Do not sit or lay down in areas where snakes, insects, or other animals could be present (e.g., wood piles, high vegetation).
- Wear proper foot gear, such as high-top leather boots and leather gloves when handling materials where snakes, insects, and other animals may have nested (e.g., firewood, lumber, rocks, construction debris)
- Inspect and shake out clothing and shoes before getting dressed.
- Deer ticks are carriers of Lyme disease. When working in high grass, cover exposed skin with long sleeves and pants as weather permits. Report all tick bites to medical personnel.

Contact with Poisonous Plants

Agencies must ensure that employees have training and access to the following preventive items.

- Train employees on hazardous plant recognition.
- Keep rubbing alcohol accessible, as it may remove the oily resin from plants such as poison ivy up to 30 minutes after exposure.
- When appropriate, safely clear vegetation from areas where personnel are working and living (e.g., construction trailers, base camps)
- Use gloves and wear long pants and long-sleeved shirts when possibly contacting poisonous plants.
- Use a barrier cream formulated to protect against poison ivy/oak.

Sanitation

Employers (agencies and contractors) shall provide or arrange for adequate facilities for their workers (hand washing and restrooms). The exercise of good personal hygiene can help minimize worker exposure to health hazards and contaminants.

- Workers should wash their hands before eating, drinking, or smoking, and both before and after using the toilet.

- Workers should avoid creating dust where feasible (e.g. use wet methods), work upwind whenever possible, and use appropriate PPE per their employer's JHAs. Replace PPE that is worn or torn.
- Workers should seek medical attention or self-treat any minor wounds, as appropriate.
- Workers should be current on all recommended vaccinations, per their employer's medical direction.
- Workers should avoid eating, drinking, or smoking in areas containing debris, floodwaters, or sludge remaining in previously flooded areas.
- Only drink water from sources that are proven to be potable. Avoid consuming food or beverages that were exposed to flood waters or perishables that may have spoiled.
- Exercise good housekeeping. Minimize accumulations of trash and keep garbage in closed containers. Proper housekeeping also reduces potential slip/trip/fall hazards.
- Temporary labor camps should conform to the requirements in 29 CFR 1910.142.

Illumination

Adequate lighting shall be provided. Refer to 29 CFR 1926 Subpart C for guidance.

Specific Safety & Health Protections

An outline of basic safety & health hazards and suggested protective measures specific to a range of identified tasks and operations applicable to the most common recovery tasks are consolidated on OSHA's website at <http://www.osha.gov/OshDoc/flood-tornado-recovery.html>. This information is intended to form the baseline for safety & health protection and should be consulted when conducting a JHA. The tasks are not intended to be all-inclusive but serve as a reference for agencies and contractors conducting their own JHAs. Non-routine tasks require specific JHAs. Referenced and other applicable standards should be consulted for all relevant details. In case of doubt, consult with a qualified safety and health professional or the local OSHA representative.