__________ COUNTY
DEBRIS MANAGEMENT
PLAN
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### ACRONYMS USED IN THIS PLAN

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<th>Description</th>
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<tr>
<td>C &amp; D</td>
<td>Construction and Demolition</td>
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<td>DAT</td>
<td>Damage Assessment Team</td>
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<td>DMC</td>
<td>Debris Management Center</td>
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<td>EMA</td>
<td>Emergency Management Agency</td>
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<td>EOC</td>
<td>Emergency Operation Center</td>
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<td>EOP</td>
<td>Emergency Operations Plan</td>
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<td>EPA</td>
<td>Environmental Protection Agency</td>
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<td>EPD</td>
<td>Environmental Protection Division</td>
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<td>ESF</td>
<td>Emergency Support Function</td>
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<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
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<td>MDOT</td>
<td>Mississippi Department of Transportation</td>
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<td>MEMA</td>
<td>Mississippi Emergency Management Agency</td>
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<tr>
<td>GIS</td>
<td>Geographical Information System</td>
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<tr>
<td>GPS</td>
<td>Global Positioning Satellite</td>
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<td>HHW</td>
<td>Household Hazardous Waste</td>
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<td>HW</td>
<td>Hazardous Waste</td>
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<tr>
<td>MOU</td>
<td>Memorandum of Understanding</td>
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<td>NIMS</td>
<td>National Incident Management System</td>
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<td>OPCON</td>
<td>Operational Condition</td>
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<td>PIO</td>
<td>Public Information Officer</td>
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<tr>
<td>POD</td>
<td>Point of Distribution for commodities</td>
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<td>GCPWD</td>
<td>County Public Works Department</td>
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<td>RACM</td>
<td>Regulated Asbestos Containing Material</td>
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<td>ROW</td>
<td>Rights-of-Way</td>
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<td>SOP</td>
<td>Standard Operating Procedures</td>
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<td>TDSR</td>
<td>Temporary Debris Storage and Reduction</td>
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<tr>
<td>USACE</td>
<td>U.S. Army Corps of Engineers</td>
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DEFINITIONS

Debris Classification:
Debris will be segregated by type to facilitate the debris management process. The categories of debris established for recovery operations have been standardized and are defined as follows:

**Appliances:** Appliances include air conditioners (window and central), clothes dryers, clothes washers, dehumidifiers, dishwashers, freezers, furnaces, kitchen ranges, microwave ovens, ovens/stoves, refrigerators, thermostats, water heaters.

**Burnable Materials:** Burnable materials will be of two types with separate burn locations:

* **Burnable Debris:** Burnable debris includes, but is not limited to, damaged and disturbed trees; bushes and shrubs; broken, partially broken and severed tree limbs; and bushes. Burnable debris consists predominately of trees and vegetation. Burnable debris does not include garbage or construction and demolition material debris.

* **Burnable Construction Debris:** Burnable construction and demolition debris consists of non-creosote structural timber, non-pressure treated lumber and other wood products, and other materials designated by the coordinating agency representative.

**Construction and Demolition Waste:** Building materials including wood, metals and rubble which result from construction or demolition of structures. Such waste shall also include trees.

**Garbage:** All solid and semisolid, putrescible animal and vegetable wastes resulting from the handling, preparing, cooking, storing, serving and consuming of food or of material intended for use as food, excluding useful industrial byproducts, and shall include all such substances from all public and private establishments and from all residences.

**Hazardous Limbs (Hangers):** A hazardous limb must be located on improved public property, greater than two inches in diameter at the point of breakage, and still hanging in a tree and threatening a public-use area.

**Hazardous Trees:** A tree is considered hazardous if its condition was caused by the disaster; it is an immediate threat to lives, public health and safety, or improved property; it has a diameter breast height of six inches or greater; and one or more of the following criteria are met:
- it has more than 50% of the crown damaged or destroyed;
- it has a split trunk or broken branches that expose the heartwood
- it has fallen or been uprooted within a public-use area
- it is leaning at an angle greater than 30 degrees
**Hazardous Waste:** A product used for residential purposes including but not limited to the following materials: motor oils, motor oil filters, gasoline and diesel additives, degreasers, waxes, polishes, pure solvents, lacquers, thinners, caustic household cleaners, spot and stain removers with petroleum base, petroleum-based fertilizers, insecticides, herbicides, and other lawn-care products, and paints with the exception of latex-based paints; does not include laundry detergents or soaps, dishwashing compounds, chlorine bleach, personal care products and soaps, cosmetics, and medications.

**Non-burnable Debris:** Non-burnable construction and demolition debris includes, but is not limited to, creosote timber, pressure-treated lumber, asbestos, plastic, glass, rubber and metal products, sheet rock, roofing shingles, carpet, tires, and other materials as may be designated by the coordinating agency. Garbage will be considered non-burnable debris.

**Regulated Asbestos Containing Material (RACM):** RACM includes any friable asbestos material, Category One non-friable material that has become friable, Category One material that has or will be subjected to sanding, grinding, cutting or abrading, Category Two material that is likely to become or has become crumbled, pulverized or reduced to powder during demolition or renovation, (Refer to 40 CFR 61 Subpart M) and any material which contains more than one percent asbestos by weight.

**Stumps:** Stumps will be considered tree remnants exceeding 24 inches in diameter and remaining in the ground, but no taller than 18 inches above-grade level, to include the stump ball. Any questionable stumps shall be referred to the designated coordinating agency representative for determination of its disposition. Refer to FEMA Disaster Assistance Policy DAP9523.11 for information regarding the removal of hazardous stumps. (See Enclosure 13)

**Toxic Waste:** Materials containing poisons, biocides, acids, caustics, pathological wastes, and similar harmful wastes which may require special handling and disposal procedures to protect the environment and the persons involved in the storage, transport, and disposal of the wastes.

**Waste Tires:** A tire that is no longer suitable for its originally intended purpose due to wear, damage, or defect. Waste Tires do not include non-pneumatic tires.

**Ineligible Debris:**
Ineligible debris to remain in place includes, but is not limited to, chemicals, petroleum products, paint products, asbestos, and power transformers. Any material that is classified as hazardous waste, toxic waste, and ineligible debris shall be segregated from the remaining debris in such a way as to allow the remaining debris to be loaded and transported. Standing broken utility poles, damaged and downed utility poles and appurtenances, transformers and other electrical material will be reported to the coordinating agency representative. Emergency workers shall exercise due caution with existing overhead and
underground utilities and above ground appurtenances and advise the appropriate authorities of any situation that poses a health or safety risk to workers on site or to the general population.
COUNTY DEBRIS MANAGEMENT TEAM

, District 1 Supervisor
, District 2 Supervisor
, District 3 Supervisor
, Road Manager
, County Administrator
, County Engineer
, Assistant County Engineer
, County Surveyor
, Surveying Technician
, Engineering Technician
, Building Official
, EMA Director
, Fire Chief
, Outside Building and Grounds
, County Attorney
, Purchasing Clerk
, Information Technology
DEBRIS MANAGEMENT PLAN OVERVIEW

This plan was developed under the direction of the _________ County Board of Supervisors by the County Engineer in coordination with the County Emergency Management Director, the County Road Manager, and County Administrator from a sample approved Debris Management Plan recommended by FEMA. This plan shall be provided to provisional debris removal and monitoring Contractors to review and provide comments or recommendations as necessary. This plan was first adopted by the _________ County Board of Supervisors in 20___. Any and all revisions are submitted to the Board of Supervisors to be reviewed and approved in an official public meeting.

AUTHORITY

___________ County is required/responsible to prepare for in the event of a natural, technological or man-made emergency or disaster that threatens life, property or the environment of the citizens of this county. The Mississippi Emergency Management Law of 1995 as codified at Title 33, Chapter 15 of the Mississippi Code of 1972, Annotated, confers emergency powers on the Governor, the Mississippi Emergency Management Agency, and the executive heads of governing bodies of municipalities and counties of this state to meet that responsibility.

The mandated method for organizing and structuring large-scale emergency operations is the National Incident Management System (NIMS), which will be utilized in the implementation of this Plan.

GENERAL

The _________ County Debris Management Plan provides a unified and coordinated approach for all affected partners to facilitate and coordinate the removal, collection, and disposal of debris following a disaster; to mitigate against any potential threat to the health, safety, and welfare of the impacted citizens; expedite recovery efforts in the impacted area; and, address any threat of significant damage to improved public or private property. In so doing ________________ County will comply with all applicable Federal, State and local environmental, historical, safety, health, and other regulatory requirements for aspects of debris management. Examples of Federal requirements include the Clean Water Act, Resource Conservation and Recovery Act, National Historic Preservation Act, and Executive Orders 11988 (Floodplain Management) and 12898 (Environmental Justice.)

___________ County will adhere to the Debris Management Plan to respond to a natural or manmade debris-generating event. This plan is designed to identify agencies and activities that are involved in debris operations to ensure a coordinated response which achieves removal, storage, and final disposition of debris deposited along or immediately adjacent to public rights-of-way in the unincorporated areas of the County.
The County Debris Management Plan provides the framework to unify the efforts of County agencies and departments, local governments, non-governmental and voluntary organizations, and regional and federal partners involved in emergency debris cleanup operations. When properly implemented, the result will be a coordinated and comprehensive effort to reduce debris-related impacts of an emergency or disaster.

The _______ County Road Department is the primary agency responsible for the immediate restoration of public infrastructure following a disaster. The Road Department is responsible for implementing debris removal and disposal actions in order to save lives and protect property. The Debris Management Team will coordinate with the _______ County Emergency Management Agency in the permanent removal, storage, burning, grinding, and disposal of all disaster-related debris from public property. Private property storm debris must be placed on or immediately adjacent to the public rights-of-way to be eligible for pickup and disposal. Only when pre-approved and deemed in the public interest will _______________ County remove debris from private property. Debris located on private property is the responsibility of the owner. Long term recovery operations will provide information for private and business owners as to any assistance they may qualify for under the FEMA Individual Assistance Program which will be made available after resolving any of their insurance providers’ coverage in the event of a Presidential Declared Disaster.

**ENFORCEMENT**

Any person deviating from the provisions of this guideline will be required to submit, in writing within five (5) calendar days, an explanation for such deviation. The written explanation will be submitted to the County Debris Manager for final resolution, if required.

**PURPOSE**

- To expedite debris removal and disposal efforts that provide visible signs of recovery designed to mitigate the threat to the health, safety and welfare of residents and to allow the community to return to normal activities.
- To provide organizational structure, direction, and standardized procedures for the safe clearance, removal and disposal of debris caused by a major debris-generating event.
- To establish the most efficient and cost-effective methods to resolve disaster debris removal and disposal issues.
- To coordinate partnering relationships through communications and preplanning
with local, State and Federal agencies involved with debris management responsibilities.

- To implement and coordinate debris removal and disposal contracts to maximize cleanup efficiencies.

**SITUATION AND ASSUMPTIONS**

**Situation:**

Natural disasters such as hurricanes, tornadoes, and flooding create a variety of debris that includes, but is not limited to, trees and other vegetative organic matter, public utilities, power poles and lines, building/construction material, appliances, personal property, mud, and sediment.

The quantity and type of debris generated from any particular disaster will be a function of the location and kind of event experienced, as well as its magnitude, duration, and intensity. This plan is based on the debris-generating capacity of a Category 4 hurricane with wind speeds in excess of 131 miles per hour and heavy rainfall. A Category 4 hurricane will cause extensive damage. Storm surge will push sea levels 18+ feet above normal resulting in flooding of low-lying areas. The quantity and type of debris generated, its location, and the size of the area over which it is dispersed will have a direct impact on the type of removal and disposal methods utilized to address the debris problem, associated costs incurred, and how quickly the problem can be addressed.

**Assumptions:**

- A major natural disaster that requires the removal of debris from public or private lands, beaches and waters could occur at any time.
- The amount of debris resulting from a major natural disaster will exceed the County Road Department’s removal and disposal capabilities.
- The County will implement the provisional debris removal and the debris monitoring contract (previously procured in accordance with FEMA guidelines) for additional resources to assist in the debris removal, reduction, disposal, and monitoring process.
- The County will utilize intergovernmental assistance and volunteer resources.
- The Governor will declare a State of Emergency that will authorize State resources to assist in removal and disposal of debris.
- The Governor will request a Presidential Disaster Declaration if the
disaster exceeds both local and State resources.

• The Mississippi Department of Transportation (MDOT) will remove debris from all State routes. The County is not eligible for reimbursement.
CONCEPT OF OPERATIONS

The County Emergency Management Director will notify County departments and agencies upon notice of a EVENT or other situation that could generate large volumes of debris. Personnel assigned to the DMC staff will contact the Debris Manager for specific instructions prior to evacuating. The DMC staff must be knowledgeable of their specific responsibilities identified in the ________________ County Debris Management Plan, Standing Operating Procedures (SOPs), and the ________________ County Emergency Operations Plan.

The County Engineer will be designated as the County Debris Manager and the County Engineer will be designated the Assistant County Debris Manager for the duration of the disaster response and recovery operation. The Debris Manager will be responsible for establishing and staffing the DMC.

The DMC staff will coordinate the actions necessary to remove and dispose of debris using County, contractor, and intergovernmental assets. Specific actions will include the following:

- Make recommendations on County and contractor work assignments and priorities based on the three (3) County Debris Control Zones. (See Enclosure 1)
- Report on progress and prepare status briefings.
- Provide input to the County Public Information Officer (PIO) on debris removal and disposal activities and utility restoration.
- Coordinate county debris removal and disposal operations with those of State and Federal responders.
- Coordinate all issues pertaining to post-disaster cleanup of hazardous household waste and facilities with lead-based paint, asbestos, and/or other hazardous materials, if required.

______________ County will provide a safe work environment for its employees in accordance with Federal and State health and safety regulations. Debris management activities can be hazardous. Common sense safety considerations are necessary to reduce the chance of injury and possible loss of life. All personnel will follow the ________________ County Debris Management Plan Safety Policy attached hereto as Enclosure 16.

Information Technology will provide CAD support to staff as required.

All County staff may be assigned roles to include debris monitoring and other support functions.

The ________________ County Fire Department will respond to requests for Debris Management burn sites in accordance with appropriate state and local requirements to ensure safe burning.

All County staff will follow the State and Federal (2 CFR 200) Purchasing Laws when
purchasing needed material (including capital items), goods and services at the lowest possible price consistent with good quality. This goal should be met through procedures that ensure fairness to all potential suppliers and encourage competition. However, in the event of a declared state of emergency, the Board of Supervisors may suspend all or part of the purchasing requirements, or any policies and procedures promulgated thereunder, if the need arises. Specifically, State Law allows the Board of Supervisors to contract for public works projects during a declared state of emergency without competitive bidding and without advertising and posting notification of such contract. The ordinance also requires that the contract be entered in the minutes of the Board of Supervisors as soon as practicable along with a description of the emergency and need for such action.

As soon as practical, ________________ County’s solid waste contractor will resume pickup of household solid waste according to current procedures, routes, and removal schedules.

Private utility crews will handle all utility related debris such as power transformers, utility poles, cable, and other utility company material.

**DEBRIS MANAGEMENT CENTER ORGANIZATION AND STAFF**

The _____ County Debris Management Center (DMC) is organized to provide a central location for the coordination and control of all debris management requirements. To accomplish this mission the Debris Management Center will require the following positions:

- Debris Manager
- Assistant Debris Manager
- Debris Disposal Coordinator
- Debris Collection Coordinator
- Debris Monitoring Coordinator
- Reimbursement/Risk Coordinator
- Contractor Representative(s)
- Debris Monitors
- Administrative Staff

One of the primary functions of this Debris Management Plan is to clearly delineate a basic organization and assign specific responsibilities. Many issues will arise that are not specifically mentioned in this Plan during the conduct of debris operations. However, responsibilities are sufficiently defined so that unexpected issues can be assigned and resolved efficiently.

The Debris Management Center organizational diagram identifies the Debris Management Center staff positions required to coordinate the actions necessary to remove and dispose of debris using both County and contractor assets. Staff actions may include the following:

- Making recommendations for County and contractor work assignments and priorities based on the County’s Debris Management Zones; (See Enclosure
• Reporting on debris removal and disposal progress, and preparing status briefings;
• Providing input to the PIO on debris removal and disposal activities.
• Coordinating with the Cities on debris issues affecting both the County and the Cities;
• Coordinating County debris removal and disposal operations with solid waste companies;
• Coordinating with utility companies, as appropriate, to ensure that utility lines do not post a hazard to emergency work crews; and,
• Performing data entry into the Load Ticket Database.

Debris Manager
(____________, County Engineer)

The County Engineer will be designated as the County Debris Manager.

The County Engineer will be responsible for, but not limited to, the following with respect to any and all debris management activities:

Keep the National Incident Management System (NIMS) Section Chiefs briefed on the status of the debris clearing, removal, and disposal operations;

• Coordinate with appropriate local, county, state, federal agencies (FEMA, USACE, etc.), and others as appropriate;
• Develop and implement a notification system to rapidly notify appropriate staff as to where and when to report for duty. This system must be kept up-to-date to ensure key staff can readily be reached. The notification system will be maintained in such a manner that notification can be made at any time;
• Assign a Liaison Officer to the EOC to coordinate and respond to any requests from the EOC staff with regard to debris management activities. Actions will focus on keeping track of Debris Management Zone assignments and progress of the initial debris clearance (Phase 1) from emergency evacuation routes and critical facilities. The Liaison Officer will keep the EOC staff informed of any problems expected or encountered;
• Assure that _________________ County is represented at all meetings with other governmental and private agencies involved with the debris cleanup operation;
• Convene debris coordinating meetings at the EOC or DMC as appropriate; and,
• Ensure that the DMC is provided all needed administrative staff support.

The Debris Manager will also be responsible for:
• Coordinating all debris clearance and cleanup actions involving personnel and equipment. Actions will focus on keeping track of Debris Zone assignments and progress of the initial debris clearance from public roadways and critical facilities;
• Assigning a Debris Liaison Officer to the _________________ County EOC. All information pertaining to debris clearing, removal, reduction or disposal will be
forwarded from the EOC staff through the EOC Debris Liaison Officer directly to the Debris Collection Coordinator and/or Debris Disposal Coordinator;

• Exercising operational control over all County departments and outside agencies with respect to debris clearing, removal and disposal operations;
• Coordinating with the Purchasing Agent on all contracting questions; and,
• Coordinating with the Debris Disposal Coordinator and Debris Collection Coordinator on Debris Removal and Disposal Contract activities.

**Assistant Debris Manager**  
(______________, Road Manager)

An Assistant Debris Manager who will be responsible for the daily operational control of the DMC staff will support the County Debris Manager. The Deputy Debris Manager will receive current information on the severity of the disaster from the County EOC. Requests for debris removal from public facilities and roadways will be reviewed and approved by the Assistant Debris Manager before being directed to the appropriate DMC Representatives to implement the request.

The Assistant Debris Manager will keep the County Debris Manager and DMC staff informed on all ongoing debris management operations through, at a minimum, daily meetings and/or reports. The Assistant Debris Manager will maintain a daily journal and file on all debris related documents and issues. The Assistant Debris Manager will also be responsible for implementing a unified system of truck bed volume measurement (see Enclosure 4) for all trucks hauling debris.

**Damage Assessment Team (DAT)**  
(*County Engineer, Assistant County Engineer, Road Manager, Building Code Administrator, Buildings and Grounds Superintendent, Insurance/Risk Manager*)

The Damage Assessment Team (DAT) is responsible for coordinating impact assessment for all public structures, equipment, and debris clearance requirements immediately following a large-scale disaster in order to prioritize the impacted areas and resource needs. DAT will be comprised of Building Inspection, Engineering, and Property Appraisal staff under the direction of the County Engineer.

DAT personnel will identify debris impact on critical roads and make initial estimates of debris quantities as part of their duties. Based on information provided by the DAT, the County Debris Manager will set priorities and will issue assignments to clear debris from at least one lane on all evacuation routes and identify primary and secondary roads to expedite the movement of emergency service vehicles such as fire, police, and medical responders.

DAT personnel will conduct initial zone-by-zone air or windshield surveys to identify the types of debris and to estimate amounts of debris on the roadways and on private and public property. The results of the surveys will be provided to the DAT Supervisor (County Engineer) and to the EOC.
The County Debris Manager will establish initial priorities for debris clearance based upon the following as provided by the DAT:

- Extrication of people
- Egress for fire, police, and Emergency Operations Center (EOC) personnel
- Ingress to hospitals, jail and shelters
- Major traffic routes
- Major flood drainage ways
- Points of Distribution (PODs) and mutual aid assembly areas
- Government facilities
- Public Safety communications towers
- Debris storage sites
- Secondary roads
- Access for utility restoration
- Neighborhood streets
- Private property adversely affecting public welfare

During the debris clearance and removal process, the DMC staff will be responsible for coordinating with all utility companies as appropriate to ensure that utility lines do not pose a hazard to emergency work crews.

Debris Disposal Coordinator
(________________, Engineering Department)

The Debris Disposal Coordinator will coordinate and direct the use of debris storage and disposal sites according to existing guidelines. This position is also responsible for coordinating pre- and post-event environmental assessment of each debris storage site.

The Debris Disposal Coordinator will be housed at the DMC located at the Public Works Department or alternate location, if necessary. He will receive current information on the severity of the disaster from the Debris Manager located at the EOC. He will keep the Deputy Debris Manager, DMC staff, EOC representatives, and Debris Manager informed of cleanup progress and any problems encountered or expected.

Debris Collection Coordinator
(________________ Road Department)

The Debris Collection Coordinator will be advised of the extent of damage and resulting debris by the DMC.

The Debris Collection Coordinator will be responsible for the following:

- issuing appropriate directives to the appropriate Road Department crews, scheduling crews, establishing routes and route schedules;
- assigning crews to clear debris according to established priorities in specific Debris Zones;
- coordinating debris clearance from evacuation routes and access to critical facilities and other roadways within the unincorporated portions of the County;
- providing personnel and equipment to assist in the removal and disposal of
debris as directed by the County Debris Manager;
• maintaining a list of all available Road Department equipment and staff
  identified for possible debris removal and disposal missions;
• coordinating all Road Department and Contractor debris assignments; and,
• ensuring that required logistical support is available, including cell phone,
  transportation, etc.

Personnel and equipment from Parks & Recreation and local contractors will
supplement Public Works forces.

The Debris Collection Coordinator will keep the Debris Disposal Coordinator informed
of all ongoing debris management operations daily through meetings and/or reports.

**Debris Monitoring Coordinator**
________________________, Assistant County Engineer

The Debris Monitoring Coordinator will ensure that all contractor debris removal and
disposal operations are properly monitored utilizing County staff.

The Debris Monitoring Coordinator will be responsible for the following:
• coordinate all aspects of debris monitoring to include auditing of truck volumes
  through random checking throughout the debris collection, recycling and disposal
  processes;
• train and supervise the activities of the debris monitors to ensure that accurate
  load quantities are being properly recorded on the pre-printed load tickets; and,
• assign and collect the load tickets and forward them to the Risk/Reimbursement
  Coordinator.

**Debris Management Center Representatives**
(Road Department Administrative Staff and Engineering Administrative Staff)

Personnel with administrative skills are required to handle the routine Debris
Management Center office procedures. Their primary responsibilities will be:
• verify and enter debris load ticket information into a Load Ticket Database under
  the direction of the Risk/Reimbursement Coordinator; and,
• keep track of citizen complaints and requests for service via phone, internet or
  in person.

All requests for debris removal or disposal will go through the DMC Representatives
who will inform citizens of the removal schedule and forward emergency calls to the
Debris Collection Coordinator for assessment.

**EOC Debris Liaison Officer**
(Public Works Administrative Assistant)

The EOC Debris Liaison Officer will be located at the EOC and is responsible for
coordinating all requests for debris removal activities initiated by the EOC staff/Debris
Manager involving debris removal and disposal.
**Insurance/Risk Coordinator**

The Insurance/Risk Coordinator, under the direction of the County Finance Director, will provide for the collection and compilation of all labor, equipment hours, materials/supplies and expenditures related to disaster response and recovery. He/she will manage the receipt and submission of all debris contractor invoices and assure that the contractors establish and maintain insurance coverage as required by the contract.

**Public Information Officer**
*(County PIO)*

The Public Information Officer (PIO) will develop a proactive information management plan. Emphasis will be placed on actions that the public can perform to expedite the cleanup process. Flyers, newspapers, radio and TV public service announcements will be used to obtain the public’s cooperation for such activities as:
- separating burnable and non-burnable debris;
- segregating Household Hazardous Waste (HHW);
- placing disaster debris at the curbside;
- keeping debris piles away from fire hydrants, utilities, and out of ditches and roadways;
- reporting locations of illegal dump sites or incidents of illegal dumping;
- penalties for creating illegal dumps;
- segregating recyclable materials; and
- disseminating debris route clearing and pickup schedules through the local news media and County web postings.

**Debris Monitoring Team:**

The Debris Monitoring Team is made up of Load Site, Disposal Site, and Roving Inspection Monitors. The Team is under the supervision of the Debris Monitoring Coordinator.

**Load Site Monitors:**

County Load Site Monitors will be assigned to each contractor loading crew within designated Debris Zones. The Load Site Monitor maintains and initiates the load tickets (See Enclosure 7), and verifies that the debris being picked up is eligible under the terms of the contract.

Each monitor will store the load tickets in an enclosed clipboard. Load tickets will be provided in sequential order and must remain in order during the day. If a load ticket is damaged, the Load Site Monitor must write VOID on the entire ticket (including all carbon copies) and return the entire voided ticket to the Debris Monitoring Coordinator.
At the end of each day, all tickets must be accounted for.

**Disposal Site Monitors:**
A Disposal Site Monitor will be located at each inspection tower to verify the load and estimate the volume in cubic yards. The Disposal Site Monitors will estimate the cubic yards of debris in each truck entering the Debris Management sites or landfill disposal site and will record the estimated quantity on the pre-numbered debris load tickets. The Contractor will only be paid based on the number of cubic yards of material deposited at the disposal site as recorded on the debris load tickets.

A Disposal Site Monitor will also verify that the trucks exiting the sites are completely free of debris.

**Roving Inspection Monitors:**
Designated personnel will provide field inspections and will monitor all debris removal and disposal operations. A Roving Monitor will be assigned to periodically inspect each Debris Management site to ensure that operations are being followed with respect to local, State and Federal regulations.

The Roving Monitors will act as the “eyes and ears” to ensure that safety requirements stated in the contracts are closely monitored.
DEBRIS MANAGEMENT PHASES

A. Preparation

Ongoing, advanced planning is an important part of a debris removal plan. Preparedness actions taken far in advance of an actual event allow implementation of the plan to occur more easily during an actual event. The following paragraphs define three operational levels.

OPCON 4 - The possibility of an emergency or a disaster situation developing, requiring plan review, readiness, and monitoring the situation.

During OPCON 4, the County Debris Manager will do the following:
• Notify essential personnel of change in OPCON
• Review Debris Management Plan
• Check emergency equipment and supplies
• Conduct radio/cell phone communications checks
• May extend work shifts of emergency crews
• Monitor events

OPCON 3 - An alert, such as a watch or warning, or threat condition is issued to indicate development of a threat requiring notification to appropriate agencies or the activation of the Emergency Operations Center.

During OPCON 3, the County Debris Manager will do the following:
• Notify the Debris Management Staff of change in OPCON Levels
• Test communications plans
• Assure contact has been made with employees regarding return to work procedures
• Purchase/order/acquire supplies needed for debris monitoring operations
• Print necessary forms and prepare required databases
• Notify the Debris Removal Contractor of the situation and any logistical items needed

OPCON 2 - An emergency or disaster is imminent requiring notification to appropriate agencies or organizations with Emergency Support Function responsibilities and full activation of the Emergency Operations Center or alternative location.

• Initiate call-up of stand-by and extra (off-duty) personnel
• Implement Debris Management Plan
B. Damage Assessment

The Damage Assessment Teams will conduct initial zone by zone surveys either by air or ground to estimate amounts of debris on the roadways. The results of the surveys will be provided to the EOC. Based on its findings, the Debris Manager will set priorities and will issue assignments to facilitate the movement of emergency service vehicles.

Damage assessment will consider applicable Federal statutes, Executive Orders, and regulations established to protect the environment and preserve the Nation’s historic and prehistoric resources for the debris removal process. See Enclosure 19: Environmental and Historic Preservation Compliance

C. Debris Removal Operations

1. Phase 1: Initial Response (“Push”)

Based on the feedback received from field personnel, the Debris Manager will determine if the County’s in-house capabilities are sufficient to remove the quantity of debris generated by the event. If the Debris Manager determines that the quantity of debris generated exceeds the County’s capacities to clear, remove and dispose of it, then the Debris Manager may elect to activate a pre-positioned contract with a pre-approved qualified contractor to assist with debris operations. Prior to an event the Debris Manager may elect to activate the pre-event contract if he feels that the damage will be significant.

The Debris Manager will assign crews to each of the identified areas to begin the road clearance process. This operation usually occurs during the first 24 to 72 hours following an event. Note that Contractor clearing operations under a time and material contract must be limited to no more than 70 hours to comply with current FEMA guidelines, unless otherwise extended by FEMA.

If the Debris Manager determines the quantity of debris generated exceeds the County’s capabilities to clear, remove and dispose of it, then he may submit a request for State assistance to the County EOC.

The Debris Manager and staff will identify temporary debris storage and reduction sites (TDSRS) for debris. The DMC staff will notify the County EOC of the identified TDSR sites so that the site locations can be communicated to other government agencies and the public.

2. Phase 2: Recovery
A. General

The County Debris Manager will be responsible for implementing all Phase 2 activities within two to five days following a major debris-generating event. This will encompass all processes of debris removal and disposal for all unincorporated portions of the county. Phase 2 operations involve the removal and disposal of curbside debris by County and private contractor crews.

Phase 2 may be quite lengthy as disaster recovery continues until pre-disaster conditions are restored. Requests for additional assistance beyond the County’s resources will be submitted to the County EOC for action.

Phase 2 activities include:
• Activation of pre-qualified contract (unless already activated)
• Verification of truck bed volumes/dimensions used for hauling debris
• Notification to citizens of debris removal procedures
• Activation of TDSR site locations
• Removal of debris from rights-of-way and critical public facilities
• Movement of debris from TDSR site locations to permanent landfills

Recovery operations will begin after primary streets and evacuation routes are cleared by pushing debris from the traveled way to the curb or right-of-way. Recovery operations involve the removal and disposal of curbside or right-of-way debris by County and Contractor crews. All operations will be overseen by the Debris Monitoring Team.

Mixed debris will be collected and hauled from assigned Debris Management Zones to designated TDSR sites or to designated landfill locations. Clean woody debris will be hauled to the nearest designated vegetative TDSR site for eventual grinding or burning. Construction and demolition (C&D) and mixed debris will be hauled to the nearest designated C&D TDSR site for eventual sorting, if necessary, and/or hauling to a designated out of County landfill.

The County will identify one or more Household Hazardous Waste (HHW) drop-off locations within each of the Debris Management Zones. Residents will be encouraged to separate and transport HHW to these pre-identified drop-off points. Private Contractors will be directed to separate HHW at the curb and not haul it to a TDSR site. The Debris Manager will coordinate with local, State and Federal Environmental Protection Agency (EPA) officials for the collection of eligible industrial or commercial hazardous waste resulting from the disaster and final disposal of all HHW.

The County’s Solid Waste Contractor and Debris Management Contractor(s) will provide recycling of eligible materials. Recyclable materials will be collected prior to final disposal at a materials recycling facility. White goods will be separated from other metals and disposed of in accordance with State regulations. A County Debris Monitor will be located at all recycling and disposal locations.

Local energy providers and other utility crews will remove and dispose of all utility
related debris such as power transformers, utility poles, cable, and other utility company material.

The primary tracking mechanism for all debris loaded, hauled, and disposed of under this Plan will be the Load Ticket, which is shown in Enclosure 7. Load tickets will be initiated at debris loading sites and closed out upon drop-off of each load at a TDSR site or permanent landfill, and are to be used to document County force account and private Contractor haulers. Load tickets will serve as supporting documentation for private Contractor payment as well as for requests for FEMA reimbursement.

**Private Property Debris Removal:**

If Public Temporary Debris Storage and Removal Sites are established, the County Public Information Officer will publish the locations along with the times of operation and types of debris accepted. Private property owners will be advised to transport to the nearest TDSR collection site.

Dumping debris on private right-of-way or on property owned by others is illegal and will be aggressively enforced by ________________ County.

FEMA Public Assistance (PA) funds may be used for demolition and removal of debris under the authority of Section 403 of the Stafford Act (Essential Assistance). This section allows for the demolition of unsafe structures that pose an immediate threat to life, property, or public health and safety. The primary responsibility for demolition of unsafe structures lies with the owner whether it is private or government owned property.

The demolition of dangerous structures will be the responsibility of the owner to protect the health and safety of adjacent residents. However, if unsafe structures remain because of a lack of insurance or absentee landlords, demolition of these structures may become the responsibility of the County. The Debris Manager and the ________________ County Building Official will be responsible for taking any appropriate action regarding Dangerous Structure Demolition.

______________ County welcomes private organizations such that are willing to assist private property owners with the clean-up of their property. The County will make every effort to provide information regarding the TDSR site locations, hours of operation, and other useful information.

**B. The Debris Monitoring Team**

Under the supervision of the Debris Monitoring Coordinator, the Debris Monitoring Team is responsible for the coordination, oversight, and monitoring of all debris removal and disposal operations.

The Debris Monitoring Coordinator and team members will be detailed from County personnel. The Debris Monitoring Team may be supplemented with temporary
personnel as needed.

The Debris Monitoring Coordinator will oversee the activities of three types of field monitors: Load Site Monitors, Roving Monitors, and Disposal Site Monitors.

1. **Load Site Monitors**

The Debris Monitoring Coordinator will assign Load Site Monitors to loading site locations. Load Site Monitors will be responsible for observing and documenting debris removal activities at loading sites in the field and at temporary loading sites. Load Site Monitors will be assigned to each loading crew within designated Debris Zones.

Each Load Site Monitor will store the load tickets in an enclosed clip board. Load tickets will be provided in sequential order and must remain in order during the day. If a load ticket is damaged, the Load Site Monitor must write VOID on the entire ticket (including all copies) and return the entire voided ticket to the Debris Monitoring Coordinator. At the end of each day, all tickets must be accounted for.

Load Site Monitors will do the following:

- may assist in the measurement of each truck at the beginning of debris removal operations;
- coordinate with the DMC to verify the location of the loading sites each day;
- report to assigned locations in a timely manner. The Loading Site Monitor must be present at the loading site prior to work commencing;
- verify the debris being picked up is eligible under the terms of this Plan;
- verify the truck is free of debris prior to loading;
- maintain and initiate the load tickets (See Enclosure 7);
- ensure that work stops immediately in an area where human remains are discovered and the proper emergency responders are notified; and,
- ensure that trucks and trailers are loaded mechanically rather than by hand.

2. **Roving Monitors**

The Debris Monitoring Coordinator will assign Roving Monitors to inspect the work areas. Once assigned, Roving Monitors will monitor debris operations on a full-time basis and make unannounced visits to all loading and disposal sites within their assigned debris management zone(s). In addition, Roving Monitors will do the following:

- may assist in the measuring of each truck at the beginning of the debris removal operations;
- obtain and become familiar with all debris removal and disposal equipment for which they are providing oversight;
- drive around their assigned debris management zone to observe operations;
- for each loading site visited (in the field and at temporary storage sites); complete a Roving Monitor’s Loading Site Checklist. (See Enclosure 9)
- complete a Roving Monitor’s Disposal Site Checklist for every TDSR site visited (See Enclosure 10);
- ensure that operations are being followed as specified in the applicable Debris Removal and Disposal Contract with respect to County, state, and federal
regulations; and,
• spot check truck measurements to ensure trucks are not artificially loaded to maximize reimbursement (e.g. debris is fluffed – not compacted); and,
• prepare a daily written report of activities observed, including photographs of activities and sites visited. The reports will also include all checklists and will be submitted each day to the Debris Monitoring Coordinator (See Enclosures 9 and 10). Reports will also include observations at loading sites, disposal sites, and the locations of any illegal dumping sites.

3. **Disposal Site Monitors**

The Debris Monitoring Coordinator will assign Disposal Site Monitors to each disposal site being used by the County. A Disposal Site Monitor will be located in inspection towers at the entrance and exit of each disposal site. Disposal Site Monitors will be responsible for doing the following:
• report to assigned locations in a timely manner. The Disposal Site Monitor must be present at the disposal site prior to trucks being emptied;
• inform a Roving Monitor of suspicious truck activity;
• estimate and record on each load ticket the quantity of debris contained in each truck entering the disposal site (See Enclosure 11); and,
• photograph all truck loads in which a discrepancy or disagreement regarding the amount of debris occurs.

C. **Load Ticket Disposition**

For tracking of all debris moved in response to a given event, the following is the disposition of each ticket part:

<table>
<thead>
<tr>
<th>PART</th>
<th>COLOR OF TICKET</th>
<th>RESPONSIBLE PARTY</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WHITE</td>
<td>DISPOSAL SITE MONITOR</td>
<td>TURNED IN DAILY TO DMC</td>
</tr>
<tr>
<td>2</td>
<td>CANARY</td>
<td>DISPOSAL SITE MONITOR</td>
<td>TURNED IN DAILY TO THE CONTRACTOR'S REPRESENTATIVE</td>
</tr>
<tr>
<td>3</td>
<td>PINK</td>
<td>GIVE TO DRIVER</td>
<td>SUBCONTRACTOR'S COPY</td>
</tr>
<tr>
<td>4</td>
<td>GOLD</td>
<td>GIVE TO DRIVER</td>
<td>DRIVER'S COPY</td>
</tr>
<tr>
<td>5</td>
<td>GREEN</td>
<td>GIVE TO DRIVER</td>
<td>2ND TIER SUBCONTRACTOR COPY</td>
</tr>
<tr>
<td>6</td>
<td>BLUE</td>
<td>LOAD SITE MONITOR</td>
<td>TURNED IN DAILY TO DMC</td>
</tr>
</tbody>
</table>

Load tickets will be completed and retained for all haulers.

DMC staff will utilize a debris load ticket tracking access database to enter and track debris load ticket information.

The Contractor will be paid based on the number of cubic yards of eligible debris hauled per truckload. Payment for hauling debris will only be approved upon
presentation of a spreadsheet documenting each load with an invoice and will be made in accordance with the contract and FEMA requirements.

D. Close-out for Federally Declared Disasters

If the event becomes a federally declared disaster, the County Finance Director will prepare and submit a claim to the Federal Emergency Management Agency (FEMA) for reimbursement of expenses associated with the response to and recovery from the event.

With the assistance of the Risk/Reimbursement Coordinator, the County Finance Director will do the following:

• request that the DMC staff generate a cost report from the debris load ticket database;
• request an invoice and associated backup documentation from the Debris Contractor. She will assign a DMC staff person to reconcile the cost report from the debris load ticket database with the Contractor’s report;
• determine the appropriate cost of contract debris removal based on the reconciliation;
• provide copies of the reconciled reports and final cost to FEMA;
• assemble payroll records for in-house personnel performing disaster-related debris removal work. The County Finance Director and DMC staff, as assigned, will calculate the number of hours of overtime worked by in-house staff;
• determine the cost (including benefits) of overtime for in-house staff and prepare a summary of in-house staff persons, job title, number of overtime hours worked, pay rate, benefit rate and total overtime cost, and supply this report and accompanying back-up documentation to FEMA; and,
• work with FEMA to develop the project worksheet.

COMMUNICATIONS

A. Debris Management Center Staff Communications

Under most emergencies/disasters, communications will be primarily by land telephone lines, cellular telephones, radios, or computer; however, the County recognizes that as a result of some disasters, such communications may not be operable.

• All key members of the debris team will have access to 800 MHz radios. Field personnel and all DMC staff will use radios as their primary means of communication.
• If radios are not operable, DMC staff and field personnel will try to use cellular telephone service to communicate.
• If phones and radios are not operable, then DMC staff and field personnel will use “runners” to relay information between the DMC, other operations centers, and the field.
• DMC staff will also utilize e-mail to communicate written information.

B. Public Communication:
The County’s Public Information Officer will:
• develop press releases about the status of debris clearance and removal operations. Press releases will also contain information for the public about any measures that they can take to facilitate debris clearance and removal operations;
• coordinate the content and timing of the press releases;
• provide accurate status updates about debris clearance and removal operations; and,
• work with the DMC staff to assemble debris clearance and removal data and other information requested by the press.

C. Information Technology:

The County’s Information Technology Department will:
• restore data and voice capabilities and communication as soon as possible; and,
• upload latitude and longitude information to track debris locations and clearance/removal operations using GIS mapping.

ADMINISTRATION AND LOGISTICS

A. General

All ______________ County departments and agencies will document personnel, equipment, and material resources used to comply with this Plan. Documentation will be used to support reimbursement from any Federal assistance that may be requested or required.

All ______________ County departments and agencies supporting debris operations will ensure adequate staffing capability during implementation of this Plan, if the emergency or disaster requires.

The ______________ County Debris Management Team is responsible for the annual review of this Debris Management Plan in conjunction with the Public Works Department. It will be the responsibility of each tasked department and agency to submit recommendations to the Debris Management Team regarding any updates to this Plan and ensure any limitations and shortfalls are identified and documented, and work-around procedures developed.

B. Debris Monitor Training Workshop

The County Emergency Management Director will be responsible for coordinating annual and refresher training workshops for all assigned personnel. The purpose of the workshop is to review the Debris Management Plan procedures and to ensure that the operation works smoothly. Items of discussion will include:
• Contractor responsibility
- Mobilization sites
- Logistical support
- Pre-storm mobilization
- Procedures for contacting pre-event Contractor
- Routing
- Contractor vehicle identification and registration
- Debris hauling load ticket administration
- Mobilization and operation of the TDSRS
- Contractor payment request submission, review, and verification
- TDSRS closure requirements

Annual training should be scheduled to take place in April or May, which is before the start of the Hurricane Season.

A debriefing should also be scheduled immediately following any major debris-generating event.
## ENCLOSURES

| Enclosure 1: | Debris Zone Index Map |
| Enclosure 2: | Critical Facilities and Primary Road Clearance List |
| Enclosure 3: | Debris Management Organizational Chart |
| Enclosure 4: | Unified System of Truck Bed Volume Measurements |
| Enclosure 5: | Debris Zone Estimates |
| Enclosure 6: | Debris Management Sites |
| Enclosure 7: | Sample Load Ticket |
| Enclosure 8: | Sample Load Ticket Database |
| Enclosure 9: | Roving Monitor’s Load Site Checklist |
| Enclosure 10: | Roving Monitor’s Disposal Site Checklist |
| Enclosure 11: | Debris Estimating Formula |
| Enclosure 12: | Federal Emergency Management Agency’s (FEMA) Disaster Assistance Policy – Demolition of Private Structures (DAP9523.4) |
| Enclosure 13: | Federal Emergency Management Agency’s (FEMA) Disaster Assistance Policy – Hazardous Stump Extrication and Removal Eligibility (DAP9523.11) and Hazardous Stump Worksheets |
| Enclosure 14: | Items to purchase/obtain prior to storm |
| Enclosure 15: | Debris Clearing, Removal, and Disposal Guidelines |
| Enclosure 16: | County Debris Management Safety Policy |
| Enclosure 17: | County Provisional Debris Removal Contract |
| Enclosure 18: | County Provisional Debris Monitoring Contract |
| Enclosure 19: | Environmental and Historic Preservation Compliance |
Enclosure 1

DEBRIS ZONE INDEX MAP
Critical Facilities:
Gulfport-Biloxi International Airport
__________________ County Courthouse
Shelters:
   County Farm Road Evacuation Shelter
   Lobooy Road Evacuation Shelter
   Saucier-Lizana Road Evacuation Shelter
   Red Cross Shelters
__________________ County Road Department Main Office on Lorraine Road
District Work Centers

Fire Stations:
   North Woolmarket
   Saucier
   Success
   Lizana
   West Wortham
   County Farm
   Cuevas
   West __________________
   Delisle
   Henderson Point

Primary Road Clearance List:

**North – South**
   County Farm Road
   Canal Road
   Menge Avenue
   Firetower Road
   Vidalia Road
   Old Highway 49
   Saucier-Lizana
   Old Highway 67

**East – West**
   Bells Ferry
   28TH Street
   Espy Avenue
Red Creek Road
Kiln-Delisle Road
Landon Road
Robinson Road
Orange Grove Road
John Clark Road
E. Wortham Road
W. Wortham Road
Saucier Fairley Road
Blackwell Farm Road
Bethel Road
HARRISON COUNTY

DEBRIS MANAGEMENT ORGANIZATION

DEBRIS MANAGER
(Danny Boudreaux)

ASSISTANT DEBRIS MANAGER
(Russel Weatherly)

PUBLIC INFORMATION OFFICER

DEBRIS REMOVAL AND DISPOSAL CONTRACTOR

DAMAGE ASSESSMENT TEAM

EDC DEBRIS LIAISON
(Shelley Smith)

DEBRIS COLLECTION COORDINATOR
(Tommy Allen)

DEBRIS DISPOSAL COORDINATOR
(Andy Moseley)

DEBRIS MONITORING COORDINATOR
(Jody Spires)

DEBRIS MANAGEMENT SITES

DEBRIS MONITORING TEAMS

COUNTY DEBRIS COLLECTION CREWS

REIMBURSEMENT/RISK COORDINATOR
(Patricia Beaux)
UNIFIED SYSTEM OF TRUCK BED VOLUME MEASURING

After a storm or other debris generating event, all personnel assigned to the Debris Management Center (DMC) will be advised to report to the DMC to begin debris management tasks. ________________ County has designated its Lorraine Road Work Center as the primary Debris Management Center. Another location for the DMC may be required depending on the severity of the storm and the condition of the Lorraine Road Work Center.

One of the primary roles of the DMC is to identify, measure and document all vehicles that will be used to collect and haul disaster related debris.

All information necessary to identify, measure and document the trucks and trailers used to haul debris will be done on the Truck Certification forms provided. Representatives from both ________________ County and the Debris Contractor will be present to verify all measurements and information pertaining to these vehicles and equipment and sign each completed form for certification purposes.

Periodically throughout each day, the County’s Roving Monitors will spot-check trucks/trailers to verify the hauler’s reported cubic yards have not been modified. If evidence shows the truck/trailer has been modified, the findings will be recorded and the Debris Manager will be contacted immediately. Trucks/trailers that have been modified will be immediately removed from the debris collection process and will no longer be used during the event.

The following truck/trailer bed volume certification procedures shall be followed for the collection and disposal of debris that is related to a debris-generating event.

The truck/trailer measuring procedures will be done in three separate pull-through “stations”:
• Station 1: the driver of a truck/trailer will provide vehicle information.
• Station 2: the representatives will measure the truck/trailer.
• Station 3: a photograph of the truck/trailer and driver will be taken for documentation purposes.

These stations will allow for a continuous flow of trucks/trailers and accurate documentation of each.

At each station, there will be at least one (1) attendant assigned by ________________ County. This person will record all of the information on the truck bed volume certification forms.

The following detailed procedures are set up for one lane of pull-through traffic and can be duplicated as many times as needed to process the volume of trucks/trailers required for the event, in a timely manner.

Station #1
Personnel required:

Attendant #1: Recorder (__________________ County Staff)
Attendant #2: Outside Certifier (Debris Contractor representative), Truck Driver

Equipment required:

- Clipboard (1)
- Possibly a small ladder, scissor lift or scaffolding stand to view the vehicle’s VIN # (These will be set up on the driver’s side of the pull-through lane)

Other requirements: Blank Truck Certification Form

Station #2

Personnel required:

Attendant #1; Recorder (__________________ County Staff)
Attendant #2: Outside Certifier/measurer (Contractor Representative), Truck Driver

Equipment required:

- Clipboard (1)
- Calculator
- 100’ cloth measuring tape divided into tenths of a foot
- Permanent black markers (Wide tip type)
- Scaffolding tower or scissor lift for recorder(s) to stand on to visually see what measurements are being taken and accurately record this information on the certification form. (The tower or scissors lift will be set up on the driver’s side of the pull-through lane and will be provided by Contractor.)
- FEMA Truck Measurement Form (laminated version used as a reference to assist with measuring the truck/trailer)

Other requirements:

- Blank Truck Certification Form that was generated at Station #1
- Blank FEMA Truck Measurement Form
- Blank Bed Volume and I.D. # Decals

Station #3

Personnel required:

Attendant #1: Photographer (__________________ County Staff)
Attendant #2: Outside Certifier (Contractor Representative), Truck Driver

Equipment Required:

- Digital camera with the capability of assigning a number to each photo
- Pre-numbered spreadsheet to identify the photographs of the trucks/trailers by number.
# TRUCK CERTIFICATION FORM

## General Information

<table>
<thead>
<tr>
<th>Applicant:</th>
<th>Monitor:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractor:</td>
<td>Date:</td>
</tr>
<tr>
<td>Measurement Location:</td>
<td>County:</td>
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<tr>
<td>Declaration Number:</td>
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</tbody>
</table>

## Truck Information

<table>
<thead>
<tr>
<th>Make</th>
<th>Year</th>
<th>Color</th>
<th>License</th>
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</thead>
</table>

Truck Measurements
- Performed By: Date:
- Volume Calculated By: Date:
- Both Checked by: Date:

## Driver Information

<table>
<thead>
<tr>
<th>Name:</th>
<th>Address:</th>
<th>Phone Number:</th>
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</thead>
</table>

## Owner Information

<table>
<thead>
<tr>
<th>Name:</th>
<th>Address:</th>
<th>Phone Number:</th>
</tr>
</thead>
</table>

Truck Identification

Truck Capacity

Photo

(See reverse for calculation worksheet)
# TRUCK CERTIFICATION FORM

## DUMP TRUCK

<table>
<thead>
<tr>
<th>Measurements</th>
<th>Length (L)</th>
<th>Width (W)</th>
<th>Height (H)</th>
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</thead>
<tbody>
<tr>
<td>Truck Measurements</td>
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<td></td>
</tr>
<tr>
<td>Hoist Measurement</td>
<td>Length1 (L1)</td>
<td>Width1 (W1)</td>
<td>Height1 (H1)</td>
</tr>
<tr>
<td></td>
<td>Length2 (L2)</td>
<td>Width2 (W2)</td>
<td>Height2 (H2)</td>
</tr>
<tr>
<td>Radius</td>
<td>Radius ft</td>
<td>Height (H)</td>
<td></td>
</tr>
</tbody>
</table>

### Calculations

- Bed Volume (Basic): \( \frac{L \times W \times H}{77} \) cubic yards
- Hoist Volume: \( \frac{\left(L1+L2/2\right) \times W1 \times H2}{77} \) cubic yards
- Radius Volume: \( \frac{3.14 \times R^2 \times H}{77} \) cubic yards

**Total:** \( \frac{L \times W \times H}{77} \) cubic yards

## EXTRA TRAILER

<table>
<thead>
<tr>
<th>Measurements</th>
<th>Length (L)</th>
<th>Width (W)</th>
<th>Height (H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truck Measurements (Basic)</td>
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<td></td>
</tr>
<tr>
<td>Hoist Measurement</td>
<td>Length1 (L1)</td>
<td>Width1 (W1)</td>
<td>Height1 (H1)</td>
</tr>
<tr>
<td></td>
<td>Length2 (L2)</td>
<td>Width2 (W2)</td>
<td>Height2 (H2)</td>
</tr>
<tr>
<td>Radius</td>
<td>Radius ft</td>
<td>Height (H)</td>
<td></td>
</tr>
</tbody>
</table>

### Calculations

- Bed Volume (Basic): \( \frac{L \times W \times H}{77} \) cubic yards
- Hoist Volume: \( \frac{\left(L1+L2/2\right) \times W1 \times H2}{77} \) cubic yards
- Radius Volume: \( \frac{3.14 \times R^2 \times H}{77} \) cubic yards

**Total:** \( \frac{L \times W \times H}{77} \) cubic yards

## ROUND BOTTOM TRUCK

<table>
<thead>
<tr>
<th>Measurements</th>
<th>Length (L)</th>
<th>Diameter (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truck Measurements</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Calculations

- Approx. Volume: \( \frac{3.14 \times (D/2)^2 \times L}{27} \) cubic yards (round bottom portion only)

**Cubic Yards**
## COUNTY
### DEBRIS ZONE ESTIMATES

<table>
<thead>
<tr>
<th>DEBRIS ZONE</th>
<th>Geographical Area</th>
<th>Storm Category</th>
<th>Projected Cubic Yds. Debris</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>East of Highway 49</td>
<td>5</td>
<td>1,007,916</td>
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<td>4</td>
<td>629,948</td>
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<td>3</td>
<td>327,573</td>
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<td>100,792</td>
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<tr>
<td></td>
<td></td>
<td>1</td>
<td>25,198</td>
</tr>
<tr>
<td>2</td>
<td>West of Highway 49</td>
<td>5</td>
<td>1,493,622</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>933,514</td>
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<td>485,670</td>
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<td>149,362</td>
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<td></td>
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<td>1</td>
<td>37,340</td>
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<td>3</td>
<td>Henderson Point</td>
<td>5</td>
<td>257,040</td>
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<td>4</td>
<td>160,656</td>
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<td>83,540</td>
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<td>25,704</td>
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<td>1</td>
<td>6,426</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>5</strong></td>
<td><strong>2,758,578</strong></td>
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<tr>
<td></td>
<td></td>
<td><strong>4</strong></td>
<td><strong>1,724,118</strong></td>
</tr>
<tr>
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<td></td>
<td><strong>3</strong></td>
<td><strong>896,783</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>2</strong></td>
<td><strong>275,858</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>1</strong></td>
<td><strong>68,964</strong></td>
</tr>
</tbody>
</table>
**County Debris Management / Disposal Sites**

<table>
<thead>
<tr>
<th>Site</th>
<th>Site Location</th>
<th>Potential Storage Site or Waste Reduction</th>
<th>Potential C&amp;D or Transfer Site</th>
<th>Potential Mulch Only Site</th>
<th>Temporary Storage Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>James Bond Road S26-T6-R12 (120 acres)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>Woolmarket Sports Field S16-T6-R10 (35 acres)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>John Clark and Ervin Road S23-T6-R12 (33 acres)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Disposal sites</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Wastepro Hudson Krohn Road</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Breland Structural Debris Site</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>S&amp;S Enterprises Class I Rubbish Site</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Pecan Grove Land Fill (6.64 acres)</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Other sites may be required based on the severity of the storm and condition of the primary sites.
### SAMPLE LOAD TICKET

#### HARRISON COUNTY

<table>
<thead>
<tr>
<th>LOAD TICKET</th>
</tr>
</thead>
<tbody>
<tr>
<td>TICKET NUMBER:</td>
</tr>
<tr>
<td>CONTRACT NUMBER</td>
</tr>
<tr>
<td>CONTRACTOR</td>
</tr>
<tr>
<td>DATE:</td>
</tr>
<tr>
<td>DEBRIS QUANTITY</td>
</tr>
<tr>
<td>Truck No:</td>
</tr>
<tr>
<td>Load Size (CY):</td>
</tr>
<tr>
<td>Truck Driver:</td>
</tr>
<tr>
<td>Origin of Load:</td>
</tr>
</tbody>
</table>

#### DEBRIS CLASSIFICATION

- Burnable
- Non-Burnable
- Mixed
- Other

#### LOCATION

- Section/Area: Dumpsite

<table>
<thead>
<tr>
<th>Time</th>
<th>Inspector</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dumping</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

#### Eligibility

(Y/N):

- Original: (Copy: County)
- Yellow: Contractor
- Pink: Driver
- Gold: FEMA
### Load Ticket Summary

<table>
<thead>
<tr>
<th>Ticket #</th>
<th>Date</th>
<th>Truck #</th>
<th>Sub-contractor</th>
<th>Loading Address</th>
<th>Lat/Long</th>
<th>Load Time</th>
<th>AM/PM</th>
<th>Driver</th>
<th>Disposal Site</th>
<th>Unload Time</th>
<th>AM/PM</th>
<th>Max Capacity (CY)</th>
<th>Percent Full (%)</th>
<th>Total (CY)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>314771</td>
<td>5/1/2008</td>
<td>22721</td>
<td>WS Emergency</td>
<td>500 Chase St</td>
<td>31.1500/81.4772</td>
<td>12:00 P</td>
<td>AM</td>
<td>J Carroll</td>
<td>Smith's</td>
<td>12:30 P</td>
<td>P</td>
<td>23</td>
<td>95%</td>
<td>21.85</td>
<td>CD</td>
</tr>
<tr>
<td>314772</td>
<td>5/1/2008</td>
<td>2568</td>
<td>WS Emergency</td>
<td>500 Chase St</td>
<td>31.1500/81.4772</td>
<td>12:45 P</td>
<td>PM</td>
<td>Randy O</td>
<td>Smith's</td>
<td>1:20 P</td>
<td>P</td>
<td>34</td>
<td>100%</td>
<td>34</td>
<td>CD</td>
</tr>
</tbody>
</table>
ROVING MONITOR’S LOADING SITE CHECK LIST

ROVING MONITOR’S NAME: _______________________________ DATE: ______

ARRIVAL TIME: ___________________ DEPARTURE TIME: ______________

WEATHER CONDITIONS:

SITE LOCATION: _________________________________________________

(STREET ADDRESS OR NEAREST INTERSECTION)

Site Monitor’s Name: ____________________________________________

GPS LOCATION: L ___________ ; L _______________

LOADING SITE:

1. Is the Site Monitor filling out the Load Ticket properly? YES NO
   If no, explain actions taken:

2. Is the Contractor loading eligible debris from the designated right-of-way
   (approximately 15’ from curb)? YES NO
   If no, explain actions taken:

3. Is the Contractor loading trucks to capacity? YES NO
   If no, explain action taken:

4. Identify Contractor’s truck numbers observed while on site:
   __________ ; __________ ; __________ ; __________ ; __________ ;
   __________ ; __________ ; __________ ; __________ ; __________ ;

5. Were photographs taken at the loading site: YES ______ NO
   If yes, list photo log numbers:
   ; __ ; __________ ; __________ ;

General notes and comments: (include observations within the general area as to overall
cleanup activities) – use reverse side if necessary.
ROVING MONITOR’S DISPOSAL SITE CHECK LIST

ROVING MONITOR’S NAME: ___________________________ DATE: ______
ARRIVAL TIME: DEPARTURE TIME:
WEATHER CONDITIONS:
SITE LOCATION: _____________________________________________
(STREET ADDRESS OR NEAREST INTERSECTION)

Disposal Site Monitor’s Name: ___________________________
Disposal Site Monitor’s Name: ___________________________

DISPOSAL SITE:
1. Is the Disposal Site Monitor filling out the Load Ticket properly? If no, explain actions taken:
   YES NO

2. Are the trucks loaded to capacity? YES NO
   If no, explain actions taken:

3. (To be completed at landfill only) Is the Disposal Site Monitor attaching a copy of the Weight
   Ticket to the Load Ticket? YES NO
   If no, explain actions taken:

4. Identify Contractor’s truck numbers observed while on site:
   _______ ; _______ ; _______ ; _______ ;
   _______ ; _______ ; _______ ; _______ ;

5. Were photographs taken at the loading site: YES NO
   If yes, list photo log numbers:
   _______ ; _______ ; _______ ; _______ ;

General notes and comments: (include observations of operations) – use reverse side if necessary.
• Is the Contractor using the site properly with respect to layout and environmental considerations?

• Has the Contractor established temporary storage areas for ash, household hazardous wastes, and other materials that can contaminate soil and groundwater?

• Has the Contractor established environmental controls in equipment staging areas, fueling, and equipment repair areas to prevent and mitigate spills of petroleum products and hydraulic fluids?

• Are burn sites constructed and operating in accordance with the plans and requirements as stated in the contract?

Smoke - Are the incineration pits constructed properly and being operated according to the contract statement of work?

Dust – Are water trucks employed to keep the dust down?

Noise - Have berms or other noise abatement procedures been employed?

Traffic - Does the TDSRS have a suitable layout for ingress and egress to help traffic flow?
DEBRIS ESTIMATING FORMULAS

Estimating Rule of Thumb:
- 15 trees, 8 inches in diameter = 40 CY (cubic yards)
- Single wide mobile home = 290 CY
- Double wide mobile home = 415 CY
- Root system (8’ – 10’ diameter) = One flat bed trailer to move
- Treat debris piles as a cube, not a cone, when performing estimates
- Average pace = 2’ 6”

Formula Conversions:
- 27 cubic feet = 1 cubic yard
- One mile = 5280 feet or 1760 yards
- Building formula: 0.2 x total square feet (footprint x number of stories) = CY of debris
- Debris pile formula: L’ x W’ x H’ x 0.3 = Cubic Yards of debris

Conversion Factors from Cubic Yards to Tons:
- Mixed Construction & Demolition Debris = 500 lbs/CY or CY x .025 = Tons
- Yard Vegetation = 300 lbs/CY or CYx0.15 = Tons
- Mulch = 500 lbs/CY or CYx0.25 = Tons
- Regular Trash = 300 lbs/CY or CY x 0-15=Tons
- Concrete = 2000 lbs/CY or CY 1.0 = Tons
- Sand = 2600 lbs/CY or CY 1.3 = Tons
- Land Clearing (root balls with dirt) = 1500 lbs/CY or CY 0.75 = Tons
I. TITLE: Demolition of Private Structures

II. DATE: JUL 18 2007

III. PURPOSE:
This policy provides guidance in determining the eligibility of demolition of private structures under the Federal Emergency Management Agency’s (FEMA) Public Assistance Program.

IV. SCOPE AND AUDIENCE:
The policy is applicable to all major disasters declared on or after the date of publication of this policy. It is intended for FEMA personnel involved in the administration of the Public Assistance Program.

V. AUTHORITY:

VI. BACKGROUND:

A. Section 403 of the Stafford Act, 42 U.S.C. 5170b, provides FEMA authority to provide assistance essential to meeting immediate threats to life and property resulting from a major disaster. Specifically, Section 403(a)(3)(E) provides FEMA authority to fund the demolition of unsafe structures which endanger the public on public and private property (44 CFR 206.225). Eligible Public Assistance applicants may be eligible for Public Assistance grant funding under Section 403 of the Stafford Act under the conditions of this policy.

B. The demolition of unsafe structures owned by eligible public and private nonprofit (PNP) applicants may be eligible for Public Assistance grant funding under Section 406 of the Stafford Act, which funds the repair, restoration, reconstruction, or replacement of eligible facilities (44 CFR 206.226).
VII. POLICY:

A. Definitions.

1. Demolition: The act or process of reducing a structure, as defined by State or local code, to a collapsed state.

2. Demolition debris: Materials including building materials and personal effects that are deposited as a result of the demolition process.

3. Legal responsibility: A statute, formally adopted local code, or ordinance that gives local government officials the responsibility to enter private property to demolish unsafe structures or to perform work to remove an immediate threat (44 CFR 206.223(a)(3), 44 CFR 206.221(c), and 44 CFR 206.225(a)(3)).

4. Unsafe structure: A structure found to be dangerous to the life, health or safety of the public because such structure is so damaged or structurally unsafe as a direct result of the declared disaster that partial or complete collapse is imminent.

B. Duplication of Benefits (44 CFR 206.191). FEMA is prohibited by Section 312 of the Stafford Act from approving funds for work that is covered by any other source of funding. Therefore, State and local governments must take reasonable steps to prevent such an occurrence, and verify that insurance coverage or any other source of funding does not exist for the demolition of private structures.

1. When demolition of private structures is covered by an insurance policy, the insurance proceeds must be used as the first source of funding. Public Assistance grant funding may be used to pay for the remainder of the demolition costs.

2. If it is discovered that a duplication of benefits from any other source of funding has occurred, FEMA will de-obligate funds from the Grantee in the amount that such assistance duplicates funding the property owners received from other sources.

C. Eligibility of Demolition of Private Structures.

1. Demolition of privately owned structures and subsequent removal of demolition debris may be eligible for Public Assistance grant funding under Section 403 of the Stafford Act when the following conditions are met:
a. The structures were damaged and made unsafe by the declared disaster, and are located in the area of the declared disaster (44 CFR 206.223(a)(1) and (2)).

b. The State or local government applicant certifies that the structures are determined to be unsafe and pose an immediate threat to the public (44 CFR 206.225(a)). The Public Assistance applicant provides a detailed explanation documenting its legal responsibility to enter private property to demolish an unsafe structure, and confirms that all legal processes and permission requirements (e.g., rights-of-entry) for such action have been satisfied. The Public Assistance Group Supervisor must concur that the demolition of unsafe structures and removal of demolition debris are in the public interest. FEMA will consider alternative measures to eliminate threats to life, public health, and safety posed by disaster-damaged unsafe structures, including fencing off unsafe structures and restricting public access, when evaluating requests for demolition.

i. The eligible applicant must demonstrate the legal basis as established by law, ordinance, or code upon which it exercised or intends to exercise its responsibility following a major disaster to demolish unsafe private structures (44 CFR 206.223(a)(3)). Codes and ordinances must be germane to the structural condition representing an immediate threat to life, public health, and safety, and not merely define the local government’s uniform level of services.

States and local governments ordinarily rely on condemnation and/or nuisance abatement authorities to obtain legal responsibility prior to the commencement of demolition of private structures. There may be circumstances, however, where the State or local government determines that ordinary condemnation and/or nuisance abatement procedures are too time-consuming to address an immediate public health and safety threat. In such circumstances, applicants may not have to precisely follow their nuisance abatement procedures or other ordinances that would prevent the State or local government from taking emergency protective measures to protect public health and safety (44 CFR 206.225(a)).

ii. The applicant’s legal responsibility to take action where there is an immediate threat to life, public health, and safety should be independent of any expectation, or request, that FEMA will reimburse costs incurred for demolition of private structures and the removal of demolition debris from private property. In addition, an applicant’s legal responsibility is not established solely by an applicant obtaining signed rights-of-entry and hold harmless agreements from property owners.

c. The State or local government confirms that a legally authorized official has ordered the exercise of public emergency powers or other appropriate authority to enter onto
private property in order to remove/reduce threats to life, public health, and safety threat via demolition of unsafe structures and removal of demolition debris (44 CFR 206.223).

d. The State or local government indemnifies the Federal government and its employees, agents, and contractors from any claims arising from the demolition of unsafe private structures and removal of demolition debris from private property (44 CFR 206.9).

e. The work is completed within the completion deadlines outlined in 44 CFR 206.204 for emergency work.

2. Eligible costs associated with the demolition of private structures may include, but are not limited to:

a. capping wells;

b. pumping and capping septic tanks;

c. filling in basements and swimming pools;

d. testing and removing hazardous materials from unsafe structures, including asbestos and household hazardous wastes;

e. securing utilities (electric, phone, water, sewer, etc.);

f. securing permits, licenses, and title searches. Fees for permits, licenses, and titles issued directly by the applicant are not eligible unless it can be demonstrated that the fees are above and beyond administrative costs; and

g. demolition of disaster-damaged outbuildings such as garages, sheds, and workshops determined to be unsafe.

3. Ineligible costs associated with the demolition of private structures may include:

a. removal of slabs or foundations, except in very unusual circumstances, such as when disaster-related erosion under slabs on a hillside causes an immediate public health and safety threat;

b. removal of pads and driveways;
4. Structures condemned as safety hazards before the disaster are not eligible for demolition and subsequent demolition debris removal under Public Assistance grant authority.

5. Individuals and private organizations (except for eligible PNP's) will not be reimbursed for demolition activities on their own properties under the Public Assistance Program (44 CFR 206.224(c)).

6. The removal of substantially damaged structures and associated appurtenances acquired through a Section 404 FEMA Hazard Mitigation Grant Program buyout and relocation project may be eligible for Public Assistance grant funding under Section 407 of the Stafford Act. Such removal must be completed within two years of the declaration date, unless extended by the Assistant Administrator of the Disaster Assistance Directorate (44 CFR 206.224(a)(4)).

D. Demolition of Commercial Structures. The demolition of commercial structures is generally ineligible for Public Assistance grant funding. It is assumed and expected that these commercial enterprises retain insurance that can and will cover the cost of demolition. However, in some cases as determined by the FCO, the demolition of commercial structures by a State or local government may be eligible for FEMA reimbursement only when such removal is in the public interest (44 CFR 206.224(a) and (b)).

Apartments, condominiums, and mobile homes in commercial trailer parks are generally considered commercial structures with respect to Public Assistance funding.

E. Environmental and Historic Review Requirements. Eligible demolition activities must satisfy environmental and historic preservation compliance review requirements as established by 44 CFR Parts 9 and 10, the National Historic Preservation Act, the Endangered Species Act, and all other applicable legal requirements.
VIII. ORIGINATING OFFICE: Disaster Assistance Directorate (Public Assistance Division).

IX. SUPERSESSION: This policy supersedes Recovery Policy 9523.4 dated November 9, 1999, and all previous guidance on this subject.

X. REVIEW DATE: Three years from date of publication.

Carlos J. Castillo  
Assistant Administrator  
Disaster Assistance Directorate
i. TITLE: Hazardous Stump Extraction and Removal Eligibility

II. DATE: MAY 15 2007

III. PURPOSE:

Establish criteria used to reimburse applicants for removing eligible hazardous stumps from public or, where authorized, private property.

IV. SCOPE AND AUDIENCE:

The policy is applicable to all major disasters and emergencies declared on or after the date of publication. It is intended for all personnel involved in the administration and execution of the Public Assistance Program, including applicants.

V. AUTHORITY:


VI. BACKGROUND:

Public Assistance regulations authorize reimbursement for the removal of debris from public and private land when it is in the public interest. Such removal is in the public interest when it is necessary to: eliminate immediate threats to life, public health and safety, or eliminate immediate threats of significant damage to improved public or private property; or to ensure economic recovery of the affected community to the benefit of the community at large. Trees that are uprooted during a disaster event such that all or part of their roots are exposed may pose an immediate threat to public health and safety.

VII. POLICY:

A. When a disaster event uproots a tree or stump (i.e., 50% or more of root ball is exposed) on a public right-of-way, improved public property or improved property owned by certain private nonprofit organizations, and the exposed root ball poses an immediate threat to life, public health and safety, FEMA may provide supplemental assistance to remove, transport, dispose, and provide fill for the root cavity of an eligible uprooted tree or stump. The Federal Emergency Management Agency (FEMA) will reimburse applicants reasonable costs for this type of work only when uprooted stumps are more than 24 inches in diameter (measured two feet from the ground), with the consensus of the Applicant and the State, and is approved in
advance by FEMA, using the attached Hazardous Stump Worksheet.

1. If it is necessary to remove an uprooted stump before it can be inspected by FEMA because it poses a threat that must be dealt with immediately, the applicant must submit documentation, to FEMA including photographs, that establishes its location on public property, specifics on the threat, stump diameter measured two feet up the trunk from the ground, quantity of material to fill the hole, and any special circumstances.

2. FEMA will reimburse applicants for extraction, transport and disposal of stumps with a diameter of 24 inches or smaller at the unit cost rate for regular vegetative debris, using the attached Stump Conversion Table, as such stumps do not require special equipment.

3. FEMA will reimburse applicants at the unit cost rate (usually cubic yards) for normal debris removal for all stumps, regardless of size, placed on the rights-of-way by others (i.e., contractors did not extract them from public property or property of eligible Private Non Profit organization). In such instances, applicants do not incur additional cost to remove these stumps because the same equipment that is used to pick up “regular” debris can be used to pick-up these stumps.

4. If an applicant incurs additional costs in picking up large stumps (over 24 inches in diameter) from rights-of-way, it should complete the Hazardous Stump Worksheet and present documentation to FEMA in advance for consideration.

5. Stumps with less than 50% of their root ball exposed should be cut flush at ground level and the cut portion included with regular vegetative debris.

6. Straightening or bracing of trees is eligible for reimbursement if it is less costly than removal and disposal. Applicant must provide a cost analysis showing cost effectiveness.

VIII. ORIGINATING OFFICE: Disaster Assistance Directorate (Public Assistance Division)

IX. SUPERSESSION: This policy supersedes Recovery Policy Number 9523.11, Hazard Stump Removal and Extraction Eligibility dated May 6, 2006.

X. REVIEW DATE: Three years from the date of publication.

David Garratt
Acting Assistant Administrator
Disaster Assistance Directorate
## Hazardous Stump Worksheet

<table>
<thead>
<tr>
<th>Physical Location (i.e., Street address, road, cross streets, etc.)</th>
<th>Description of Facility (ROW, Park, City Hall, etc.)</th>
<th>Hazard</th>
<th>GPS (decimal degrees, 00.000000)</th>
<th>Tree Size (Diameter)</th>
<th>Eligible</th>
<th>Fill For Debris Stumps</th>
<th>Comments (See attached sketch, photo, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Latitude (N)</td>
<td>Longitude (W)</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Hazardous Stumps

A hazardous tree or stump may be collected individually, while downed or fallen debris is collected from rights-of-way or at a designated collection center. Tree and stump collection prices are typically based on the size of the tree or stump and charged by unit.

A stump may be determined to be hazardous and eligible as a per-unit cost for stump removal if it meets **ALL** of the following criteria:

- It has 50 percent or more of the root-ball exposed (less than 50 percent of the root-ball exposed should be flush cut)
- It is greater than 24 inches in diameter, as measured 24 inches above the ground
- It is on improved public property or a public right-of-way; and
- It poses an immediate threat to life, and public health and safety

If an uprooted stump must be removed **prior to FEMA's approval**, _________________ County must submit the following information:

- Photographs and GPS coordinates that establish the location on public property;
- Specifics of the threat;
- Diameter of the stump 24 inches above the ground; and
- Quantity of material needed to fill the resultant hole
- Complete Hazardous Stump Worksheet

Hazardous Limb Removal (Hangers)

Limbs that are hanging must be:

- Located on improved public property;
- Greater than two inches in diameter at the point of breakage; and
- Still hanging in a tree and threatening a public-use area; e.g. trails, sidewalks, golf cart paths etc.

To be eligible, the following documentation is required:

- Describe the immediate threat, e.g. photos of hanging limbs or leaning trees
- Clearly define the scope of work to remove the immediate threat
- Specify the improved public property location by recording the nearest building address and/or GPS location; and
- Denote date, labor (force account or contract), and equipment used to perform the work
ITEMS TO PURCHASE/OBTAIN PRIOR TO STORM

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>SUPPLIES</th>
<th>PURPOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Portable GPS units or smartphone app.</td>
<td>Identify Lat &amp; Long for Loading Site Monitors</td>
</tr>
<tr>
<td>10</td>
<td>Digital cameras w/ memory cards and picture numbering ability or cell phone camera</td>
<td>DMC will photograph each truck/trailer after measuring and each Disposal Site Monitor will photograph all loads in which a discrepancy of load size occurs</td>
</tr>
<tr>
<td>50</td>
<td>Spray paint</td>
<td>To identity street names after push</td>
</tr>
</tbody>
</table>
RIGHT OF ENTRY/HOLD HARMLESS AGREEMENT

RIGHT OF ENTRY PERMIT NO. ______________ DATE __________________________

PROPERTY ADDRESS/DESCRIPTION __________________________________________

NAME (OWNERS OR OWNERS’ AUTHORIZED AGENT) __________________________

________________________________ TELEPHONE NO: _______________________

RIGHT OF ENTRY: I certify that I am the owner or the owner’s authorized agent of the above described property. I grant freely and without coercion the right of access and entry to said property to representatives of the Federal Emergency Management Agency (FEMA), the U.S. Army Corps of Engineers (USACE) and the USDA Forest Service to inspect the property for purposes of determining whether disaster-generated debris is eligible for removal under FEMA’S programs and to monitor that removal, and to (eligible applicant) ______________________ COUNTY BOARD OF SUPERVISORS, its agents, contractors and subcontractors for the purpose of removing and/or clearing that disaster-generated debris from that property.

HOLD HARMLESS: I understand that this permit is not an obligation upon the government to perform debris removal. I agree to hold harmless the United States Government, FEMA, USACE, the USDA Forest Service, (eligible applicant) ______________________ COUNTY BOARD OF SUPERVISORS and any of their agencies, agents, contractors, and subcontractors, for damages of any type whatsoever, either to the above-described property, or to persons situated thereon. I release, discharge, and waive any action, either legal or equitable, that might arise by reason of any action of the above entities while removing disaster-generated debris from the property. I will mark sewer lines, septic tanks, water lines and utilities located on the property.

DUPPLICATION OF BENEFITS: Most homeowner’s insurance policies have coverage to pay for removal of storm-generated debris. I understand that federal law (42 U.S. C. 5155 et seq.) requires me to reimburse (eligible applicant) ______________________ COUNTY BOARD OF SUPERVISORS the cost of removing the storm-generated debris to the extent covered in my insurance policy. I also understand that I must provide a copy of the proof/statement of loss from my insurance company to (eligible applicant) ______________________ COUNTY BOARD OF SUPERVISORS. If I have received payment, or when I receive payment, for debris removal from my insurance company or any other source, I agree to notify and send payment and proof/statement of loss to (eligible applicant) ______________________ COUNTY BOARD OF SUPERVISORS. I understand that all disaster-related funding, including that for debris removal from private property, is subject to audit.

SIGNED: All owners/agents must sign below.

Printed Name: ___________________________ Printed Name: ___________________________

Signature: ___________________________ Signature: ___________________________

Name of Insurance Co. ___________________________
Insurance Policy No. ________________________________
DEBRIS MANAGEMENT SITE SETUP

The ________________ County Debris Manager or his designee will be responsible for identifying DMS and/or TDSR sites and potential landfills for final disposal. He will also be responsible for the operation and site management procedures and staffing.

The ________________ County Debris Manager or his designee will be responsible for the establishment and operations planning, permitting and associated requirements such as site layouts and site preparation to include volume reduction methods for the various debris storage and reduction sites. Sites will be identified and evaluated by ________________ County’s Debris Management Team comprised of staff who are familiar with the area. A listing of appropriate local, State, and Federal contacts will be developed by the staff.

The ________________ County Debris Manager will be responsible for ensuring that appropriate Environmental Monitoring Program / Site Closure procedures are established and implemented to include necessary planning, permitting and associated requirements in coordination with appropriate local, State, and Federal agencies.

During the debris removal and clean-up process, environmental monitoring will be needed to close each of the sites. This is to ensure that no long-term environmental contamination is left on the site. The monitoring will be done on three different media: ash, soil, and groundwater. ________________ County will adhere to strict compliance to all environmental concerns such as the Clean Air Act and Clean Water Act, etc.

The topography and soil/substrate conditions should be evaluated to determine best site layout.

The following site baseline data checklist should be used to evaluate a site before a contractor begins operations and used during and after to ensure that site conditions are properly documented.

**Debris Management Site Baseline Data Checklist**

**Before Activities Begin**

- Take ground or aerial photographs and/ or video.
- Note important features, such as structures, fences, culverts, and landscaping.
- Take random soil samples.
- Take random groundwater samples.
- Take water samples from existing wells.
- Check the site for volatile organic compounds.

**After Activities Begin**

- Establish groundwater-monitoring wells.
- Take groundwater samples.
Take spot soil samples at household hazardous waste, ash, and fuel storage areas.
Progressive Updates

- Update videos/photographs.
- Update maps/sketches of site layout.
- Update quality assurance reports, fuel spill reports, etc.
Debris Management Site Operations

Temporary storage areas should be established for ash, household hazardous waste, fuels, and other materials that may contaminate soils and groundwater. Plastic liners should be placed under stationary equipment such as generators and mobile lighting plants. These actions should be included as a requirement in the contract scope of work. If the site is also an equipment storage area, fueling and equipment repair should be monitored to prevent and mitigate spills of petroleum products and hydraulic fluids.

Be aware of and lessen the effects of operations that might irritate occupants of neighboring areas. Establishment of a buffer zone can abate concerns over smoke, dust, noise, and traffic.

Consider on-site traffic patterns and segregate materials based on planned volume reduction methods.

Operations that modify the landscape, such as substrate compaction and over excavation of soils when loading debris for final disposal, will adversely affect landscape restoration.

Debris removal/disposal should be viewed as a multi-staged operation with continuous volume reduction. There should be no significant accumulation of debris at temporary storage sites. Instead, debris should be constantly flowing to burners and grinders, or recycled with the residue and mixed construction and demolition materials going to a landfill.

Debris Management Site Closeout Inspection

Debris Management sites will eventually be cleared of all material and restored to their previous condition and use. The Contractor is required to remove and dispose of all mixed debris, construction and demolition debris, and debris residue to approved landfills. Appropriate inspectors will monitor all closeout activities to ensure that the Contractor complies with the Debris Removal and Disposal Contract. Additional measures may be necessary to meet local, State, and Federal environmental requirements because of the nature of the Debris Management sites’ operation.

Debris Management Site Closeout Planning

The Contractor must assure the County that all Debris Management sites are properly remediated. There will be significant costs associated with this operation as well as close scrutiny by the local media and environmental groups. Site remediation will go smoothly if baseline data collection and site operation procedures are followed.

Debris Management Site Closeout Steps

1. Contractor responsible for removing all debris from the site.
2. Contractor conducts an environmental assessment with County and landowner.
3. Contractor develops a remediation plan.
4. Remediation plan reviewed by County, landowner, and appropriate environmental agency.
5. Remediation plan approved by the appropriate environmental agency.
6. **Contractor executes the plan.**
7. Contractor obtains acceptance from County, appropriate environmental agency, and the landowner.

**Debris Management Site Remediation**

During the debris removal process and after the material has been removed from each of the Debris Management sites, environmental monitoring will be needed to close each of the sites. This is to ensure that no long-term environmental contamination is left on the site. The monitoring should be done on three different media: ash, soil, and groundwater.

- **Ash.** The monitoring of the ash should consist of chemical testing to determine the suitability of the material for either agricultural use or as a landfill cover material.
- **Soil.** Monitoring of the soils should be by portable inspection methods to determine if any of the soils are contaminated by volatile hydrocarbons. The Contractors may do this if it is determined that hazardous material, such as oil or diesel fuel was spilled on the site. This phase of the monitoring should be done after the stockpiles are removed from the site.
- **Ground Water.** The monitoring of the groundwater should be done to determine the probable effects of rainfall leaching through either the ash areas or the stockpile areas.

**Debris Management Site Closeout Coordination**

The Contractor will coordinate the following closeout requirements:

- Coordinate with local and State officials responsible for construction, real estate, contracting, project management, and legal counsel regarding requirements and support for implementation of a site remediation plan.
- Establish an independent testing and monitoring program. The Contractor is responsible for environmental restoration of both public and leased sites. The Contractor will also remove all debris from sites for final disposal at landfills prior to closure.
- Reference appropriate and applicable environmental regulations.
- Prioritize site closures.
- Schedule closeout activities.
- Determine separate protocols for ash, soil and water testing.
- Develop decision criteria for certifying satisfactory closure based on limited baseline information.
- Develop administrative procedures and contractual arrangements for closure phase.
- Inform local and State environmental agencies regarding acceptability of program and established requirements.
- Designate approving authority to review and evaluate Contractor closure activities and progress.
- Retain staff during closure phase to develop site-specific remediation for sites, as
needed, based on information obtained from the closure checklist shown below.

Debris Management Site Closure Checklist

- Site number and location.
- Date closure complete.
- Household hazardous waste removed.
- Contractor equipment and temporary structures removed.
- Contractor petroleum spills remediated.
- Ash piles removed.
- Comparison of baseline information to conditions after the contract has vacated the temporary site.
- Appendices.
  - Closure documents.
  - Contracting status reports.
  - Contract.
  - Testing results.
  - Correspondence.
  - Narrative responses.

Site Closeout
Once a site is no longer needed, it should be closed in accordance with the following guidelines. Closeout or re-approval of a temporary debris management site should be accomplished within 30 days of receiving the last load of debris.

Closeout is not considered complete until the following occurs:

Material Removal
1. All processed and unprocessed vegetative material and inert debris shall be removed to a properly approved solid waste management site.
2. Tires must be disposed of at a scrap tire collection/processing facility; white goods and other metal scrap should be separated for recycling.
3. Burn residues shall be removed to a properly approved solid waste management site or land applied in accordance with these guidelines.
4. All other materials, unrecoverable metals, insulation, wall board, plastics, roofing material, painted wood, and other material from demolished buildings that is not inert debris (see #1 above) as well as inert debris that is mixed with such materials shall be removed to a properly permitted solid waste landfill.

Site Re-approval
Sites that were approved as temporary debris management sites will require re-approval for long-term storage, continuing reduction processing, or permanent disposal if site is not closed out in accordance with guidelines stated here. Sites shall be managed and monitored in accordance with the appropriate state agencies and to prevent threats to the environment or public health.
GENERAL CONSTRUCTION AND DEMOLITION STAGING / TRANSFER SITE
GUIDELINES

General
The following guidelines should be considered when establishing staging/transfer sites for Construction & Demolition (C&D) and C&D recycling treatment and processing facilities.

These guidelines apply only to sites for staging/transferring C&D storm debris (roof shingles/roofing materials, carpet, insulation, wallboard, treated and painted lumber, etc.). Arrangements should be made to screen out unsuitable materials, such as household garbage, white goods, asbestos containing materials (ACM's), and household hazardous waste.

Selecting Temporary Staging / Transferring Sites
Locating sites for staging/transferring C&D waste can be accomplished by evaluating potential sites and by revisiting sites used in the past to see if site conditions have changed or if the surrounding areas have changed significantly to alter the use of the site. The following guidelines are presented in locating a site for "staging/transferring" and are considered "minimum standards" for selecting a site for use:

1. Sites should be located outside of identifiable or known floodplain and flood prone areas; consult the Flood Insurance Rate Map to verify these areas. Due to heavy rains associated with hurricanes and saturated conditions that result, flooding may occur more frequently than normally expected.

2. Unloading areas for incoming C&D debris material should be at a minimum 100 feet from all surface waters of the state. "Waters of the state" includes but is not limited to small creeks, streams, watercourses, ditches that maintain seasonal groundwater levels, ponds, wetlands, etc.

3. Storage areas for incoming C&D debris should be at least 100 feet from the site property boundaries, on-site buildings, structures, and septic tanks with leach fields or at least 250 feet from off-site residential dwellings, commercial or public structures, and potable water supply wells, whichever is greater.

4. Materials separated from incoming C&D debris (white goods, scrap metal, etc.) should be at least 50 feet from site property lines. Other non-transferable C&D wastes (household garbage, larger containers of liquid, household hazardous waste should be placed in containers and transported to the appropriate facilities as soon as possible.

5. Sites that have identified wetlands should be avoided, if possible. If wetlands exist or wetland features appear at a potential site, verification by the local Corps of Engineers office may be necessary to delineate areas of concern. Once areas are delineated, the areas should be flagged and a 100-foot buffer maintained for all activities on-going at the site.
6. Sites bisected by overhead power transmission lines need careful consideration due to large dump body trucks/trailers used to haul debris, and underground utilities need to be identified due to the potential for site disturbance by truck/equipment traffic and possible site grading.

7. Sites will have an attendant(s) during operating hours to minimize the acceptance of unapproved materials and to provide directions to haulers and private citizens bringing in debris.

8. Sites should be secure after operating hours to prevent unauthorized access to the site. Temporary measures to limit access to the site could be the use of trucks or equipment to block entry. Gates, cables, or swing pipes should be installed as soon as possible for permanent access control, if a site is to be used longer than two weeks.

9. When possible, signs should be installed to inform haulers and the general public on types of waste accepted, hours of operation, and who to contact in case of after hours emergency.

10. Final written approval is required to consider any debris management site to be closed. Closeout of processing/recycling sites should be within one (1) year of receiving waste. If site operations are necessary beyond this time frame, permitting of the site by the State may be required. If conditions at the site become injurious to public health and the environment, then the site may be closed until conditions are corrected or permanently closed. Closeout of sites will be in accordance with the closeout and restoration of temporary debris management sites guidelines.

C&D Treatment & Processing/Recycling Sites
Management of C&D debris and source separated materials to be recycled shall be in accordance with the following additional conditions:

1. Contact the Environmental Protection Division (EPD) for information on managing asbestos containing materials (ACM's) or materials that are considered regulated asbestos containing materials.

2. Sites should be located outside of identifiable or known floodplain and flood prone areas; consult the Flood Insurance Rate Map to verify these areas. Due to heavy rains associated with hurricanes and saturated conditions that result, flooding may occur more frequently than normally expected.

3. Storage areas for incoming debris should be at a minimum 100 feet from all surface waters of the state. "Waters of the state" includes but is not limited to small creeks, streams, watercourses, ditches that maintain seasonal groundwater levels, ponds, wetlands, etc.

4. Storage areas for incoming debris should be located at least 100 feet from property boundaries and on-site buildings/structures.

5. Sites that have identified wetlands should be avoided, if possible. If wetlands exist or wetland features appear at a potential site verification by the local Corps of Engineers
office or may be necessary to delineate areas of concern. Once areas are delineated, the areas should be flagged and a 100-foot buffer maintained for all activities on-going at the site.

6. Storage areas for incoming C&D debris should be at least 100 feet from the site property boundaries, on-site buildings, structures, and septic tanks with leach fields or at least 250 feet from off-site residential dwellings, commercial or public structures, and potable water supply wells, whichever is greater.

7. Sites bisected by overhead power transmission lines need careful consideration due to large dump body trucks / trailers used to haul debris and the intense heat generated by the air curtain burning (ACB) device. Underground utilities need to be identified prior to digging pits for using the ACB device.

8. Provisions should be made to prevent unauthorized access to facilities when not open for use. As a temporary measure, access can be secured by blocking drives or entrances with trucks or other equipment when the facilities are closed. Gates, cables, or other more standard types of access control should be installed as soon as possible.

9. When possible, post signs with operating hours and information about what types of clean up waste may be accepted. Also include information as to whether only commercial haulers or the general public may deposit waste.

10. Final written approval is required to consider any debris management site to be closed. Closeout of processing / recycling sites should be within six (6) months of receiving waste. If site operations are necessary beyond this time frame, permitting of the site by the State may be required. If conditions at the site become injurious to public health and the environment, then the site may be closed until conditions are corrected or permanently closed.

TEMPORARY VEGETATIVE DEBRIS MANAGEMENT SITE GUIDELINES

General
When preparing temporary facilities for handling debris resulting from the clean up efforts due to hurricane damage, the following guidelines should be considered when establishing Temporary Debris Management sites.

These guidelines apply only to sites for staging or burning vegetative storm debris (yard waste, trees, limbs, stumps, branches, and untreated or unpainted wood). Arrangements should be made to screen out unsuitable materials.

The two method(s) of managing vegetative and land clearing storm debris is "chipping/grinding" for use in landscape mulch, compost preparation, and industrial boiler fuel or using an "air curtain burner (ACB)", with the resulting ash being land applied as a liming agent or incorporated into a finished compost product as needed.
Chipping and Grinding Sites
Locating sites for chipping/grinding of vegetative and land clearing debris will require a detailed evaluation of potential sites and possible revisits at future dates to see if site conditions have changed or if the surrounding areas have changed significantly to alter the use of the site.

The following guidelines are presented in locating a site for "chipping/grinding" and are considered "minimum standards" for selecting a site for use:

1. Sites should be located outside of identifiable or known floodplain and flood prone areas; consult the Flood Insurance Rate Map to verify these areas. Due to heavy rains associated with hurricanes and saturated conditions that result, flooding may occur more frequently than normally expected.

2. Storage areas for incoming debris and processed material should be at a minimum 100 feet from all surface waters of the state. "Waters of the state" includes but is not limited to small creeks, streams, watercourses, ditches that maintain seasonal groundwater levels, ponds, wetlands, etc.

3. Storage areas for incoming debris and processed material should be at least 100 feet from the site property boundaries and on-site buildings/structures. Management of processed material should be in accordance with the guidelines for reducing the potential for spontaneous combustion in compost/mulch piles.

4. Storage areas for incoming debris should be located at least 100 feet from residential dwellings, commercial or public structures, potable water supply wells, and septic tanks with leach fields.

5. Sites that have identified wetlands should be avoided, if possible. If wetlands exist or wetland features appear at a potential site, verification by the local Corps of Engineers office may be necessary to delineate areas of concern. Once areas are delineated, the areas should be flagged and a 100-foot buffer be maintained for all activities ongoing at the site.

6. Sites bisected by overhead power transmission lines need careful consideration due to large dump body trucks/trailers used to haul debris, and underground utilities need to be identified due to the potential for site disturbance by truck/equipment traffic and possible site grading.

7. Sites will have an attendant(s) during operating hours to minimize the acceptance of unapproved materials and to provide directions to haulers and private citizens bringing in debris.

8. Sites should be secure after operating hours to prevent unauthorized access to the site. Temporary measures to limit access to the site could be the use of trucks or equipment to block entry. Gates, cables, or swing pipes should be installed as soon as possible for permanent access control, if a site is to be used longer than two weeks.
Sites should have adequate access that prohibits traffic from backing onto public rights-of-way or blocking primary and/or secondary roads to the site.

9. When possible, signs should be installed to inform haulers and the general public on types of waste accepted, hours of operation, and who to contact in case of an after hours emergency.

10. Grinding of clean wood waste such as pallets and segregated non-painted/non-treated dimensional lumber is allowed.

11. Final written approval is required to consider any debris management site to be closed. Closeout of staging and processing sites should be within six (6) months of receiving waste. If site operations will be necessary beyond this time frame, permitting of the site may be required. If conditions at the site become injurious to public health and the environment, then the site may be closed until conditions are corrected or permanently closed. Closeout of sites shall be in accordance with the closeout and restoration guidelines for temporary debris management sites.

Air Curtain Burner Site Location and Operations

The following guidelines are presented for selecting an ACB site and operational requirements once a site is in use:

1. Contact the fire department for input into site selection in order to minimize the potential for fire hazards, other potential problems related to fire fighting that could be presented by the location of the site, and to ensure that adequate fire protection resources are available in the event of an emergency.

2. Disposal Site Monitors must be present during burn operations.

3. Burn operations must be during daylight hours only; no additional debris should be added to burner if less than two (2) hours remain before sunset.

4. The requirements for ACB device(s), in accordance with Air Quality rules require the following buffers: a minimum of 250 feet from the ACB device to homes, dwellings and other structures and roadways.

5. Sites should be located outside of identifiable or known floodplain and flood prone areas; consult the Flood Insurance Rate Map to verify these areas. Due to heavy rains associated with hurricanes and saturated conditions that result, flooding may occur more frequently than normally expected. If ACB pit devices are utilized, a minimum two-foot separation to the seasonal high water table is recommended. A larger buffer to the seasonal high water table may be necessary due to on-site soil conditions and topography.

6. Storage areas for incoming debris should be at a minimum 100 feet from all surface waters of the state. "Waters of the state" includes but is not limited to small creeks, streams, watercourses, ditches that maintain seasonal groundwater levels, ponds,
wetlands, etc.

7. Storage areas for incoming debris should be located at least 100 feet from property boundaries and on-site buildings/structures.

8. Air Curtain Burners in use should be located at least 250 feet from on-site storage areas for incoming debris, on-site dwellings and other structures, potable water supply wells, and septic tanks and leaching fields.

9. Wood ash stored on-site should be located at least 200 feet from storage areas for incoming debris, processed mulch or tub grinders (if a grinding site and ACB site are located on the same property). Wood ash should be wetted prior to removal from the ACB device or earth pit and placed in storage. If the wood ash is to be stored prior to removal from the site, then rewetting may be necessary to minimize airborne emissions.

10. Wood ash to be land applied on site or off site should be managed in accordance with the guidelines for the land application of wood ash from storm debris burn sites. The ash should be incorporated into the soil by the end of the operational day or sooner if the wood ash becomes dry and airborne.

11. Sites that have identified wetlands should be avoided, if possible. If wetlands exist or wetland features appear at a potential site, verification by the local Corps of Engineers office may be necessary to delineate areas of concern. Once areas are delineated, the areas should be flagged, and a 100-foot buffer should be maintained for all activities on-going at the site.

12. Sites bisected by overhead power transmission lines need careful consideration due to large dump body trucks/trailers used to haul debris and the intense heat generated by the ACB device. Underground utilities need to be identified prior to digging pits for using the ACB device.

13. Provisions should be made to prevent unauthorized access to facilities when not open for use. As a temporary measure, access can be secured by blocking drives or entrances with trucks or other equipment when the facilities are closed. Gates, cables, or other more standard types of access control should be installed as soon as possible.

14. When possible, post signs with operating hours and information about what types of clean up waste may be accepted. Also include information as to whether only commercial haulers or the general public may deposit waste.

15. Closeout of air curtain burner sites should be within six (6) months of receiving waste. If site operations will be necessary beyond this time frame, permitting of the site may be required. If conditions at the site become injurious to public health and the environment, then the site may be closed until conditions are corrected or permanently closed.
Overview of an Air Curtain Operation

A power source, either electric motor or diesel power unit, drives a fan which in turn creates an air curtain by forcing high velocity air across the top of the pit, which a fire has been started. The air curtain traps smoke and small particles and recirculates them to enhance combustion and reduce smoke. The very large volume of air accelerates combustion and provides for high pit temperatures between 1800 degrees F and 2200 degrees F. The pit provides a safe combustion chamber that helps prevent heat loss.
Environmental Checklist for Air Curtain Pit Burners

Incineration site inspections will also include an assessment of the environmental controls being used by the Contractor. Environmental controls are essential for all incineration methods, and the following will be monitored.

□ A setback of at least 250 feet should be maintained between the debris piles and the incineration area. Keep at least 250 feet between the incineration area and the nearest building. Contractor should use fencing and warning signs to keep the public away from the incineration area.

□ The fire should be extinguished approximately two hours before anticipated removal of the ash mound. The ash mound should be removed when it reaches 2 feet below the lip of the incineration pit.

□ The incineration area should be placed in an aboveground or below ground pit that is no wider than 8 feet and between 9 and 14 feet deep.

□ Above ground incineration pits should be constructed with limestone and reinforced with earth anchors or wire mesh to support the weight of the loaders. There should be a 1-foot impervious layer of clay or limestone on the bottom of the pit to seal the ash from the aquifer.

□ The ends of the pits should be sealed with dirt or ash to a height of 4 feet.

□ A 12-inch dirt seal should be placed on the lip of the incineration pit area to seal the blower nozzle. The nozzle should be 3 to 6 inches from the end of the pit.

□ There should be 1-foot high, unburnable warning stops along the edge of the pit’s length to prevent the loader from damaging the lip of the incineration pit.

□ Hazardous or contaminated ignitable material should not be placed in the pit. This is to prevent contained explosions.

□ The airflow should hit the wall of the pit about 2 feet below the top edge of the pit, and the debris should not break the path of the airflow except during dumping.

□ The pit should be no longer than the length of the blower system and the pit should be loaded uniformly along its length

Land Application of Wood Ash from Storm Debris Burn Sites

Guidelines

1. Whenever possible, soil test data and waste analysis of the ash should be available to determine appropriate application rate.

2. In the absence of test data to indicate agronomic rates, application should be limited to 2 to 4 tons per acre/one time event. If additional applications are necessary, due to the volume of ash generated and time frame in which the ash is generated, then an ash management plan will be needed.

3. Ash should be land applied in a similar manner as agricultural limestone.

4. Ash should not be land applied during periods of high wind to avoid the ash blowing off the application sites.

5. Ash should not be land applied within 25 feet of surface waters or within 5 feet of
drainage ways or ditches on sites that are stabilized with vegetation. These distances should be doubled on sites that are not vegetated and the ash should be promptly incorporated into the soil.

6. Records should be maintained to indicate where ash is applied and the approximate quantities of ash applied.

7. As an option to land application, ash may be managed at a permitted solid waste landfill after cooled to prevent possible fire.

8. Assistance in obtaining soil test data and waste analysis of ash should be available through county offices of the Extension Service

Reducing the Potential for Spontaneous Combustion in Compost or Mulch Piles

Guidelines

1. When ground organic debris is put into piles, microorganisms can very quickly begin to decompose the organic materials. The microorganisms generate heat and volatile gases as a result of the decomposition process. Temperatures in these piles can easily rise to more than 160 degrees Fahrenheit. Spontaneous combustion can occur in these situations.

2. Spontaneous combustion is more likely to occur in larger piles of debris because of a greater possibility of volatile gases building up in the piles and being ignited by the high temperatures. If wind rows can be maintained 5 feet to 6 feet high and 8 feet to 10 feet wide, volatile gases have a better chance of escaping the piles; and the possibility of spontaneous combustion will be reduced.

3. Turning piles when temperatures reach 160 degrees can also reduce the potential for spontaneous combustion. Pile turning provides an opportunity for gases to escape and for the contents of the pile to cool. Adding moisture during turning will increase cooling. Controlling the amount of nitrogen-bearing (green) wastes in piles will also help to reduce the risk of fire. The less nitrogen in the piles the slower the decomposition process and consequently the less heat generated and gases released.

4. Large piles should be kept away from wooded areas and structures and should be accessible to fire fighting equipment, if a fire were to occur. Efforts should be made to avoid driving or operating heavy equipment on large piles because the compaction will increase the amount of heat build-up, which could increase the possibility of spontaneous combustion.
Enclosure 16

_____________________________ County Debris Management Plan Safety Policy

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4.4.3 Chemical Hazards
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1.0 Purpose and Scope

This Debris Management Safety Policy is designed to be a comprehensive resource for oversight and adherence to safety guidelines at each stage of debris collection, storage and reduction. Features of this guide were developed from OSHA recommendations and standards for post disaster responses as well as safety philosophies of public entities that have a history of dealing with similar circumstances.

All employees, volunteers and contractors are expected to be familiar with and adhere to the guidelines set forth in this policy. Coordinators and Monitors are required to be aware of the standards in this policy and enforce or report situations where the standards are not being followed. This policy may be modified as needed to suit the particular circumstances of a situation. Official changes may only be made by the Debris Manager based on the recommendations of the Debris Safety Officer.

2.0 Key Personnel and Responsibilities

2.1 Structure of Safety Personnel
The hierarchy for safety personnel and reporting is the same as the one set in place in the ________________ County Debris Management Plan (GCDMP). In any cases where the structure of personnel is not made clear in the safety policy or there is a conflict, the GCDMP will take precedence. It is important that lines of communication and proper reporting be consistent and reliable in a post disaster environment.

2.2 Responsibilities of Safety Personnel
The responsibilities of personnel in this safety policy are in addition to and exclusive of the responsibilities detailed for the position in the GCDMP.

2.2.1 The Debris Disposal Coordinator is to coordinate and direct the use of debris storage and disposal sites according to existing guidelines. His/Her safety responsibilities include the following:

a) Receive all reports of safety violations at disposal sites.
b) Work with the Debris Safety Officer to correct safety issues at disposal sites on a daily basis.
c) Insure that proper reports for all incidents/accidents at debris disposal sites are prepared by Disposal Site Monitors and Roving Inspection Monitors within 24 hours of them occurring.
d) Take part in daily safety meetings with the Deputy Debris Manager, the Debris Safety Officer, the Debris Monitoring Coordinator, and the Debris Collection Coordinator to report ongoing safety policies and issues until such time that debris collection efforts have come to an end.
e) Insure that appropriate Personal Protective Equipment (PPE) is available to and in use by workers at disposal sites. Requests for additional PPE should be made to the Debris Safety officer as
2.2.2 The Debris Collection Coordinator is to coordinate and direct the debris collection resources according to existing guidelines. His/Her safety responsibilities include the following:
   a) Receive all reports of safety violations at collection sites.
   b) Work with the Debris Safety Officer to correct safety issues at load sites on a daily basis.
   c) Insure that proper reports for all incidents/accidents at debris collection sites are prepared by Load Site Monitors and Roving Inspection Monitors within 24 hours of them occurring.
   d) Take part in daily safety meetings with the Deputy Debris Manager, the Debris Safety Officer, the Debris Monitoring Coordinator, and the Debris Disposal Coordinator to report ongoing safety policies and issues until such time that debris collection efforts have come to an end.
   e) Insure that appropriate Personal Protective Equipment (PPE) is available to and in use by workers at collection sites. Requests for additional PPE should be made to the Debris Safety Officer as needed.

2.2.3 The Debris Monitoring Coordinator ensures that all Contractor and County debris removal and disposal operations are properly monitored using County staff. His/her safety responsibilities include the following:
   a) Observe and report to the Debris Safety Officer, any violations of the safety policy or potential safety hazards.
   b) Take part in daily safety meetings with the Deputy Debris Manager, the Debris Safety Officer, the Debris Disposal Coordinator, and the Debris Collection Coordinator to report ongoing safety policy and issues until such time that debris collection efforts have come to an end.

2.2.4 The Debris Safety Officer is responsible for the overall debris collection and disposal safety program. His/Her specific responsibilities include the following:
   a) Develop and maintain the ______________________ County Debris Management Safety Policy.
   b) Work with the Debris Disposal Coordinator and the Debris Collection Coordinator to correct safety issues as they arise.
   c) Compile a log of any safety violations that are reported for record keeping purposes.
   d) Have knowledge of all safety standards and guidelines contained in this Safety Policy as well as industry standards for situations not addressed in this policy.
   e) Visit disposal and collection sites on a continuing basis to insure that proper safety guidelines are being adhered to.
   f) Collect and maintain files for all incident/accident reports turned in from all disposal and collection sites.
   g) Complete Workers’ Compensation reports for any county employees that are injured in the course of debris collection or disposal.
   h) Take part in daily safety meetings with the Deputy Debris Manager, the Debris Disposal Coordinator, the Debris Monitoring Coordinator, and the Debris Collection Coordinator to report ongoing safety policy and issues until such time...
that debris collection efforts have come to an end.
i) Insure that appropriate PPE is available to all debris workers and is properly used.
j) Meet regularly with Roving Inspection Monitors to receive safety reports and to give instruction for safety concerns that have emerged.
k) Meet regularly with all monitors to receive safety reports and to give instruction for safety concerns that have emerged.

2.2.5 The Roving Inspection Monitors will act as the “eyes and ears” to insure that safety guidelines are closely monitored. Their safety responsibilities include:
a) Make assigned, periodic visits to all debris removal and disposal operations.
b) Report on the safety adherence of contracted companies.
c) Meet regularly with the Debris Safety Officer to review safety guidelines and issues at debris worksites.

2.2.6 The Load Site Monitors will be assigned to each loading crew within designated Debris Zones. Their safety responsibilities include the following:
a) Note and report safety violations at collection sites to the Debris Collection Coordinator.
b) Complete reports for all incidents/accidents that occur at load sites and submit them to the Debris Collection Coordinator.
c) Insure that appropriate PPE is used by all workers at load sites.

2.2.7 The Disposal Site Monitors will be assigned to each inspection tower at each Debris Management site. Their safety responsibilities include the following:
a) Note and report safety violations at Debris Management sites to the Debris Disposal Coordinator.
b) Complete reports for all incidents/accidents that occur at Debris Management sites and submit them to the Debris Disposal Coordinator.
c) Insure that appropriate PPE is used by all workers at Debris Management sites.
3.0 Personal Protective Equipment

3.1 Head Protection
In any environment where there is a possibility of falling debris, a hardhat that meets OSHA standards (Rule 1910.135 b) must be worn. This includes but is not limited to dangers from falling construction or natural debris, debris falling off of or expelled by heavy equipment, electrical hazards, and debris propelled by high winds.

When heat and sun exposure is a concern, a head covering that covers the scalp, shades the eyes/face and shades the neck and upper shoulders is preferable. This will help reduce the risk of heat stress related incidents and sunburn.

3.2 Eye Protection
Hazards to eyes can come in many different forms in a post disaster situation. They include, but are not limited to, debris and particles propelled by high winds, debris and particles expelled from heavy equipment by hand held power tools, and splashes from liquids. Safety glasses will be provided to employees.

3.3 Hand Protection
When collecting and disposing of debris, the individual’s hands are the most used “tool” on the job. Employees must wear gloves that are appropriate for the job and the environmental circumstances. Hand hygiene after coming in contact with debris is also vitally important. Refer to Appendix A of this document for more details.

3.4 Foot Protection
Foot protection is very important for workers doing post disaster clean up. Proper protective footwear will vary depending on the environment that exists in the areas where debris will need to be collected.

Standard footwear for anyone involved in debris collection or debris reduction will be boots with steel toes, shanks and insoles. There may be flooded areas that must be traversed in some cases during debris collection. Under no circumstances are regular sneakers or leather soled shoes appropriate for workers.

3.5 Protective Clothing
As important as hand and foot protection, the clothing that is worn during cleanup is no less crucial to preventing injury and disease. Workers must wear clothing that is appropriate to the job and the environmental circumstances. Safety vests must also be worn to increase visibility to traffic and equipment operators.

3.6 Hearing Protection
Hearing protection is an often overlooked but necessary element of safety equipment. If hearing is not adequately protected the consequences can be long lasting and irreversible.
The first step involves placement of loud equipment within work areas. Place generators, compressors, shaker-separators, and other noisy equipment at a distance or behind a barrier when possible. Secondly, use hearing protection when working around potential noise sources and when noise levels exceed 90 dBA. A useful “rule of thumb” is if you cannot hold a conversation in a normal speaking voice with a person that is at arms length (approximately 3 feet), the noise level may exceed 90 dBA.

3.7 Respiratory Protection
There are many hazards that can affect the respiratory system of workers in the post disaster environment. There are differing levels of protection and most of the time the simplest form of protection will be adequate. Standard disposable air purifying respirators may be used in most circumstances. These are simply filtered cups with an adjustable nose bridge that covers the nose and mouth. This type of respirators will suffice to prevent particulates such as dust or ash from interfering with breathing.

4.0 General Safety Practices

4.1 Heat Stress
Outdoor operations conducted in hot weather like debris collection and reduction, especially those that require workers to wear semi-permeable or impermeable protective clothing, are likely to cause heat stress among exposed workers. The American Conference of Governmental Industrial Hygienists (1992) states that workers should not be permitted to work when their deep body temperature exceeds 100.4°F.

Age, weight, degree of physical fitness, degree of acclimatization, metabolism, use of alcohol or drugs, and a variety of medical conditions such as hypertension all affect a person's sensitivity to heat. Prior heat injury also predisposes an individual to additional injury. It is difficult to predict just who will be affected and when, because individual susceptibility varies. In addition, environmental factors include more than the ambient air temperature. Radiant heat, air movement, conduction, and relative humidity all affect an individual's response to heat.

4.1.1 Heat Stress falls into several sub-categories, each with their own severity, warning signs, effects, and various treatments.

a) Heat Stroke occurs when the body's system of temperature regulation fails and body temperature rises to critical levels. This condition is caused by a combination of highly variable factors, and its occurrence is difficult to predict. Heat stroke is a medical emergency. The primary signs and symptoms of heat stroke are confusion; irrational behavior; loss of consciousness; convulsions; a lack of sweating (usually); hot, dry skin; and an abnormally high body temperature, e.g., a rectal temperature of 105.8°F. If body temperature is too high, it causes death. The elevated metabolic temperatures caused by a combination of work load and environmental heat load, both of which contribute to heat stroke, are also highly variable and difficult to predict.

If a worker shows signs of possible heat stroke, professional
medical treatment should be obtained immediately. The worker should be placed in a shady area and the outer clothing should be removed. The worker’s skin should be wetted and air movement around the worker should be increased to improve evaporative cooling until professional methods of cooling are initiated and the seriousness of the condition can be assessed. Fluids should be replaced as soon as possible. The medical outcome of an episode of heat stroke depends on the victim’s physical fitness and the timing and effectiveness of first aid treatment.

Regardless of the worker’s protests, no employee suspected of being ill from heat stroke should be sent home or left unattended unless a physician has specifically approved such an order.

b) **Heat Exhaustion**. The signs and symptoms of heat exhaustion are headache, nausea, vertigo, weakness, thirst, and giddiness. Fortunately, this condition responds readily to prompt treatment. Heat exhaustion should not be dismissed lightly, however, for several reasons. One is that the fainting associated with heat exhaustion can be dangerous because the victim may be operating machinery or controlling an operation that should not be left unattended; moreover, the victim may be injured when he or she faints. Also, the signs and symptoms seen in heat exhaustion are similar to those of heat stroke, a medical emergency.

Workers suffering from heat exhaustion should be removed from the hot environment and given fluid replacement. They should also be encouraged to get adequate rest.

c) **Heat Cramps** are usually caused by performing hard physical labor in a hot environment. These cramps have been attributed to an electrolyte imbalance caused by sweating. It is important to understand that cramps can be caused by both too much and too little salt. Cramps appear to be caused by the lack of water replenishment. Because sweat is a hypotonic solution (±0.3% NaCl), excess salt can build up in the body if the water lost through sweating is not replaced. Thirst cannot be relied on as a guide to the need for water; instead, water must be taken every 15 to 20 minutes in hot environments.

Under extreme conditions, such as working for 6 to 8 hours in heavy protective gear, a loss of sodium may occur. Recent studies have shown that drinking commercially available carbohydrate-electrolyte replacement liquids is effective in minimizing physiological disturbances during recovery.

d) **Heat Collapse** (“Fainting”). In heat collapse, the brain does not receive enough oxygen because blood pools in the extremities. As a result, the exposed individual may lose consciousness. This reaction is similar to that of heat exhaustion and does not affect the body’s heat balance. However, the onset of heat collapse is rapid and unpredictable. To prevent heat collapse, the worker should gradually become acclimatized to the hot environment.

e) **Heat Rashes** are the most common problem in hot work environments. Prickly heat is manifested as red papules and
usually appears in areas where the clothing is restrictive. As sweating increases, these papules give rise to a prickling sensation. Prickly heat occurs in skin that is persistently wetted by un-evaporated sweat, and heat rash papules may become infected if they are not treated. In most cases, heat rashes will disappear when the affected individual returns to a cool environment.

f) **Heat Fatigue.** A factor that predisposes an individual to heat fatigue is lack of acclimatization. The use of a program of acclimatization and training for work in hot environments is advisable. The signs and symptoms of heat fatigue include impaired performance of skilled sensorimotor, mental, or vigilance jobs. There is no treatment for heat fatigue except to remove the heat stress before a more serious heat-related condition develops.

4.1.2 Sunburn is another danger of working in the outdoor heat. Skin damaged this way can be just as severe as burns from hot surfaces or fire. The long term affects can be deadly as well as overexposure to the sun is linked directly to skin cancer. The following guidelines should be followed:

a) Wear sun screen with a sun protection factor (SPF) of 15 or greater. Reapply as necessary to ensure protection throughout the work shift.

b) When possible, wear a wide brim hat to protect exposed skin on face, head, and neck.

c) When possible, set up work area in a shaded location.

d) When possible, schedule tasks when individuals will not be exposed to direct sunlight such as during the early morning or late afternoon.

4.2 **Fatigue and Stress**

Fatigue and Stress are dangers that may not be readily apparent to workers as they are occurring. It is important that workers approach these hazards from a prevention mindset, rather than dealing with them after they have set in.

4.2.1 High levels of Fatigue among workers will inevitably lead to a higher frequency of accidents. Workers become careless and are less likely to follow safety guidelines when they are severely fatigued. Fatigue can be prevented with planning and setting a regular routine on worksites. Workers must take regular breaks while throughout the day. Meals should be eaten on a regular basis and be as healthful and satisfying as possible. Workers need to get a restful 8 hours of sleep daily to function at proper levels. Higher-hazard or new activities should take place during daylight hours using well-rested employees. Tasks that are repetitious or tedious should be mixed with those tasks that offer greater variety and interest.

4.2.2 Post disaster work can cause stress, especially for workers who are exposed to life-threatening danger, gruesome death, extreme violence or destruction, loss of possessions, and separation from friends or family. As many as one out of three post disaster workers
will experience severe stress symptoms that may lead to post traumatic stress disorder, anxiety disorders, or depression. The symptoms can included dissociation, nightmares or flashbacks, substance abuse, emotional numbing, and panic attacks. After disaster cleanup, workers should attend a debriefing and talk about their experiences, give others recognition for a job well done, eat and drink properly, and get plenty of rest. Workers should expect to feel frustrated and moody at times. If an individual feels they need help coping, professional counseling is available through the Employee Assistance Program (EAP).

4.3 Insects, Animals, Reptiles and Plants
Natural Hazards in the post disaster environment are magnified because such disasters upset the natural order of the area and wildlife will be displaced and more aggressive as a result. Standing water leads to insect breeding on a greater scale and workers will interact with insects and plants normally only found in deep woods environments.

4.3.1 Arachnids are exposed in post disaster circumstances and much more frequently encountered than normally. Spiders are a particular concern as many varieties have poisonous venom. Two types of spiders common to ____________ County that pose a particular hazard are Black Widows and Brown Recluses. Information on identifying and dealing with these spiders can be found in Appendix B of this document.

4.3.2 In a post disaster environment, especially if flooding was a factor, mosquitoes are a severe problem and hazard for workers. Workers should use insect repellent containing DEET or Picaridin on exposed skin and wear long pants and long-sleeved shirts. Efforts should be made to remove all nearby sources of stagnant or standing water. Additional information on avoiding mosquito related illness and specifically West Nile disease can found in Appendix C of this document.

4.3.3 Although new evacuation guidelines from FEMA make accommodations for pets in a disaster scenario, there will still be a number of abandoned pets, strays and wild animals aggravated by events. Workers should do the following:

a) Assume that all animals are rabid.
b) Be on guard for stray or wild animals, as they can exhibit unpredictable or aggressive behavior.
c) Do not attempt to take custody of animals—watch them from a safe distance while contacting animal control personnel.

4.3.4 In a post disaster environment, it is not unusual for snakes to be driven from their natural habitat into more exposed areas. Debris of any kind can provide a safe haven for snakes of many varieties. Workers should follow these guidelines to prevent accidentally disturbing snakes and risking a bite:
a) Assume that all snakes are poisonous.
b) 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 are present.

c) Do not sit or lie down in areas where snakes could be present (e.g., wood piles, high vegetation).

d) Wear proper foot gear, such as high-top leather boots and leather gloves when handling materials where snakes may have nested (e.g., firewood, lumber, rocks, construction debris). Refer to Appendix H for more information on snake hazards.

4.3.5 Natural plants and brush will often be displaced and exposed by flood waters or high winds in a post disaster environment. It is important that workers be able to recognize potentially hazardous plants and prevent contact that may cause serious irritation. The three plants that must be protected against the most are poison ivy, poison oak, and poison sumac. Recognizing the plants is the first step in avoiding the hazard. Poison ivy and poison oak generally have three leaves. In botanical terms, these are actually three leaflets that comprise one leaf, but they are clearly in groups of three. A generations-old saying warns, “Leaves of three, let it be.”

a) Poison ivy flowers and produces white waxy berries. If the leaves are bruised, even very slightly, the released urushiol makes a black spot on the leaves. These tiny black irregular spots occurring on the leaves are very characteristic of poison ivy. Poison ivy also can appear as a brown, hairy-looking vine, climbing trees to 10 or more feet in height. Contact with the vine can produce the same allergic reaction as contact with the leaves. In the U.S., poison ivy typically grows in the East, Midwest, and South.

b) Poison oak is not as common as poison ivy. Again, “leaves of three, let it be.” In the case of poison oak, the leaves are shaped somewhat like oak leaves. They are shiny, without prickers, and the middle leaf has a distinct stalk. It is harder to identify poison oak in the winter, when it loses its leaves and only the stalk shows. The plant usually grows as a small shrub in the southern U.S. but can grow as a large standing shrub or climbing vine in the West.

c) Poison sumac has leaves with as few as seven to as many as 13 leaflets. It also is shrub-like and tends to grow in standing water. Poison sumac is most common in the peat bogs of the northern U.S. and in swampy southern regions of the country. Whereas sumac that is not poisonous will have fruit growing from the ends of its branches, poisonous sumac has fruit that grows between the leaf and the branch. In addition, the leaves have a brilliant orange or red color in the fall.
Despite their different appearances, all three of these plants have the same poison, urushiol, and produce the same allergic reaction in those who touch it. It is important to remember that all parts of the plants contain urushiol—leaves, stems, even roots—and the poison exists in the plants throughout the year, whether they have leaves or not. The plants are more readily recognized in the spring and summer, but they are always a hazard.

The following measures can be taken to prevent and mitigate exposure:

a) Keep rubbing alcohol accessible, as it may remove the oily resin from plants such as poison ivy up to 30 minutes after exposure.

b) When appropriate, safely clear vegetation from areas where personnel are working and living (e.g., construction trailers, base camps).

c) Use recommended gloves and wear long pants and long-sleeved shirts when possibly contacting poisonous plants.

d) Use a barrier cream formulated to protect against poison ivy/oak.

4.4 Hazardous Materials

Hazards related to debris from structures are of concern with high winds and flooding a major source of damage. Materials from older structures that are dangerous will be amongst other debris and it is important that workers’ exposure to the hazards are minimized.

4.4.1 There is a high potential for Asbestos Containing Materials (ACM) among debris. Structures built before 1980 are more likely to contain ACM. If available, a building’s operations and maintenance plan and ACM survey should be reviewed to determine the locations and types of ACM in a building. Thermal system insulation (formed or spray-on) is the ACM of greatest concern for debris worker exposure. Other materials that may contain asbestos include: vinyl floor tile, home siding & shingles, transite (including cement piping), flame retardant materials (e.g., gloves, curtains) and roof flashing.

If a building is suspected or known to contain asbestos-containing thermal system insulation, ensure a qualified individual, such as a person certified as an asbestos inspector by the State, or a safety and health professional, inspects the building and evaluates the condition of the material prior to any remediation or cleanup of ACM or PACM by other response and recovery workers.

If asbestos is located, workers should not disturb the material and isolate the area until the material can be visually inspected for integrity. They will contact a supervisor for evaluation/removal before continuing work in the area. Refer to Appendix D of this document for additional details.

4.4.2 Lead is another hazardous material used in older construction that workers can become exposed to. Workers should identify building materials such as painted surfaces and pipes that may contain lead and test materials as necessary. Based on test results, qualified personnel should perform a worker exposure assessment of the planned activities, that includes air monitoring and/or objective data, to determine if lead dust or fumes may be generated at or above OSHA’s action level (0.03
milligrams of lead per cubic meter of air (mg/m3)). To minimize exposure, workers should observe good personal hygiene practices, such as washing hands before eating and taking a shower before leaving the worksite. Where required PPE will be supplied to workers to combat lead exposure. Refer to Appendix E of this document for additional details.

4.4.3 Flood waters can dislodge tanks, drums, pipes and equipment which may contain hazardous materials such as pesticides or propane. If intact hazardous chemical containers are found with debris, segregate them from the waste stream before continuing work in the area. Workers should store containers securely so that they will not break or fall and so that they are clear of vehicular traffic and heavy equipment.

If broken or leaking hazardous chemical containers are found with debris, workers should take self-protective measures (i.e., move to a safe distance upwind) and contact hazardous material response personnel for evaluation/removal before continuing work in the area. Workers must not use spark-producing devices (e.g., engines, tools, electronic, and communications equipment) in the immediate area. For locations near or on water, mark the location of the chemical container using a float or buoy.

If workers must work in potentially contaminated areas, they should avoid skin contact or inhalation of vapors by wearing appropriate protective clothing and respirators.

4.5 Work Zone Traffic
Cleaning up debris in areas of high traffic may be necessary. Primary access roads will always be a priority to clear in a post disaster environment as clear paths for emergency vehicles are a must. Ensuring that all workers in exposed traffic areas are as safe as possible is the number one priority.

4.5.1 Having the proper standards in place for safety zones and buffers at worksites in the first step in the establishment of injury free worksites. The following guidelines should be used:

a) Develop and use a site plan that provides traffic flow details
b) Use flaggers, traffic cones, and/or highway channeling devices to steer traffic away from response and recovery workers along the roadway (see flagger guidance)
c) Use flaggers, standard road signs (e.g., "work zone ahead"), or message boards to warn approaching vehicles of work area

d) Give motorists plenty of warning of upcoming work zones; place the first warning signs at a distance calculated as 4 to 8 times (in feet) the speed limit (in MPH)-use a higher multiplier for higher speed areas (e.g., a 15 MPH road should have its first warning sign at least 60 feet from the work zone, while a work zone needed in a 65 MPH zone should have its first sign approximately 520 feet away)
e) Ensure that the work zone is well lit, but control glare to avoid temporarily blinding response and recovery workers or passing motorists

4.5.2 Managing traffic flow so that major delays or accidents can not occur is
the second step to injury free worksites.

a) Develop and use a site plan that provides traffic flow details
b) Limit access, barricade, or set up controlled access zones where the equipment will be used; for equipment that rotates and/or carries/dumps loads, create an access zone that extends beyond the maximum rotation/swing radius of the equipment and/or beyond the area where loads will be carried/dumped
c) Establish/follow traffic control patterns (e.g., cones, barrels, barricades) in work areas
d) Use spotters where visibility is limited
e) Do not drive in reverse gear with an obstructed rear view unless the vehicle has an audible alarm or a signaler is used
f) Ensure that spotters and heavy equipment operators have communications equipment or agree on and use hand signals
g) Response and recovery workers and other pedestrians should make eye contact with heavy equipment operators before proceeding near equipment or operating areas
h) Train response and recovery workers not to position themselves between mechanical equipment and a fixed object
i) Provide barricades around excavations and structures such as debris reduction observation towers

5.0 Debris Collection Safety Practices

5.1 Structural and Natural Debris
In the post disaster environment, high winds and flooding will cause a significant amount of damage to structures and the natural landscape. The debris that will be left behind is both inconvenient and dangerous.

5.1.1 When dealing with loose and broken debris from structures and natural sources such as trees and brush, workers must always be vigilant and constantly re-assess the situation. Debris of this type offers many types of hazard:
   a) Tripping and falling on loose debris
   b) Damage to workers from falling or windborne debris
   c) Puncture wounds or cuts from nails, broken glass, or sheared metal
   d) Back or muscle injury from lifting or moving too much weight.
   e) Health issues from moving contaminated debris

5.1.2 All of these hazards can be mitigated by the proper use of PPE and planning the worksite method accordingly. Always clearing obvious hazards first and re-evaluating throughout the process are key to operating injury free.

5.2 Standing Water
Standing water, whether it be flood waters that have not receded, ponds that have remained stagnant due to blocked flow, or swimming pools with non running pumps, can hold many hazards, both visible and invisible. Refer to Appendix F of this document for handling standing water hazards.

5.3 Electrical Hazards
Standing water and high winds mix to make for downed power lines in many areas where they can create a particular danger. This is true even when the
power is out in a particular area. The following guidelines can be applied:

a) Do not touch downed power lines or any object or water that is in contact with such lines.

b) Treat all power lines as energized until you are certain that the lines have been de-energized.

c) Beware of overhead and underground lines when clearing debris. Extreme caution is necessary when moving ladders and other equipment near overhead power lines to avoid inadvertent contact.

d) If damage to an electrical system is suspected (for example, if the wiring has been under water, you can smell burning insulation, wires are visibly frayed, or you see sparks), turn off the electrical system in the building and follow lockout/tagout procedures before beginning work. Do not turn the power back on until electrical equipment has been inspected by a qualified electrician.

e) When using a generator, be sure that the main circuit breaker is OFF and locked out prior to starting the generator. This will prevent inadvertent energization of power lines from backfeed electrical energy from generators and help protect utility line workers from possible electrocution.

f) Be aware that de-energized power lines may become energized by a secondary power source such as a portable backup generator.

g) Any electrical equipment, including extension cords, used in wet environments must be marked, as appropriate, for use in wet locations and must be undamaged. Be sure that all connections are out of water. h) All cord-connected, electrically operated tools and equipment must be grounded or be double insulated. i) Ground-fault circuit interrupters (GFCIs) must be used in all wet locations. Portable GFCIs can be purchased at hardware stores.

5.4 Mold and Fungi
Flood conditions contribute to the growth and transmission of many kinds of fungi, some of which can cause sickness. Cleanup workers are at increased risk of exposure to airborne fungi and their spores because they often handle moldy building materials, decaying vegetable matter, rotting waste material, and other fungus-contaminated debris. The fungal material is carried into the respiratory tract when airborne particles are inhaled. Refer to Appendix G of this document for details on combating this hazard.

5.5 Animal and Human Remains
Both animal and human remains may be discovered in the course of debris collection that were not discovered by initial search and rescue efforts. Although remains of this nature do not pose a greater risk of disease or infection, precautions should be made and proper procedures should be followed for their disposal.

5.5.1 Whenever possible, animal remains should be collected and disposed of by county animal control officers as they are most qualified and have the proper equipment. If they are not available, animal remains should be collected and disposed of using an appropriate method (typically burying or incineration). Animal remains are typically transferred manually or with assistance from heavy equipment. Mass disposal of animal remains should occur as soon as time and resources allow; this will help ensure that the
animal remains stay intact and response and recovery workers will have less contact with body fluids.

5.5.2 The presence of human remains at a debris site requires special hazard management. Workers must immediately contact the Police and Fire Departments when discovering remains that appear to be human and stop work in the area until given clearance by authorized personnel.

6.0 Debris Disposal Site Safety Practices

6.1 Heavy Equipment Operation
Several forms of heavy equipment will be in operation at debris disposal sites. It is important that all recognized safety standards be followed in order to prevent injury to workers in the disposal site. Refer to individual safety and operating manuals for heavy equipment whenever possible.

6.1.1 General heavy equipment operation guidelines are as follows:

a) All vehicles must have a service brake system, an emergency brake system, and a parking brake system, working headlights, tail lights, and brake lights, an audible warning device (horn), and an intact windshield with working windshield wipers

b) Ensure that all operators have been trained on the equipment they will use

c) Check vehicles at the beginning of each shift to ensure that the parts, equipment, and accessories are in safe operating condition. Repair or replace any defective parts or equipment prior to use

d) Do not operate vehicle in reverse with an obstructed rear view unless it has a reverse signal alarm capable of being heard above ambient noise levels or a signal observer indicates that it is safe to move

e) Vehicles loaded from the top (e.g., dump trucks) should have cab shields or canopies to protect the operator while loading

f) Ensure that vehicles used to transport employees have seats, with operable seat belts, firmly secured and adequate for the number of employees to be carried

g) Equipment should have roll-over protection and protection from falling debris hazards as needed

h) Prior to permitting construction equipment or vehicles onto an access roadway or grade, verify that the roadway or grade is constructed and maintained to safely accommodate the equipment and vehicles involved

i) Do not modify the equipment’s capacity or safety features without the manufacturer’s written approval

6.1.2 Burning operations require special preparation of the work area in order to maintain safety zones. Workers should remove grasses and other flammable and combustible materials from the area around burning operations; embers from air burners can spread approximately 100 feet. It is necessary to ensure that fire extinguishers are available at work sites and on work vehicles. Consider the need for public water supply and emergency medical and fire services when selecting debris incineration sites. Workers must provide separation between burn piles and
structures, where possible (e.g., buildings and observation tower) and ensure structures are upwind of burn pile location.

There must also be established conditions when burns should not be conducted (e.g., maximum/sustained wind speed) fire department personnel should be consulted for this standard. Supervisors must maintain a fire watch during all fire-related activities until material has cooled. There may also be a need to limit access (e.g., fencing, guards, covers for air burners) both during operation and when left unattended (e.g., at night). Monitor carbon monoxide exposure levels for employees (e.g., heavy equipment operators, fire watch) that are working near burning operations. Additional burning guidelines are as follows:

a) Position air curtain burners away from debris piles  
b) Do not push the debris into the pit; this may compromise the integrity of the pit wall. Use the pick and drop method to load materials into the burner  
c) Pit length should be no longer than the length of the blower  
d) Use wheel stops and berms to keep heavy equipment from affecting the structural integrity of the pit. Position wheel stops made of combustible materials (e.g., logs) so that they will not be affected by the heat and fire.

6.1.3 Another method of debris reduction that will be used is wood chippers and tub grinders. The following guidelines should be adhered to when working with this type of equipment:

a) Do not wear loose-fitting clothing  
b) Follow the manufacturer’s guidelines and safety instructions  
c) Guard the feed and discharge ports  
d) Prevent opening of access doors and covers until the drum or disc has completely stopped  
e) Prevent detached chippers from sliding or rolling by chocking the trailer wheels  
f) Maintain a safe distance between the machine operations and other work/individuals. This area should be free of nonessential equipment, vehicles, and personnel  
g) Never reach into the equipment while it is operating  
h) Use a lockout system when servicing or maintaining (e.g., "unjamming") equipment

6.2 Trenches and Excavations

It will be necessary during the debris reduction process to excavate and maintain trenches, pits and similar structures. The following guidelines apply to their construction and maintenance:

a) Ensure that a competent person inspects the trench, adjacent areas, and protective systems (where employed) daily and takes any corrective measures necessary before work begins and employees are allowed to enter the trench/excavation. A competent person is able to recognize existing and predictable hazardous conditions and has the authority to take prompt corrective measures to eliminate the hazardous conditions  
b) Inspections may be needed throughout the shift and must be conducted after every rainstorm and after any other event that increases the risk of hazardous
conditions (e.g., possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions) if employees will enter the trench/excavation

c) Have a competent person classify soil types visually and use at least one manual method (plasticity, dry strength, thumb penetration); soils may be categorized into 3 groups other than solid rock:
   • Soil type A is the most stable; it includes clay, silty clay, and hardpan; no type A soils can be fissured, subject to vibration, have been previously disturbed, or be seeping water
   • Soil type B is of medium stability; it includes silt, sandy loam, soft clay, submerged soil, and dense heavy unstable rock; it also includes non-type C soils that have previously been disturbed and type A soils that are fissured and subject to vibration
   • Soil type C is the least stable soil type; it includes gravel, loamy sand, soft clay, submerged soil, unstable rock, and soil from which water is freely flowing

d) Adequately slope or bench the sides, or use an appropriate protective system (shield, trench box, shoring/hydraulic shoring) based on the soil type

e) Sloping and Benching for trenches less than 20 feet in depth: For Type A soils, trenches must be sloped/benched at 53 degrees or less (0.75 horizontal feet for each vertical foot) unless the excavation will only be open for 24 hours or less and is less than 12 feet in depth. In this case the trench may be sloped at 63 degrees or less (0.5 horizontal feet for each vertical foot). For Type B soils, trenches must be sloped/benched at 45 degrees or less (1 horizontal foot for each vertical foot). For Type C soils, trenches must be sloped/benched at 34 degrees or less (1.5 horizontal feet for each vertical foot)

f) Sloping and benching for excavations greater than 20 feet in depth: In this case, sloping/benching must be designed by a registered professional engineer

g) Protective systems: Protective systems must have the capacity to resist, without failure, all loads that are expected to be applied

h) Store all materials, including those removed from the trench or excavation, at least 2 feet away from the sides of the trench or behind a suitable restraining system

i) Ensure that all adjacent buildings/structures or surface obstructions (e.g., trees, large rocks) near the trench are supported or removed

j) Support and protect all utilities spanning a trench or excavation

k) Provide a fixed means of egress for trenches 4 feet or greater in depth; ensure individuals do not need to travel more than 25 feet to the closest means of egress

l) Do not allow response and recovery workers to work in trenches or excavations where water has accumulated or is accumulating unless additional precautions are taken to prevent cave-ins (e.g., additional supports or shield systems, water removal overseen by a competent person)

6.3 Segregation of Wastes
Different types of debris must be separated during the reduction process. Different types of debris each have their own hazard concerns as well. The following guidelines apply when separating different types of waste:

a) “White goods” like refrigerators and air conditioners may contain chemicals such
as Freon® and oils that may be recycled prior to discarding the appliance/equipment. Older refrigerators may also contain ammonia, sulfur dioxide, and other chemicals. White goods and household wastes such as cleaners, paints, and pesticides should be segregated and addressed as described here

b) Segregate containers of hazardous materials by expected hazard class
c) Store incompatible hazard classes separately (e.g., oxidizers away from flammables)
d) Store/stack containers securely so that they will not break or fall and so that they are clear of vehicular traffic and heavy equipment
e) Provide spill containment, where necessary. Line hazardous material holding area with plastic sheeting and build a berm around the perimeter to contain leaking or spilled material
f) At the end of each shift, cover hazardous materials that were not processed with plastic and close the lids on any drums
g) Store and handle hazardous materials in areas with natural or forced ventilation; do not store or handle in low-lying areas
h) If intact hazardous chemical containers are found with debris, segregate them from the waste stream before continuing work in the area
i) If broken or leaking hazardous chemical containers are found with debris, contact a supervisor/hazardous material personnel for evaluation/removal before continuing work in the area

6.4 Generator Use
It may be necessary to use generators at debris sites and the regular power grid may be compromised long after the disaster has occurred. The following guidelines apply to the use of generators:

a) Never attach a generator directly to the electrical system of a structure unless a qualified electrician has installed a transfer switch for the generator. If the structure’s electrical system is not isolated, it may energize the utility’s wiring system for great distances and create a risk of electrocution for utility workers and others in the area

b) Always plug electrical equipment directly into the generator using the manufacturer’s supplied cords or grounded (3-pronged) extension cords that are rated for the total anticipated load
c) Do not overload a generator; it can overheat and create a fire hazard
d) Ground and bond generators according to the manufacturer’s recommendations; ensure that any manufacturer-required connections are secure before using the generator
e) Keep the generator dry; protect with a canopy if needed; do not use it in wet or rainy conditions
f) Carbon monoxide (CO) is a poisonous, colorless, and odorless gas that is produced by the incomplete burning of the generator’s fuel. CO is harmful when breathed because it displaces oxygen in the blood and deprives the heart, brain, and other vital organs of oxygen.

g) Never use a generator indoors or in enclosed spaces such as garages and basements; opening windows and doors may not prevent CO from building up in those spaces. Do not use a generator outdoors near doors, windows, and vents that could allow CO to enter.

h) Ensure that a generator has 3 to 4 feet of clear space on all sides and above it to ensure adequate ventilation and cooling.

i) Before refueling, shut down the generator and allow it to cool.

6.5 Ash Removal

With burning as a method of debris reduction, proper handling of the ash left from this operation is important. This can pose a significant safety hazard to workers and the following guidelines must be applied:

a) Do not remove ash until it has cooled and it no longer contains hot spots.

b) Remove flammable and combustible materials from around the area where ash is being handled.

c) Consider maintaining a fire watch while removing materials.

d) Where construction and demolition debris may be mixed with vegetative debris, test the ash for hazardous components before removal.

e) Use water spray or mist to suppress dust generation.
Hand Hygiene and Protective Gloves in Hurricane-Affected Areas

Flood environments present many health and safety challenges for rescue workers, emergency responders and clean-up crews. Preventing or minimizing disease exposure when working in contaminated flood waters is possible by taking various precautions, specifically with proper hand hygiene and the use of protective gloves.

Minimizing Disease Exposure When Working in Contaminated Flood Water

After an emergency, it is often difficult to find running water. Still, it is imperative to wash your hands with soap and clean (or disinfected) water to avoid illness.

Before working in flooded environments, assemble adequate supplies of the following items:

- Clean water, disposable latex or nitrile gloves; hand lotion
- Household bleach; rubbing alcohol (or alcohol-based towelettes).
- Spray bottles

Wash hands with soap and clean (or disinfected) water before preparing or eating food; after toilet use; after participating in decontamination and other cleanup activities; and after handling articles contaminated with floodwater or sewage.

- If clean water is not available, contaminated water can be bleach-disinfected by mixing $\frac{1}{4}$ teaspoons of household bleach per 1 gallon of water and let stand for 30 minutes.
- Label containers (e.g., “Bleach-disinfected water -- do not drink”).
- If clean water is available, follow these procedures:
  - Place hands under running water pointed downwards;
  - Rub hands together (with soap if available) and wash all surfaces well, including under fingernails.
◆ After rinsing thoroughly, dry hands completely with a clean towel.

If water is not available, use alcohol-based products made for washing hands.

- Use a solution of 70% (v/v) rubbing (isopropyl) alcohol (~3 quarts rubbing alcohol, and ~1 quart water).
- Using a sprayer, cover all surfaces well, including wrists, palms, backs of hands, fingers and under fingernails. Rub gently and allow to air dry.
- Alcohol-based towelettes or hand rubs significantly reduce the number of germs on skin (The Association for Professionals in Infection Control (APIC) suggests using a towelette to cleanse the hands and then an alcohol gel to thoroughly disinfect).

**Glove Safety in Contaminated Flood Waters**

It is extremely important to wear protective gloves when working in contaminated flood waters, particularly when handling human or animal remains. Ungloved hands should never make direct contact with body fluids and fecal materials, or flood waters contaminated with fecal material.

When working in contaminated flood waters:

- Wear a combination of gloves (if possible) including an inner cut-resistant glove (nitrile or similar washable material) and an outer nitrile or latex disposable glove (preferably 4 to 8 mil thickness).
- Protect gloved hands from cuts or any puncture wounds caused by sharp objects.
Should a puncture wound occur, carefully remove the contaminated gloves and wash the affected area with soap and clean (or disinfected) water or an alcohol-based hand cleaner. See a doctor or health department official if the wound is contaminated with feces, soil, or body fluids. **Seek immediate medical attention if the wound becomes red, swells, or oozes pus.** Avoid touching your face with contaminated gloves; hand-to-mouth contact is a major route of contracting disease. Remove contaminated gloves after use; discard if gloves become torn or damaged. Take extra care when removing contaminated gloves.

◆ Point the hand downward and peel off the outer glove starting at the wrist, turning them inside out as you proceed. Do the same for any inner gloves worn.

◆ Be careful to avoid splashes of contaminated body fluids or fecal materials to your face or that of others.

◆ Avoid contacting any uncontaminated areas of skin.

Properly discard outer gloves if disposable and disinfect inner washable gloves, if used. Wash hands with soap and clean (or disinfected) water, or use an alcohol-based hand cleaner immediately after removing contaminated gloves.

**Additional Concerns**

Workers allergic to latex should use nitrile gloves.

To protect against dermatitis, which can occur from prolonged exposure to perspiration in gloves, a thin cotton glove can be worn inside the external gloves.

Frequent hand-washing, especially with alcohol-based disinfectants can irritate the skin and make it more susceptible to abrasion. Use hand lotion to alleviate dryness. However, do not use hand lotion under latex gloves because this can break down the gloves.

Contaminated clothing, tools and equipment should be thoroughly cleaned using soap and clean water if available.

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**For more complete information:**

**OSHA**

[Government Logo]

U.S. Department of Labor

[Website URL]

(800) 321-OSHA
Protect Yourself! Workers may be exposed to Black Widow Spider

The black widow belongs to a group of spiders commonly known as cobweb spiders. The characteristic hourglass is located on the underside of the abdomen. Female black widows are dangerous and can bite and inject toxic venom.

Identification
- The female black widow is normally shiny black, with a red hourglass marking (see photo) on the underside of the abdomen.
- The abdominal marking may range in color from yellowish orange to red and its shape may range from an hourglass to a dot.
- The body of an adult black widow female is about 3/4 inch long.

Habitat
The black widow is commonly found in the following places:
- Outdoors - woodpiles, rubble piles, under stones, in hollow stumps, and in rodent burrows, privies, sheds and garages.
- Indoors - undisturbed, cluttered areas in basements and crawl spaces.

Symptoms
- The bite of the black widow may be painful or it may go unnoticed.
- The skin may display one or two bite marks with local swelling. Pain usually progresses from the bite site and eventually to the abdomen and back.
- Severe cramping or rigidity may occur in the abdominal muscles.
- Symptoms may include nausea, profuse perspiration, tremors, labored breathing, restlessness, increased blood pressure and fever.
- The pain from the bite will usually persist for the first 8-12 hours.
- Symptoms may continue for several days.

Protection
- Wear a long-sleeved shirt, hat, gloves, and boots when handling boxes, firewood, lumber, and rocks, etc.
- Inspect and shake out clothing and shoes before getting dressed.
- Use insect repellants, such as DEET or Picaridin, on clothing and footwear.

Treatment
- Clean the bite area with soap and water.
- Apply ice to the bite area to slow absorption of the venom. Elevate and immobilize the extremity. Capture the spider, if at all possible, for identification purposes.
- Seek medical attention immediately. If you have a heart condition or other heart problem, you may need hospitalization.

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For more complete information:
OSHA
FactSheet

Protect Yourself! Workers may be exposed to Brown Recluse Spider

The brown recluse belongs to a group of spiders commonly known as violin spiders or fiddlebacks. The characteristic fiddle-shaped pattern is located on the top of the leg attachment region (cephalothorax). Because they are secluded and withdrawn, as their name implies, the brown recluse avoids open spaces. Brown recluse spiders are dangerous and they can bite and inject toxic venom.

Identification
• Body size: 1/4 to 3/4 inch (6.4-19.1mm)
• Color: Golden brown
• A dark violin/fiddle shape (see top photo) is located on the top of the leg attachment region (cephalothorax) with the neck of the violin/fiddle pointing backward toward the abdomen.
• Unlike most spiders that have 8 eyes, the brown recluse has 6 eyes. The eyes, arranged in pairs – one pair in front and a pair on either side – can be readily seen under low magnification.

Habitat
The Brown Recluse Spider builds small retreat webs behind objects of any type.

Symptoms
• The severity of the bite may vary. Symptoms may vary from none to very severe.
• The bite generally becomes reddened within several hours.

There is often a systemic reaction within 24-36 hours characterized by restlessness, fever, chills, nausea, weakness and joint pain.
• Tissue at the site of the bite and the surrounding area dies and eventually sheds.

Protection
• Wear a long-sleeved shirt, hat, gloves, and boots when handling stored boxes, firewood, lumber and rocks, etc.
• Inspect and shake out clothing and shoes before getting dressed.
• Use insect repellants, such as DEET or Picaridin, on clothing and footwear.

Treatment
• Clean the bite area with soap and water.
• Apply ice to the bite area to slow absorption of the venom.
• Elevate and immobilize the bitten extremity.
• Capture the spider, if at all possible, for identification purposes.
• Seek medical attention.

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West Nile Virus

West Nile Virus (WNV) infection is an illness transmitted to humans primarily by mosquitoes. The pathogen that causes WNV infection is a virus that is known to infect birds and other animals as well as humans. Employees working outside are at risk, particularly in warmer weather (when mosquitoes are more likely to be present). The following information below is designed to educate employers and workers on the virus and also offer ways to reduce the risks of infection.

What are the signs and symptoms of West Nile Virus?

In most cases, persons infected with WNV either show no symptoms or have very mild flu-like symptoms, called West Nile fever. These mild cases of West Nile fever normally last only a few days and are not believed to cause any long-term effects. The typical time from infection to the onset of signs and symptoms is 3 to 14 days. Signs and symptoms of the milder illness, West Nile fever, include headache, fever, body aches, swollen lymph nodes, and/or a skin rash on the body.

According to the Centers for Disease Control and Prevention (CDC), severe illness is reported to occur in about 1 in every 150 persons infected with WNV. Symptoms of severe disease may last several weeks and may have permanent neurological effects. The signs and symptoms of more severe infection (West Nile encephalitis or meningitis) include headache, high fever, stiffness in the neck, disorientation (in very severe cases, coma), tremors and convulsions and muscle weakness (in very severe cases, paralysis). Persons who develop symptoms of severe WNV illness should seek medical attention immediately, as this disease can be fatal.

How can workers become exposed?

Flooded areas, particularly in warm climates, provide the opportunity for mosquitoes to breed in stagnant water. Bites from infected mosquitoes may result in WNV.
What can employers do to reduce the risk to workers?
Employers should keep in mind that elimination of mosquito breeding grounds is a highly effective way of reducing mosquito populations and reducing the number of mosquito bites. Mosquitoes lay eggs in standing water. Employers with employees working in and around areas of stagnant water should:
• Be aware of working conditions, i.e., the presence of equipment or areas where water accumulates.
• Advise employees to inspect work areas and, where possible, get rid of sources of stagnant or standing water to remove a potential breeding ground of mosquitoes.
• Reduce or eliminate mosquito populations by disrupting mosquito breeding grounds (i.e., whenever possible, drain ditches, gutters, etc., to get rid of sources of stagnant or standing water).
• Encourage workers to protect themselves from skin contact with dead birds. CDC recommends using gloves or an inverted plastic bag when handling dead birds.

What can workers do to protect themselves?
It may not always be possible to eliminate all potential mosquito breeding grounds. Knowledge of some key steps that employees can take to minimize the risk of mosquito bites is, therefore, important in reducing the risk of WNV infection. Employees who work
outdoors should be aware that the use of personal protective equipment and techniques is essential to preventing mosquito bites. Employees should:

• Cover as much of the skin as possible by wearing shirts with long sleeves, long pants and socks whenever possible. Use lightweight clothing to minimize the potential for heat-induced illnesses.
• Use insect repellents containing DEET on skin that is not covered by clothing. According to the CDC, the most effective repellents contain DEET (N, N-diethyl-m-toluamide or N, N-diethyl-3-methylbenzamidine).
• Avoid the use of perfumes and colognes when working outdoors during peak times when mosquitoes may be active; mosquitoes may be more attracted to individuals wearing perfumes and colognes.
• Choose a repellent that provides protection for the amount of time that you will be outdoors/in areas of concern. The more DEET a repellent contains, the longer time it can protect one from mosquito bites, with protection times ranging from 1 hour (4.75% DEET) to 5 hours (23.8% DEET).
• Spray insect repellent on the outside of one’s clothing, as it is possible for mosquitoes to bite through thin clothing.
• Do NOT spray insect repellent on skin that is under clothing.
• Never apply repellents over open wounds or irritated skin.
• Do NOT spray aerosol or pump products in enclosed areas. Do NOT spray a pump or aerosol product directly on one’s face. First spray on hands and carefully rub on face (do not allow insect repellent to contact one’s eyes and mouth).
• After working in areas where mosquitoes are a concern, use soap and water to wash skin that has been treated with insect repellent.
• Be extra vigilant at dusk and dawn when mosquitoes are most active.

Additional Resources:
CDC West Nile Virus Home Page at: www.cdc.gov/ncidod/dvbid/westnile/index.htm

The U.S. EPA (information on the use of insect repellents): www.epa.gov/pesticides/factsheets/insectrp.htm

OSHA at www.osha.gov/dts/shib/shib082903b.html

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Protecting Workers from Asbestos Hazards

Cleaning up after a flood requires hundreds of workers to renovate and repair, or tear down and dispose of, damaged or destroyed structures and materials. However, repair, renovation, and demolition operations often generate airborne asbestos, a mineral fiber that can cause chronic lung disease or cancer. The Occupational Safety and Health Administration (OSHA) has developed regulations designed to protect cleanup workers from asbestos hazards.

How You Can Become Exposed to Asbestos

Before it was known that inhalation of asbestos fibers causes several deadly diseases—including asbestosis, a progressive and often fatal lung disease, and lung and other cancers—asbestos was used in a large number of building materials and other products because of its strength, flame resistance, and insulating properties. Asbestos was used in asbestos-cement pipe and sheeting, floor and roofing felts, dry wall, floor tiles, spray on ceiling coatings, and packing materials. When buildings containing these materials are renovated or torn down, or when the asbestos-containing materials themselves are disturbed, minute asbestos fibers may be released into the air. The fibers are so small that they often cannot be seen with the naked eye; the fact that you can inhale these fibers without knowing it makes asbestos an even more dangerous hazard.

OSHA’s Standards for Asbestos

The work of flood cleanup personnel involves the repair, renovation, removal, demolition, or salvage of flood-damaged structures and materials. Such materials may contain or be covered with asbestos, and cleanup personnel are protected by OSHA’s construction industry asbestos standard (Title 29 Code of Federal Regulations (CFR), Part 1926.1101). This standard requires employers to follow various procedures to protect their employees from inhaling
asbestos fibers. The standard contains many requirements that vary depending on the kind of work being undertaken, the amount of asbestos in the air, and other factors. You and your employer can obtain a copy of this standard and the booklet, Asbestos Standards for Construction (OSHA 3096) describing how to comply with it, from OSHA Publications, P.O. Box 37535, Washington, DC 20013-7535, (202) 693-1888(phone), or (202) 693-2498(fax); or visit OSHA’s website at www.osha.gov.

**Major Elements of OSHA’s Asbestos Standard**

The following include some of the major requirements of the asbestos standard. For complete information on all requirements, see 29 CFR 1926.1101.

- A permissible exposure limit (PEL) of 0.1 fiber of asbestos per cubic centimeter of air as averaged over an 8-hour period, with an excursion limit of 1.0 asbestos fibers per cubic centimeter over a 30-minute period.
- Requirements for an initial exposure assessment to ascertain expected exposures during that work operation, and periodic exposure monitoring in certain instances.
- Use of engineering controls, to the extent feasible, to meet the PEL. Where this is not possible, engineering controls must be used to reduce exposures to the lowest levels possible and then supplemented by the use of appropriate respiratory protection.
Use of regulated areas to limit access to locations where asbestos concentrations may be dangerously high. No smoking, eating, or drinking in asbestos-regulated areas. Requirements for warning signs and caution labels to identify and communicate the presence of hazards and hazardous materials; recordkeeping; and medical surveillance.

Additional Information
For more information on this, and other health-related issues impacting workers, visit OSHA’s Web site at www.osha.gov.

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For more complete information:

OSHA
U.S. Department of Labor
www.osha.gov
(800) 321-OSHA
Protecting Workers from Lead Hazards

Cleaning up after a flood requires hundreds of workers to renovate and repair, or tear down and dispose of, damaged or destroyed structures and materials. Repair, renovation and demolition operations often generate dangerous airborne concentrations of lead, a metal that can cause damage to the nervous system, kidneys, blood forming organs, and reproductive system if inhaled or ingested in dangerous quantities. The Occupational Safety and Health Administration (OSHA) has developed regulations designed to protect workers involved in construction activities from the hazards of lead exposure.

How You Can Become Exposed to Lead

Lead is an ingredient in thousands of products widely used throughout industry, including lead-based paints, lead solder, electrical fittings and conduits, tank linings, plumbing fixtures, and many metal alloys. Although many uses of lead have been banned, lead-based paints continue to be used on bridges, railways, ships, and other steel structures because of its rust- and corrosion-inhibiting properties. Also, many homes were painted with lead-containing paints. Significant lead exposures can also occur when paint is removed from surfaces previously covered with lead-based paint.

Operations that can generate lead dust and fumes include:

- Demolition of structures;
- Flame-torch cutting;
- Welding;
- Use of heat guns, sanders, scrapers, or grinders to remove lead paint; and
- Abrasive blasting of steel structures

OSHA has regulations governing construction worker exposure to lead. Employers of construction workers engaged in the repair, renovation, removal, demolition, and salvage of flood-damaged structures and materials are responsible for the development and implementation of a worker protection program in accordance with Title 29 Code of
Federal Regulations (CFR), Part 1926.62. This program is essential to minimize worker risk of lead exposure. Construction projects vary in their scope and potential for exposing workers to lead and other hazards. Many projects involve only limited exposure, such as the removal of paint from a few interior residential surfaces, while others may involve substantial exposures. Employers must be in compliance with OSHA’s lead standard at all times. A copy of the standard and a brochure — Lead in Construction (OSHA 3142) — describing how to comply with it, are available from OSHA Publications, P.O. Box 37535, Washington, D.C. 20013-7535, (202) 693-1888(phone), or (202) 693-2498(fax); or visit OSHA’s website at www.osha.gov.

Major Elements of OSHA’s Lead Standard

• A permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air, as averaged over an 8-hour period.

• Requirements that employers use engineering controls and work practices, where feasible, to reduce worker exposure.

• Requirements that employees observe good personal hygiene practices, such as washing hands before eating and taking a shower before leaving the worksite.

• Requirements that employees be provided with protective clothing and, where necessary, with respiratory protection accordance with 29 CFR 1910.134.
A requirement that employees exposed to high levels of lead be enrolled in a medical surveillance program.

Additional Information
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For more complete information:

OSHA
U.S. Department of Labor
www.osha.gov
(800) 321-OSHA
DSTM 9/2005
Flood Cleanup

Flooding can cause the disruption of water purification and sewage disposal systems, overflowing of toxic waste sites, and dislodgement of chemicals previously stored above ground. Although most floods do not cause serious outbreaks of infectious disease or chemical poisonings, they can cause sickness in workers and others who come in contact with contaminated floodwater. In addition, flooded areas may contain electrical or fire hazards connected with downed power lines.

Floodwater

Floodwater often contains infectious organisms, including intestinal bacteria such as E. coli, Salmonella, and Shigella; Hepatitis A Virus; and agents of typhoid, paratyphoid and tetanus. The signs and symptoms experienced by the victims of waterborne microorganisms are similar, even though they are caused by different pathogens. These symptoms include nausea, vomiting, diarrhea, abdominal cramps, muscle aches, and fever. Most cases of sickness associated with flood conditions are brought about by ingesting contaminated food or water. Tetanus, however, can be acquired from contaminated soil or water entering broken areas of the skin, such as cuts, abrasions, or puncture wounds. Tetanus is an infectious disease that affects the nervous system and causes severe muscle spasms, known as lockjaw. The symptoms may appear weeks after exposure and may begin as a headache, but later develop into difficulty swallowing or opening the jaw.

Floodwaters also may be contaminated by agricultural or industrial chemicals or by hazardous agents present at flooded hazardous waste sites. Flood cleanup crew members who must work near flooded industrial sites also may be exposed to chemically contaminated floodwater. Although different chemicals cause different health effects, the signs and symptoms most frequently associated with chemical poisoning are headaches, skin rashes, dizziness, nausea, excitability, weakness, and fatigue.
Pools of standing or stagnant water become breeding grounds for mosquitoes, increasing the risk of encephalitis, West Nile virus or other mosquito-borne diseases. The presence of wild animals in populated areas increases the risk of diseases caused by animal bites (e.g., rabies) as well as diseases carried by fleas and ticks.

**Protect Yourself**

After a major flood, it is often difficult to maintain good hygiene during cleanup operations. To avoid waterborne disease, it is important to wash your hands with soap and clean, running water, especially before work breaks, meal breaks, and at the end of the work shift. Workers should assume that any water in flooded or surrounding areas is not safe unless the local or state authorities have specifically declared it to be safe. If no safe water supply is available for washing, use bottled water, water that has been boiled for at least 10 minutes or chemically disinfected water. (To disinfect water, use 5 drops of liquid household bleach to each gallon of water and let it sit for at least 30 minutes for disinfection to be completed.) Water storage containers should be rinsed periodically with a household bleach solution.

If water is suspected of being contaminated with hazardous chemicals, cleanup workers may need to wear special chemical resistant outer clothing and protective goggles. Before entering a contaminated area that has been flooded, you should don plastic or rubber gloves, boots, and other protective clothing needed to avoid contact with floodwater.
Decrease the risk of mosquito and other insect bites by wearing long-sleeved shirts, long pants, and by using insect repellants. Wash your hands with soap and water that has been boiled or disinfected before preparing or eating foods, after using the bathroom, after participating in flood cleanup activities, and after handling articles contaminated by floodwater. In addition, children should not be allowed to play in floodwater or with toys that have been in contact with flood-water. Toys should be disinfected.

What to Do If Symptoms Develop
If a cleanup worker experiences any of the signs or symptoms listed above, appropriate first aid treatment and medical advice should be sought. If the skin is broken, particularly with a puncture wound or a wound that comes into contact with potentially contaminated material, a tetanus vaccination may be needed if it has been five years or more since the individual’s last tetanus shot.

Tips to Remember
• Before working in flooded areas, be sure that your tetanus shot is current (given within the last 10 years). Wounds that are associated with a flood should be evaluated for risk; a physician may recommend a tetanus immunization.
• Consider all water unsafe until local authorities announce that the public water supply is safe.
• Do not use contaminated water to wash and prepare food, brush your teeth, wash dishes, or make ice.
• Keep an adequate supply of safe water available for washing and potable water for drinking.
• Be alert for chemically contaminated flood-water at industrial sites.
• Use extreme caution with potential chemical and electric hazards, which have great potential for fires and explosions. Floods have the strength to move and/or bury hazardous waste and chemical containers far from their normal storage places, creating a risk for those who come into contact with them. Any chemical hazards, such as a propane tank, should be handled by the fire department or police.
• If the safety of a food or beverage is questionable, throw it out.
• Seek immediate medical care for all animal bites.

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.
Fungi Hazards and Flood Cleanup

Flood conditions contribute to the growth and transmission of many kinds of fungi, some of which can cause sickness. Cleanup workers are at increased risk of exposure to airborne fungi and their spores because they often handle moldy building materials, decaying vegetable matter, rotting waste material, and other fungus-contaminated debris. The fungal material is carried into the respiratory tract when airborne particles are inhaled.

There are many different kinds of fungi, including mildew, molds, rusts, and yeasts. Most of these are harmless, but some can cause respiratory and other disorders when workers inhale or come into contact with fungi. Inhalation is the route of exposure of most concern to flood cleanup workers. The recommendations below offer strategies for workers renovating flooded buildings, homes, and structures to protect themselves while handling building materials that are visibly contaminated with fungi.

For workers cleaning up flooded buildings, homes, and other structures, excessive moisture or water accumulation indoors will encourage the growth of the fungi that are already present. Some fungi have the potential to cause adverse health effects such as allergic responses and asthma attacks. Individuals who are sensitive to molds may have signs and symptoms of allergic reactions such as nasal stuffiness, eye irritation, and wheezing. These individuals should minimize fungal exposure by wearing respirators, gloves, and eye protection. They should also seek to eliminate fungi, as described below.

In addition, repeated or prolonged contact of the skin with flood water and continuous sweating can lead to fungal skin infections.

These can be minimized or avoided by washing the skin with warm, soapy water and keeping it as dry as possible.

**What to Do If Symptoms Develop**

If a cleanup worker experiences severe aller-
gic or skin symptoms, or severe flu-like symptoms, he or she should seek medical advice. A health care provider can determine whether medication or any other precautions are necessary.

**Tips to Remember**
For all workers who may be exposed to mold and fungi:
- Avoid breathing dust (fungal spores) generated by moldy building materials, crops, and other materials.
- Consider using an N-95 NIOSH-approved disposable respirator as a minimum when working with moldy or damp hay, grain, compost, or building materials. Respirator protection must be used in accordance with OSHA’s Respiratory Protection standard (29 CFR 1910.134, Appendix D).
- Consider discarding all water damaged materials. Articles that are visibly contaminated with mold should be discarded. **When in doubt, throw it out.**
- Surfaces that have a light covering of mold should be scrubbed with warm, soapy water and rinsed with a disinfectant made of 1/2 cup liquid household bleach mixed into one gallon of water.
- **CAUTION:** Do not mix bleach with other cleaning products that contain ammonia.
- After working with mold-contaminated materials, wash thoroughly, including the hair, scalp, and nails.
- If the safety of food or beverage is questionable, throw it out. Only drink safe drinking water that has been bottled, boiled, or treated until there is confirmation that the
community water supply is safe for consumption. When cleaning up or renovating buildings and homes that have been flooded, consider the following recommendations:

- NIOSH-approved respirators are strongly recommended. Respiratory protection such as the N-95 must be used in accordance with OSHA’s Respiratory Protection standard (29 CFR 1910.134). Also wear gloves and eye protection.

- Remove building materials and furnishings that are wet and may become contaminated with mold growth and place them in sealed impermeable bags or closed containers. Large items with heavy mold growth should be covered with polyethylene sheeting and sealed with duct tape before being removed from the area. These materials can usually be discarded as ordinary construction waste.

- Remove and discard porous organic materials that have become wet or are visibly contaminated (e.g., damp insulation in ventilation system, moldy ceiling tiles, and mildewed carpets). Again, these materials can usually be discarded as ordinary construction waste.

- Clean and disinfect nonporous surfaces where microbial growth has occurred with detergents, chlorine-generating slimicides, or other biocides and ensure that these cleaners have been removed before air handling units are turned on. When using a biocide or disinfectant, consult the material safety data sheet (MSDS) or warning label for the appropriate personal protective equipment (PPE) that should be used when handling these chemicals. Chemical safety and handling must be done in accordance with OSHA’s Hazard Communication standard (29 CFR 1910.1200). PPE, such as NIOSH-approved respirators with the appropriate chemical cartridges, can be used. Wear gloves and eye protection also.

For cleanup workers in rural and agricultural communities:

- Silos and other enclosed areas should be vented prior to entry. However, this may not eliminate the problem entirely. If a worker is transporting or working with moldy animal feed, exposures are likely to be increased if the feed and the worker are enclosed in a barn, silo or other structure. Workers will still need to wear respirators. NOTE: Any entry in a silo or other confined space must be done in accordance with OSHA’s Permit-Required Confined Spaces standard (29 CFR 1910.146).

- Workers uncapping a silo, shoveling grain, or working with feed, especially in any enclosed space, should always wear at a minimum a NIOSH-approved N-95 particulate respirator. Grain and hay should be stored when fully dry.

For additional information concerning fungi, health effects, and addressing flood damaged materials, please visit OSHA’s Safety and Health Topics web page on Molds and Fungi at: www.osha.gov/SLTC/molds/index.html

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For more complete information:

OSHA
Occupational Safety and Health Administration
U.S. Department of Labor
www.osha.gov
(800) 321-OSHA
DSTM 9/2005
Protect Yourself! Workers may be exposed to
Cottonmouth Snakes (Water Moccasin)

Also known as the water moccasin or stump-tailed moccasin, this dangerous semi-aquatic snake is a truly aggressive reptile that will stand its ground or even approach an intruder.

Identification
Cottonmouth snakes average 5-55 inches in length. The triangular shaped head is set off with distinct elliptical 'cat-eye' pupils. The adult snake’s skin is dark tan, brown or nearly black, with vague black or dark brown crossbands; juveniles have a bold crossbanded pattern of brown and pink or orange, with a yellow tail.

Habitats
Cottonmouths frequent swamplands and pond, lake and stream borders, especially those with dense canopies. They frequently remain coiled near water, or on logs and stumps in water. Upon provocation, cottonmouths will coil, open their mouths to expose the white lining, and shake their tails. They are highly defensive and not inclined to get out of one’s way. Cotton-mouths tend to latch on during a bite rather than the quick strike-and-release pattern of its cousin the Copperhead.

Snake Bite Prevention
• Be cautious about where your hands and feet are placed. Do not put your hands in holes or under objects (i.e., lumber, scrap metal, overturned boats) without first being sure that a snake is not located underneath.
• Do not sit or lay down in vegetation or other situations where there may be any doubt about the presence of snakes.
• Wear proper foot gear, such as hightop leather boots and leather gloves when handling materials mentioned above.
• Do not attempt to capture, tease or handle venomous snakes. Involuntary nervous activity may allow snakes to bite for up to an hour after they appear to have been “killed.”
• A snake’s striking distance is about 1/2 the total length of the snake.

Snake Bite Treatment
• The first step in snakebite treatment is to avoid panic. Keep bite victims still and calm to slow the spread of venom in case the snake is poisonous. Seek medical attention as soon as possible.
• If bitten, note the color and shape of the snake to help with treatment.
• Do not cut the wound or attempt to suck out the venom. Never allow the victim to drink alcohol.
• Apply first aid: lay the person down so that the bite is below the level of the heart and cover the bite with a clean, dry dressing.
County Provisional Debris Removal Contract
ENVIRONMENTAL AND HISTORIC PRESERVATION COMPLIANCE

The following statutes, Executive Orders (EOs), and regulations establish requirements to protect the environment and preserve the Nation’s historic and prehistoric resources. FEMA must review each Public Assistance (PA) project to ensure the work complies with applicable Federal environmental and historic preservation (EHP) laws, their implementing regulations, and applicable EOs.

**National Historic Preservation Act**
Section 106 of the National Historic Preservation Act (NHPA) requires FEMA to consider the effects a project will have on historic properties and provide the Advisory Council on Historic Preservation the opportunity to comment on the effects of the project. Historic properties include buildings or groups of buildings (districts), structures, objects, landscapes, archaeological sites, and traditional cultural properties included in, or eligible for inclusion in, the National Register of Historic Places.

**National Environmental Policy Act**
Section 102 of the National Environmental Policy Act (NEPA) requires Federal agencies to integrate environmental values into their decision-making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions. The White House Council on Environmental Quality publishes its NEPA regulations in Title 40 of the Code of Federal Regulations (CFR) Parts 1500–1508. The U.S. Department of Homeland Security publishes NEPA requirements and provides a specific decision-making process that FEMA must follow before funding a project. The process ensures consideration of environmental consequences of the project and informs the general public.

**Endangered Species Act**
Section 7 of the Endangered Species Act (ESA) requires Federal agencies to use their authorities to conserve federally listed threatened and endangered species (listed species) and critical habitats. FEMA must consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration Fisheries, also known as the National Marine Fisheries Service (NMFS), to ensure that proposed projects will not jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat for listed species.

**Clean Water Act**
The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants in the waters of the United States (e.g., rivers and streams, lakes and ponds, coastlines, wetlands, estuaries). The CWA makes it unlawful to discharge any pollutant from a specific source into navigable waters without the appropriate CWA permits from the U.S. Army Corps of Engineers (USACE) or State regulatory agency.
Clean Air Act
The Clean Air Act (CAA) protects the Nation’s air through the reduction of smog and atmospheric pollution. Except for activities in non-attainment areas (defined as those areas that do not meet national standards for air quality and, therefore, require more rigorous compliance measures), air quality compliance often requires certain measures be implemented, such as dust abatement, vehicle emissions control, fuel storage, and distribution procedures.

Coastal Barrier Resources Act
The Coastal Barrier Resources Act (CBRA) established the John H. Chafee Coastal Barrier Resources System (CBRS), which consists of relatively undeveloped coastal barriers along the Atlantic, Gulf, and Great Lakes coasts. CBRA minimizes adverse impacts to these areas by restricting Federal assistance that encourages development within the CBRS. USFWS publishes maps designating these areas. FEMA must consult with USFWS prior to providing PA funding for work within the CBRS.

Migratory Bird Treaty Act
The Migratory Bird Treaty Act makes it unlawful to pursue, hunt, take, capture, kill, or sell migratory birds listed in the statute without a waiver from USFWS. FEMA consults with USFWS regarding projects likely to trigger compliance with this Act.

Resource Conservation and Recovery Act
The Resource Conservation and Recovery Act (RCRA) established a framework for Federal, State, Territorial, and local cooperation for controlling the management of hazardous and nonhazardous solid waste. The U.S. Environmental Protection Agency’s (EPA’s) role is to establish minimum regulatory standards, usually implemented by the States, and to provide technical assistance. RCRA requires the safe disposal of waste materials, promotes the recycling of waste materials, and encourages cooperation with local agencies.

Coastal Zone Management Act
The Coastal Zone Management Act (CZMA) provides for the management of the Nation’s coastal resources. The CZMA establishes a voluntary partnership between the Federal Government and coastal and great lakes States and Territories. It requires participating States to develop State coastal zone management plans. PA projects located in, or near, established coastal zone management areas must be consistent with the enforceable policies of the State’s approved coastal zone management plan. Before approving a project in a coastal zone management area, FEMA consults with the State agency overseeing the implementation of the CZMA plan to ensure the project is consistent with the plan’s provisions.

Farmland Protection Policy Act
The Farmland Protection Policy Act minimizes the extent to which Federal programs contribute to the conversion of prime or unique farmland, or land of statewide or local importance, to nonagricultural uses and to ensure that Federal programs are administered in a manner that, to the extent practicable, will be compatible with State, Territorial, local, and private programs and policies to protect farmland. The Farmland Protection Policy Act and U.S. Department of Agriculture (USDA) implementing procedures require FEMA to evaluate projects for adverse effects to such farmland and to consider alternative actions that could avoid adverse effects. For projects that have the potential to affect such farmland, FEMA must consult with the USDA Natural Resources Conservation Service (NRCS) to identify potential impacts to that farmland.
Fish and Wildlife Coordination Act
The Fish and Wildlife Coordination Act protects fish and wildlife when Federal actions result in the control or modification of a natural stream or body of water. The Fish and Wildlife Coordination Act requires Federal agencies to determine whether a proposed action will result in the control or modification of a body of water. Projects involving the control or modification of any water body require Federal agencies to consult with USFWS and NMFS (as appropriate) and State wildlife agencies to develop measures to protect, develop, and improve fish and wildlife conditions.

Wild and Scenic Rivers Act
The Wild and Scenic Rivers Act preserves the free-flowing State of rivers that are listed in the National Wild and Scenic Rivers System (System) or are under study for inclusion in the System because of their scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. If a proposed project is located on a river included in the System, FEMA must review it for compliance with the Wild and Scenic Rivers Act and consult with the managing agency for the affected designated river.

Magnuson-Stevens Fishery Conservation and Management Act
The Magnuson-Stevens Fishery Conservation and Management Act is the primary law for managing and maintaining sustainable fisheries in waters of the United States. The Magnuson-Stevens Fishery Conservation and Management Act protects essential fish habitat, which includes the waters and substrate necessary to maintain healthy fisheries. FEMA must consult with NMFS when any proposed PA project could have an adverse effect on essential fish habitat.

Executive Order 11988, Floodplain Management
EO 11988, Floodplain Management, requires Federal agencies to minimize or avoid activity that adversely affects floodplains. It requires Federal agencies to use a systematic decision-making process to evaluate the potential effects of projects located in, or affecting, floodplains; document each step of the process; and involve the public in the decision-making process. This process is designed to:
- Reduce flood loss risks;
- Minimize the impacts of floods on human safety, health, and welfare; and
- Restore and preserve the natural and beneficial functions of floodplains.
FEMA publishes its implementing regulations for EO 11988 in 44 CFR Part 9, Floodplain Management and Protection of the Wetlands. These regulations set forth the policy, procedures, and responsibilities to implement and enforce the EO, including the decision-making process, which is referred to as the 8-step process.

Executive Order 11990, Protection of Wetlands
EO 11990, Protection of Wetlands, requires Federal agencies to minimize or avoid activity that adversely affects wetlands and to encourage the preservation and enhancement of the beneficial functions of wetlands. To meet these objectives, EO 11990 requires Federal agencies to use a systematic decision-making process to evaluate the potential effects of projects in, or affecting, wetlands; document each step of the process; and involve the public in the decision-making process.

FEMA publishes its implementing regulations for EO 11990, Protection of Wetlands in 44 CFR Part 9, Floodplain Management and Protection of the Wetlands. These regulations set forth the policy, procedures, and responsibilities to implement and
enforce the EO, including the decision making process, which is referred to as the 8-step process.

**Executive Order 12898, Environmental Justice**
EO 12898, Environmental Justice, requires Federal agencies to identify and address any disproportionately high and adverse human health or environmental effects on minority and low income populations as a result of their actions.