



# Henrico County **Debris Management Plan**

Henrico County, Virginia

*Revised May, 2016*

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## **HENRICO COUNTY DEBRIS MANAGEMENT PLAN**

### **I. Authority**

This Plan is developed, promulgated, and maintained under the following State and Federal statutes and regulations:

- Public Law 93-288 as amended by Public Law 100-107, the Stafford Disaster Relief and Emergency Assistance Act and in this plan as “the Stafford Act.”
- Public Law 81-920, Federal Civil Defense Act of 1950, as amended.
- CFR, Title 44, Part 200 et seq.
- County of Henrico Emergency Operations Plan, dated June 2006

### **II. Overview**

#### **Background**

The institutions of the County of Henrico, along with the natural and built environment, present opportunities for a number of potential natural and technological disasters or emergencies. The Office of the County Manager is responsible for the overall response of Henrico County assets to an incident and has tasked the Division of Fire’s Office of Emergency Management with the responsibility for planning and emergency preparedness, response and recovery, and mitigation activities. The County of Henrico coordinates with the Virginia Department of Emergency Management (VDEM) in response to disasters, emergencies, severe weather conditions, and other catastrophic events.

The County subscribes to the guidance developed by VDEM and the Henrico County Emergency Operations Plan (EOP) developed and maintained by the Division of Fire, Office of Emergency Management. The EOP establishes responsibilities for each County government agency and sets forth lines of authority and organizational relationships that are essential for the protection of the public. The EOP also establishes the concepts and policies under which all elements of the County government will operate during disasters and emergencies by providing for the integration of those resources.

This Plan is based on guidance provided by Henrico County governmental agencies. This Plan focuses on the types of activities that are likely to be required during a disruption or emergency, without regard to the type or cause of that disruption or emergency.

#### **Purpose**

This Plan has been developed to provide the framework for Henrico County government and other entities to clear and remove debris generated during a public emergency within the jurisdictional limits of Henrico County. This Plan unifies the efforts of public and private organizations for a comprehensive and effective approach to:

- Provide organizational structure, guidance, and standardized guidelines for the clearance, removal, and disposal of debris caused by a major debris-generating event.

- Establish the most efficient and cost effective methods to resolve disaster debris removal and disposal issues.
- Implement and coordinate private sector debris removal and disposal contracts to maximize cleanup efficiencies.
- Expedite debris removal and disposal efforts that provide visible signs of recovery designed to mitigate the threat to the health, safety, and welfare of the populations of Henrico County.
- Coordinate partnering relationships through communications and pre-planning with local, State, and Federal agencies that have debris management responsibilities.

### **General Approach**

The County of Henrico is vulnerable to numerous natural and technological hazards, including severe weather and hazardous materials spills. Inland effects of tropical storms, hurricanes, tornadoes, severe lightning, wind storms, hail, and floods are among the highest natural threats to Henrico County. Critical government and private facilities are potential targets for terrorist attack. Henrico County can manage many disaster situations with internal resources. However, there are potential debris-generating events that may overwhelm the County's assets and capabilities.

This Plan establishes the framework within which Henrico County will respond and coordinate the removal and disposal of debris generated by potential manmade and natural disasters. This Plan will also address the potential role that State and Federal agencies and other groups will take in a debris operation.

This Plan defines the roles and responsibilities of the Henrico County Office of Emergency Management and other County agencies with respect to debris planning prior to an event and actions following a major debris-generating event.

### **Planning Basis and Assumptions**

Natural disasters such as hurricanes, tornadoes, and flooding precipitate a variety of debris that includes, but is not limited to, trees and other vegetative organic matter, construction materials, appliances, personal property, mud, and sediment. Man-made disasters such as terrorist attacks may result in a large number of casualties and heavy damage to buildings and basic infrastructure. Crime scene constraints may hinder normal debris operations, and contaminated debris may require special handling. These factors will necessitate close coordination with local and Federal law enforcement, health, and environmental officials.

This Plan takes an all-hazards approach to identifying and responding to the following hazards that may pose a threat to Henrico County:

- Natural Hazards – severe weather, hurricanes, tornadoes, flooding, hail, or earthquakes;

- Human-caused Events and Hazards – urban fires, special events, civil disorder, or transportation accidents; and
- Terrorist Incidents – bomb threats or attacks, sabotage, hijacking, armed insurrection, or Weapons of Mass Destruction (WMD) incidents.

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 the associated costs, and the speed with which the problem can be addressed. Further, 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.

**For planning purposes and for pre-positioning response assets, this plan assumes that the magnitude of the event exceeds the capacities of Henrico County.**

The fact that this Plan is based on an event that exceeds Henrico County's capacities in no way diminishes the value of the Plan for use in response to other types and categories of events. This Plan establishes a general framework that can, with minor modifications, be used in any debris-generating event.

This Plan addresses the clearing, removal, and disposal of debris generated by the above hazards based on the following assumptions:

- A major natural or man-made disaster that requires the removal of debris from public or private lands and waters could occur at any time;
- The amount of debris resulting from a major natural disaster will exceed Henrico County's in-house removal and disposal capabilities;
- Henrico County will contract for additional resources to assist in the debris removal, reduction, and disposal processes;
- Federal assistance will be requested to supplement Henrico County's debris capabilities in coordination with the Debris Manager.

### **Federal Assistance**

The Debris Manager will request Federal assistance through the local emergency operations center when the debris-generating event exceeds Henrico County's in-house debris clearing, removal, and disposal capabilities. The request will be submitted to the ESF #3 (Public Works & Engineering) Lead, who will then submit the request to the ESF #5 (Emergency Management) Lead in the Henrico Emergency Operations Center (HEOC). The ESF #5 Lead, usually filled by the Deputy Coordinator of Emergency Management or a designee, will forward the request to the Virginia Emergency Operations Center (VEOC), which will coordinate the request for a mission assignment with the Federal Emergency Management Agency (FEMA). Typically, when a mission is assigned by FEMA, the U.S. Army Corps of Engineers (USACE) will provide a liaison to the EOC when activated. This liaison will serve as an advisor to the EOC staff providing advice as needed and ensuring that the USACE is prepared to respond when tasked.

The USACE will alert a Debris Planning and Response Team (PRT) and the Advance Contracting Initiative (ACI) Contractor under contract for that area and have them ready to respond when a mission assignment is received. Once the USACE receives a mission assignment from FEMA, the management groups for both the PRT and ACI Contractor will be available to meet with the Debris Manager and State representatives to conduct contingency planning as required.

USACE will coordinate with the state and local EOC staff on the use of any pre-identified debris management sites and disposal sites, and identify/acquire other sites as required to accomplish the mission assignment.

### ***III. Debris Management Organization and Staff Responsibilities***

#### **A. Debris Response and Recovery Primary and Support Agencies**

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

Specific responsibilities of the various primary and supporting agencies are shown in the sections that follow:

#### **1. Department of Public Works**

The Department of Public Works' responsibilities include, but are not limited to, the following with respect to any and all debris management issues:

- Designate the Director of Public Works as the Debris Manager to oversee debris clearance and removal operations on County Rights of Way and Virginia Department of Transportation (VDOT) on their maintained rights of way.
- Provide a DMC (Debris Management Center) Liaison Officer to the County Emergency Operations Center to coordinate debris requests and actions as required.
- Provide a Debris Clearing and Removal Coordinator to the DMC staff to coordinate all agency debris assignments. Road Construction Superintendent, 727-8259, shall be the Debris Coordinator.
- Provide reports to ESF #15 (External Affairs) to coordinate all media reports on debris operations.
- Provide personnel and equipment to assist in clearing major evacuation routes and access to critical facilities.

- Provide personnel and equipment to operate and staff the Debris Contractor Oversight Team (DCOT) element of the DMC, including communications equipment, transportation, etc.
- Provide personnel and equipment to remove and dispose of debris through the Solid Waste Debris Coordinator.
- Ensure that the DMC is provided all needed administrative staff and equipment support, including administrative support personnel, computers, desks, chairs, etc.

**Primary Point of Contact:** *Director of Public Works, (804) 501-4390*  
*Debris Coordinator – Road Construction*  
*Superintendent (804) 727-8259*

## **2. Virginia Department of Transportation (VDOT)**

VDOT's responsibilities include, but are not limited to, the following with respect to any and all debris management activities:

- Provide a VDOT Debris Coordinator to the DMC staff to coordinate all DOT personnel and equipment debris assignments along state and Federal highways.
- Provide personnel and equipment to initiate the clearing of emergency evacuation routes and access to critical facilities throughout the County (Phase I) as directed by the Debris Manager in coordination with the VDOT Debris Coordinator located at the DMC.
- Ensure that the VDOT representative at the DMC is provided all needed logistics support, including cell phone, transportation, etc.
- Ensure that the VDOT Debris Coordinator keeps the Debris Manager informed of clearing progress and any problems encountered or expected.

**Primary Point of Contact:** *Virginia Department of Emergency Management*  
*(ESF #1-Transportation) (804) 674-2400*

## **3. Department of Public Utilities, Division of Solid Waste**

The Division of Solid Waste responsibilities include, but are not limited to, the following with respect to any and all debris management issues:

- Designate the Division Director as the Debris Recycling and Disposal Manager to oversee final disposition of collected debris.
- Provide a DMC Liaison Officer to the County Emergency Operations Center to coordinate debris disposal and recycling requests and actions as required.
- Provide a Debris Disposal Coordinator to the DMC staff to coordinate all agency debris assignments.

- Provide information to ESF #15 (External Affairs) to coordinate all media reports on private property debris operations.
- Provide personnel and equipment to assist in clearing major evacuation routes and access to critical facilities.
- Provide personnel and equipment to operate and staff the Debris Contractor Oversight Team (DCOT) element of the DMC, including communications equipment, transportation, etc.
- Provide personnel and equipment to remove and dispose of debris through the Public Works Debris Coordinator.
- Ensure that the DMC is provided all needed administrative staff and equipment support, including administrative support personnel, computers, desks, chairs, etc.

**Primary Point of Contact: *Solid Waste Division Director, Public Utilities, (804) 727-8774***

#### **4. Recreation and Parks Department**

The Department of Recreation and Parks (RP) responsibilities include, but are not limited to, the following with respect to any and all debris management activities:

- Designate the Parks Services Manager as the RP Debris Coordinator to access and oversee debris clearance and removal operations on County park land.
- Provide personnel and equipment to assist in the removal and disposal of debris (Phase II) as directed by the Debris Manager through the RP Debris Coordinator.
- Park Services equipment is limited to Dump Trucks, 1 backhoe, and chainsaws.
- Ensure that debris removal from parks and recreational facilities is coordinated through and approved by the Debris Manager through the RP Debris Coordinator.
- Ensure that the RP Debris Coordinator is provided all needed logistical support, including cell phones, transportation, etc.
- Ensure that the RP Debris Coordinator keeps the Debris Manager informed of cleanup progress and any problems encountered or expected.
- Assist in debris management site investigations.
- Provide digital map files of all identified RP property greater than 10 acres.
- Coordinating with the Debris Manager for the removal, temporary storage, and disposal of debris at debris collection/management sites at RP facilities.

**Primary Point of Contact: *Park Services Manager, (804) 727-8201***

**5. Division of Fire**

- Respond to fire and other emergencies at debris management sites
  - Includes coordination and response to medical emergencies at debris management sites
- Respond to request to investigate and handle hazardous materials incidents.
- Approve debris management burn sites in accordance with appropriate local requirements to ensure safe burning.
- Issue bans on open burning based upon assessment of local conditions and ensures dissemination of information to the public.
- Supervise burn sites in accordance with all appropriate local requirements to ensure safe burning, subject to amendments by the Health Department and/or Fire Marshal.

**Primary Point of Contact: *Chief, Division of Fire, (804) 501-4900***

**6. Division of Police**

- Assist in monitoring illegal dumping activities.
- Assist in monitoring debris management sites to ensure compliance with local traffic regulations.
- Coordinate traffic control at all loading sites and at entrances to and from debris management sites

**Primary Point of Contact: *Chief, Division of Police, (804) 501-4800***

**7. Water and Sewer Authority**

Coordinate debris removal and disposal requirements at Water and Sewer Authority facilities with the Debris Manager.

**Primary Point of Contact: *Director of Public Utilities, (804) 501-4280***

**8. Electric Power Company**

- Coordinate with the Debris Manager with regards to debris removal along electrical easements and rights-of-way to ensure that all lines are de-energized.
- Provide a debris coordinator to the DMC.
- Provide personnel and equipment to the Rapid Response Team.

**Primary Point of Contact:** *Virginia Dominion Power West Broad Operations Center (800) 826-1027*

### **9. GIS Coordinator**

- Coordinate requests for maps and other geo-spatial information to assist with the response
- Provide a GIS point of contact to the DMC

**Primary Point of Contact:** *County GIS Coordinator (804) 501-5769*

## **B. Debris Response and Recovery Organization and Responsibilities**

This section of the Plan provides a listing of primary debris-related responsibilities for directors and managers, as well as debris-specific assignments for tasks and issues that normally arise during debris operations.

### **10. Debris Manager**

The Director of Public Works will assume the role of the County Debris Manager. This individual's responsibilities include, but are not limited to, the following with respect to any and all debris management issues:

- Overall control of the DMC.
- Receive regular updates from the Public Works/Solid Waste/Environmental Services Debris Coordinator regarding cleanup progress and any problems encountered or expected.
- Receive regular updates from the Recreation and Parks Debris Coordinator regarding cleanup progress and any problems encountered or expected.
- Identify agency staff members for debris management monitoring duties (Roving, Load Site, and Disposal Site Monitors).
- Provide yearly training and refresher training for all personnel assigned to debris management monitoring responsibilities.
- Coordinate training requirements with County agencies and contractors.
- Communicate timely information to the County Manager and the County EOC staff regarding the status of the debris clearing, removal, and disposal operations.
- Assure that the County is represented at all meetings with other government and private agencies involved with the debris cleanup operation.

- Coordinate with appropriate County, State, and Federal agencies, including FEMA, USACE, and others as appropriate.
- The Debris Manager will activate the DMC and fully implement the debris plan upon notification by the County Emergency Manager. This will likely occur during Level III and Level IV emergencies.
- Appoint a Deputy Debris Manager responsible for daily operation control of the DMC.
- Implement the following 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 should be maintained in such a manner that notification can be made at any time.

**Level IV** – Involves an event likely to be within the capabilities of local government and results in only limited (does not require involvement beyond the duty officer and several assistants) need for State assistance. Typical daily activities continue while the event is monitored. Notification is limited to those State agencies that have normal day-to-day emergency responsibilities or regulatory requirements. If the event occurs during non-duty hours, the on-call emergency management staff may be required to report to the County EOC to monitor the situation and respond to requests for State assistance.

**Level III** – Involves any event that has the potential to develop into an emergency or disaster and will likely require the assistance of at least two or three County agencies. A limited staff will be in place in the EOC staffed with County Office of Emergency Management personnel and those agencies essential to the response. Twenty-four hour staffing may be required. Daily activities are altered to accommodate the situation. All applicable State agencies are alerted.

**Level II** – Involves an event that has become, or is becoming, an emergency or disaster and requires significant County and State response and possible Federal response and recovery assistance (local government capabilities clearly exceeded). The direction and control, primary resources, mass care, and environmental and natural resources groups are at least partially staffed on a 24-hour basis in the EOC. Support agencies are alerted and most County EMA personnel are assigned to emergency/disaster functions. The governor will declare a State of Emergency. The Henrico County EOP is implemented. FEMA Emergency Response Team A (ERT-A) and State Liaison may be requested.

**Level I** - Involves a declared disaster, which requires an extensive County and State response where the State and local governments are clearly overwhelmed. The County EOC is fully staffed for 24-hour operations by all of the primary County agencies. The State requests implementation of the Federal Response Plan and the presence of the FEMA Region III State Liaison and the ERT-A, if not previously requested.

**Point of Contact: *Director of Public Works (804) 501-4390***

### **11. Deputy Debris Manager**

The Debris Manager will be supported by a joint debris staff made up of personnel from Public Works/Solid Waste/Environmental Services and other County department staff personnel. The joint staff will constitute the daily operating element of the DMC.

- The Deputy Debris Manager is responsible for daily operational control of the DMC staff. The Deputy Debris Manager will receive current information on the severity of the disaster from the DMC Liaison Officer located at the County EOC. All requests for debris removal or disposal from the emergency response staff will go through the DMC Liaison Officer to the Deputy Debris Manager. Requests for debris removal from public facilities and roadways will be reviewed and approved by the Debris Manager before being directed to the appropriate DMC Debris Coordinators (Public Works and/or Solid Waste and/or Department of Parks and Recreation and/or Environmental Services) to implement the request.
- The Deputy Debris Manager will appraise the extent of damage and resulting debris and issue directives to the appropriate Debris Coordinators who in turn will notify their departments to execute the tasking as defined by their department's Standard Operating Guidelines.
- The Deputy Debris Manager will ensure that all Contractor debris removal and disposal operations are properly monitored utilizing personnel assigned to the Debris Contractor Oversight Team.
- The Deputy Debris Manager will keep the Debris Manager and DMC staff informed on all ongoing debris management operations through, at a minimum, daily meetings and/or reports.
- The Deputy Debris Manager will maintain a daily journal and file on all debris related documents and issues.

**Point of Contact: *Road Superintendent, Public Works, (804) 727-8259***

### **12. Emergency Operations Center Debris Liaison Officer**

The EOC Debris Liaison Officer will be located at the Henrico County EOC in ESF #3 and will be responsible for coordinating with the DMC staff all requests for debris activities initiated by the County EOC staff.

**Point of Contact: *Director of Public Works, 804-501-4390*  
*Director of Public Utilities, 804-501-4280***

### **13. Department of Solid Waste Debris Disposal Coordinator**

The Public Works/Solid Waste/Environmental Services Debris Coordinator will:

- Maintain a listing of all available Public Works equipment identified for possible debris clearing and disposal missions.
- Coordinate all Public Works debris assignments approved by the Debris Manager.
- Ensure that required logistical support is available, including cell phone, transportation, etc.
- Ensure that the Debris Manager is kept informed of cleanup progress and any problems encountered or expected.
- Obtain all necessary regulatory permits for debris collection, reduction, temporary storage, and final disposal.

**Primary Point of Contact:** *Division Director of Solid Waste and Recycling, (804) 727-8774*

#### **14. Transportation Debris Coordinator**

The Transportation Debris Coordinator will:

- Maintain a listing of all available equipment identified for possible debris removal and disposal missions.
- Coordinate all debris assignments approved by the Debris Manager.
- Ensure that required logistical support is available, including cell phone, transportation, etc.
- Ensure that the Debris Manager and PA Director are kept informed of cleanup progress and any problems encountered or expected.

**Primary Point of Contact:** *Road Superintendent, (804) 727-8259*

#### **15. Recreation and Parks Debris Coordinator**

The RP Debris Coordinator will:

- Maintain a listing of all available RP equipment identified for possible debris removal and disposal missions.
- Coordinate all RP debris assignments approved by the Debris Manager.
- Ensure that required logistical support is available, including cell phone, transportation, etc.
- Ensure that the Debris Manager and DOT Director are kept informed of cleanup progress and any problems encountered or expected.

**Point of Contact: *Park Services Manager, (804) 727-8201***

## **16. Debris Management Center Staff**

The DMC is organized to provide a central location for the coordination and control of all debris management requirements. The DMC will be located at the Woodman Road Operations Center.

The DMC organizational diagram shown in Figure 1 identifies the DMC staff positions required to coordinate the actions necessary to remove and dispose of debris using both County and Contractor assets.

Specific DMC staff actions will include the following:

- Making recommendations for County force account and Contractor work assignments and priorities based on the County Debris Control Zones. Appendix B contains a map showing the boundaries of the various Debris Control Zones.
- Reporting on debris removal and disposal progress, and preparing status briefings.
- Providing input to ESF #15 (External Affairs) on debris removal and disposal activities.
- Coordinating with the State on debris issues affecting adjacent counties.
- Coordinating County debris removal and disposal operations with solid waste managers and environmental regulators from the County.
- Coordinating with the following Federal agencies in the event of a major natural or man-made debris-generating disaster that exceeds the County's capabilities:
  - Federal Emergency Management Agency (FEMA)
  - U.S. Army Corps of Engineers (USACE)
  - Local Office of the Federal Bureau of Investigation (FBI)

## **17. Public Information Officer**

The PIO will serve as the DMC liaison to the County PIO. The PIO will be assigned to ESF #15 (External Affairs) and will be appointed in concert by the Director of Public Works, the Director of Public Utilities, and the Director of Public Relations and Media Services. The 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 encourage public 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 and valves;
- Reporting locations of illegal dump sites or incidents of illegal dumping;
- Segregating recyclable materials; and
- Disseminate pickup schedules through the local news media.

**Point of Contact:**    *Director, Public Relations and Media Services, (804)501-4976*  
                                  *Director of Public Works, (804) 501-4390*  
                                  *Director of Public Utilities, (804) 501-4280*

#### **18. School Debris Coordinator**

The School Debris Coordinator will:

- Maintain a listing of all available equipment identified for possible debris removal and disposal missions.
- Coordinate all debris assignments approved by the Debris Manager to assess and handle debris at School sites.
- Ensure that required logistical support is available, including cell phone, transportation, etc.
- Ensure that the Debris Manager is kept informed of cleanup progress and any problems encountered or expected.

**Point of Contact:**    *Henrico County Public Schools Director of Operations,*  
                                  *(804) 652-3620*

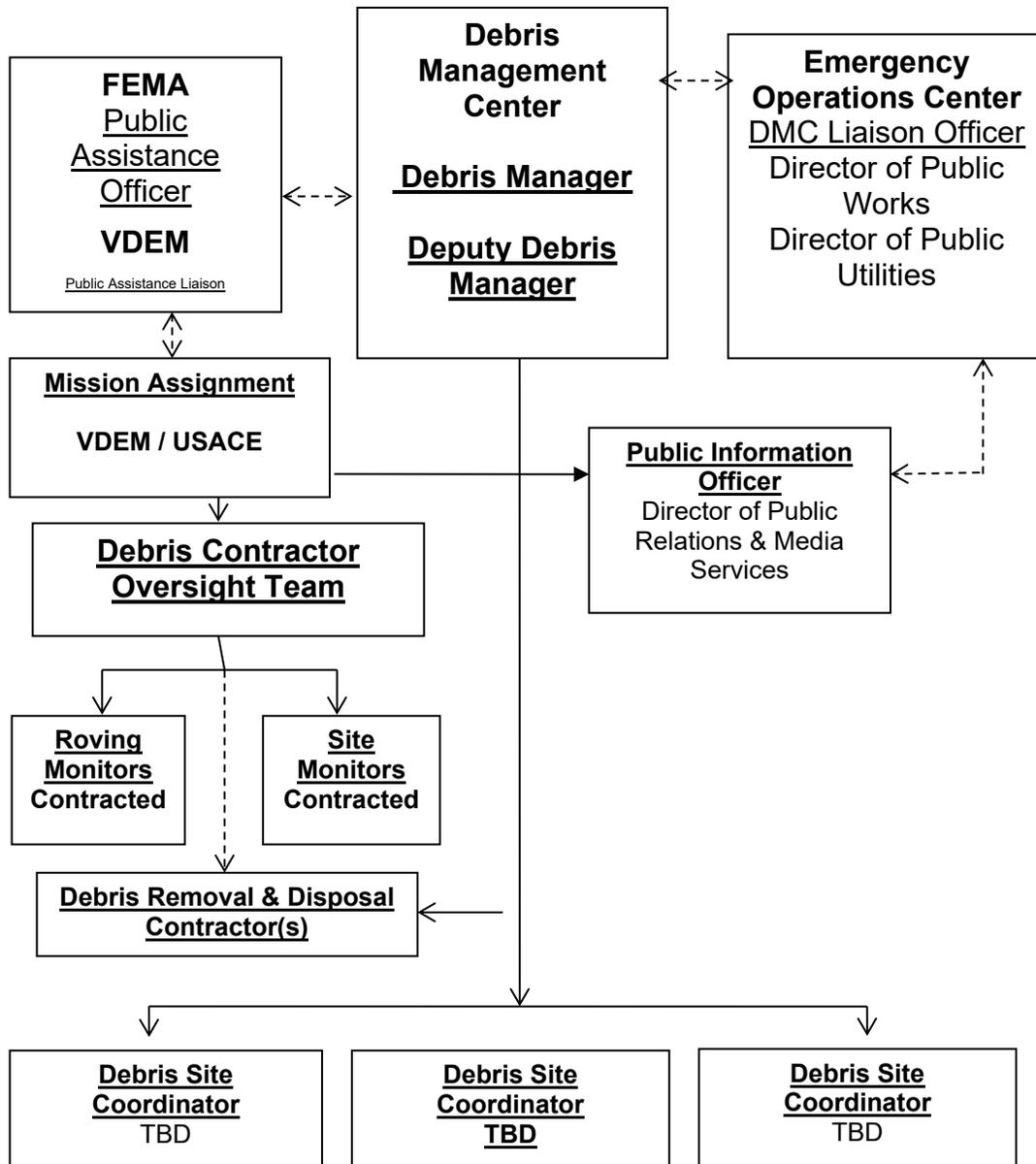
## **19. Finance Liaison**

Finance will have responsibility for:

- Tracking documentation needed for FEMA reimbursement
- Authorizing appropriate contract trigger points for vendors to move debris
- Oversight of the Purchasing function to acquiesce equipment to perform immediate emergency debris clearance to ensure life safety, incident stabilization, and property protection
- Oversight of Purchasing function for emergency and non-emergency goods and services associated with the debris removal process

**Point of Contact: *Director of Finance, (804) 501-4266***

Figure 1 - Debris Management Center Organization Chart



#### **IV. Debris Management Response and Recovery Operations**

The Debris Manager will be the single point of contact to coordinate and control all personnel and equipment responding to a major debris-generating event. This Plan provides guidance for the efficient and effective control and coordination of initial debris assessments through debris clearance, removal, and disposal operations.

##### **A. Damage Assessment Teams**

The Henrico County Debris Manager is responsible for coordinating impact assessment for all County public structures, equipment, and debris clearance immediately following a large-scale disaster. Reports of this damage will be coordinate with the Henrico EOC and shared with the Risk Management Liaison. Impact assessments are performed by Damage Assessment Teams and used to prioritize impacted areas and resource needs. The teams will be composed of personnel from Public Works, Public Utilities, Building Inspections, Recreation and Parks, Extension Services, Police, Fire, Sheriff, and other agencies as assigned by the EOC.

The DMC Debris Coordinator will have the primary mission of coordinating the efforts of Public Works, Public Utilities, Building Inspections, Parks and Recreation, Extension Services, Police, Fire, Sheriff, and other assigned personnel to identify debris impacts on critical roads and make initial estimates of debris quantities. Based on this prioritization, the Debris Manager will issue urgent assignments to clear debris from at least one lane on all evacuation routes and identified primary and secondary roads to expedite the movement of emergency service vehicles such as fire, police, and medical responders. A Priority Primary Road Clearance List is found in Appendix D.

Damage Assessment Teams will conduct initial zone-by-zone windshield surveys to identify the type of debris and to estimate amounts of debris on the roadways and on private and public property. The results of the windshield surveys will be provided to Debris Manager and to the DMC Liaison Officer located at the County EOC.

The Debris Manager will establish initial priority for debris clearance based upon the following ranking as provided by the Damage Assessment Teams:

- Extrication of people.
- Major flood drainage ways.
- Egress for fire, police, and Emergency Operations Center.
- Ingress to hospitals, jail, and other critical infrastructure.
- Ingress to convenience centers, transfer centers, debris management sites.
- Major traffic routes.
- Supply distribution points and mutual aid assembly areas.

- Government facilities.
- Public Safety communications towers.
- County shelters.
- Access to state shelter sites that may be located within Henrico County.
- Secondary roads to neighborhood collection points.
- 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 the Debris Coordinator and other utility companies (such as telephone and cable TV) as appropriate to ensure that power lines do not pose a hazard to emergency work crews.

### **B. Phase I – Initial Response**

For ease of control and coordination, debris management operations are divided into two phases.

Phase I will be implemented immediately after a debris-generating event to open emergency evacuation routes and roadways to critical facilities and affected neighborhoods. The major emphasis during this phase is to simply push debris from the traveled way to the right-of-way or curb. This activity is commonly referred to as Debris Clearance. Little or no effort is made to remove debris from the right-of-way.

Henrico County and the Virginia Department of Transportation (VDOT) will be responsible for implementing all Phase I activities. Requests for additional assistance will be submitted to the Debris Manager located at the DMC.

Phase I activities include:

- Implementation of the Debris Management Plan.
- Determination of incident-specific debris management responsibilities.
- Establishment of priorities based on evacuation needs and prediction models.
- Identification and procurement of debris management sites.
- Activation of pre-positioned contracts, if necessary to support Phase I clearance operations.

- Implementation of Public Information Plan.
- Coordination and tracking of resources.
- Formal documentation of costs.

### **C. Phase II - Recovery**

Phase II will be implemented within two to five days following a major debris-generating event, and will encompass the processes of debris removal and disposal. This delay is normal and allows time for affected citizens to return to their homes and begin the cleanup process. Debris must be brought to the rights-of-way or curb to be eligible for removal at public expense.

The Debris Manager will be responsible for implementing all Phase II activities with support as required from Public Works, Solid Waste and Recreation and Parks. The Debris Manager located at the DMC will coordinate all debris removal and disposal operations. Phase II may be quite lengthy as disaster recovery continues until pre-disaster conditions are restored.

Phase II activities include:

- Activation of pre-positioned contracts.
- Notification to citizens of debris removal procedures.
- Activation of debris management sites.
- Removal of debris from rights-of-way and critical public facilities.
- Movement of debris from debris management sites to permanent landfills.
- Final documentation of costs for reimbursement, as applicable.

### **D. Phase II Debris Removal and Disposal Overview**

The general concept of debris removal operations includes multiple, scheduled passes by each critical site, location, or right-of-way. This manner of scheduling debris removal allows residents to return to their properties and bring debris to the edge of the right-of-way as property restoration proceeds.

The County has been divided into Eastern and Western Debris Control Zones to control and expedite debris-removal and disposal operations (refer to Appendix B for a map of the county). The estimated quantity of debris that would be generated by Hurricane Categories 1 through 5 is shown in Table 1.

Table 1 Estimated Debris Quantities

Storm Magnitude	
Category 1	74 - 95 mph
Category 2	96 - 100 mph
Category 3	111 - 130 mph
Category 4	131 - 155 mph
Category 5	156+ mph

Estimated Debris Quantities

**Population:**

**280,000**

Estimated damage @ 50% of total single family homes

Debris Estimating Parameters	Category 1	Category 2	Category 3	Category 4	Category 5
Single Family Homes Affected (=Pop./3)	46,667	46,667	46,667	46,667	46,667
Category Factor	2	8	26	50	80
Vegetation Factor	2	2	2	2	2
Commercial Density	1	1	1	1	1
Precipitation	1	1	1	1	1
Q = H(C)(V)(B)(S), total debris, yards <sup>3</sup>	<b>182,000</b>	<b>728,000</b>	<b>2,366,000</b>	<b>4,550,000</b>	<b>7,280,000</b>

**Debris Reduction Site Requirements**

Q, Volume of Debris, cubic yards	<b>182,000</b>	<b>728,000</b>	<b>2,366,000</b>	<b>4,550,000</b>	<b>7,280,000</b>
Debris Acres Required, acres	11	45	148	284	455
TDSRF with Roads, Buffers, total acres	<b>19</b>	<b>76</b>	<b>245</b>	<b>472</b>	<b>755</b>
Square Miles Required	0.0	0.1	0.4	0.7	1.2

**Debris Classification**

Clean Woody Debris	<b>54,600</b>	<b>218,400</b>	<b>709,800</b>	<b>1,365,000</b>	<b>2,184,000</b>
Mixed C&D	<b>127,400</b>	<b>509,600</b>	<b>1,656,200</b>	<b>3,185,000</b>	<b>5,096,000</b>
Burnable	53,508	214,032	695,604	1,337,700	2,140,320
Soil	6,370	25,480	82,810	159,250	254,800
Metals	19,110	76,440	248,430	477,750	764,400
Landfilled	48,412	193,648	629,356	1,210,300	1,936,480

**E. Phase II Debris Removal and Disposal Operations**

The Debris Manager and staff will coordinate debris removal and disposal operations for all portions of the County. Phase II operations involve the removal and disposal of curbside debris by County force account and/or Contractor crews. All County hired Debris Removal and Disposal Contractor operations will be overseen by the Debris Contractor Oversight Team (DCOT).

Under this Plan, mixed debris will be collected and hauled from assigned Debris Control Zones to County designated debris management sites or to designated landfill locations. Clean woody debris will be hauled to the nearest designated vegetative debris management site for eventual burning or grinding. A listing of debris management sites can be found in Appendix E.



## **1. Debris Contractor Oversight Team**

The DCOT is responsible for the coordination, oversight, and monitoring of all debris removal and disposal operations performed by private Contractors (see Appendix F, Debris Contract Oversight Team Standard Operating Guidelines).

The DCOT supervisor and team members will be detailed from Disaster Monitoring Subcontractor, as well as from County departments as required. The DCOT team will also be supplemented with contracted inspectors and other personnel as needed.

Currently the County has a prepositioned disaster monitoring subcontractor procured through a competitive procurement. This contractor will be activated as required to augment county forces depending on the scale of the debris requiring removal.

The DCOT team supervisor will be located at the DMC and will provide roving monitors, load site monitors, and disposal site monitors described below. Specific responsibilities include the following:

- Planning and conducting debris management site inspections, quality control, and other Contractor oversight functions.
- Receiving and reviewing all debris load tickets that have been verified by a Disposal Site Monitor (see description below).
- Making recommendations to the Debris Manager regarding distribution of force account and Contractor work assignments and priorities.
- Reporting on progress and preparation of status briefings.
- Providing input to the DMC PIO on debris cleanup activities and pickup schedules.

The DCOT Supervisor will oversee the activities of three types of monitors. The functions and responsibilities of the field monitors are described below (see Appendix G, Debris Removal and Disposal Monitoring Plan).

### **a. Roving Monitors**

Teams of Roving Monitors will be assigned to specific Debris Control Zones or to a specific Contractor depending upon the distribution of work assignments. The Roving Monitors' mission is to verify that all contract requirements, including safety, are properly implemented and enforced.

Staff to fulfill the Roving Monitor positions will be provided by Disaster Monitoring Contractor or from local personnel. Roving Monitors will have the authority to monitor Contractor operations and to report any problems back to the DCOT Supervisor. Roving Monitors may request contract compliance, but do not have the authority to otherwise direct Contractor operations or to modify the contract scope of work.

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 shall do the following:

- Assist in the measuring of all Contractor trucks and trailer with the Contractors representative. Take photographs of all trucks and trailers.
- Obtain and become familiar with all debris removal and disposal contracts for which they are providing oversight.
- Observe all phases of debris management operation, to include loading sites, debris management sites, and final landfill sites.
- Prepare a daily written report of all Contractor activities observed to include photographs.
- Periodically monitor each debris management site to ensure that operations are being followed as specified in the applicable Debris Removal and Disposal Contract with respect to local and Federal regulations and the Debris Removal and Disposal Monitoring Plan (Appendix G).

Roving Monitors will also submit daily written reports to the DCOT supervisor outlining their observations with respect to the following:

- Is the Contractor using the site properly with respect to layout and environmental considerations?
- Has the Contractor established lined 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 plastic liners in place under stationary equipment such as generators and mobile lighting plants?
- Has the Contractor established appropriate rodent control measures?
- Are burn sites constructed and operating in accordance with the plans and requirements in Appendix H?
- Has the Contractor establish procedures to mitigate smoke, dust, noise, and traffic flow?

Roving Monitors' reports will also include written observations at loading sites, disposal sites, and the locations of any illegal dumping sites. If the monitor sees a problem they are to notify the DMC immediately and take photographs of the site.

b. Load Site Monitors

Load Site Monitors will be stationed at designated Contractor debris loading sites. The Load Site Monitors' primary function is to verify that debris being picked up is eligible under the terms of the contract.

Load Site Monitor positions will be staffed from Disaster Monitoring Contractor and supplemented by other County department personnel depending on the magnitude of the debris-generating event. Load Site Monitors will be assigned to each Contractor's debris loading site within designated Debris Control Zones, and will initiate and sign load tickets as verification that the debris being picked up is eligible.

c. Disposal Site Monitors

Disposal Site Monitors will be located at both debris management sites and landfill sites as identified by the DMC throughout the recovery process. The Disposal Site Monitors' primary function is to ensure that accurate load quantities are being properly recorded on pre-printed load tickets (see Figure 2).

At each debris management site and landfill disposal site, the Contractor will be required to construct and maintain a monitoring station tower for use by the Disposal Site Monitor. The Contractor will construct the monitoring station towers of pressure treated wood with a floor elevation that affords the Disposal Site Monitor a complete view of the load bed of each piece of equipment being utilized to haul debris. Alternately, hydraulic lifts or other devices may be used in lieu of constructed towers providing they provide an identical function. The Contractor will also provide each site with chairs, table, and portable sanitary facilities.

The Disposal Site Monitor will estimate the quantity (in cubic yards) of debris in each truck/trailer entering the Contractor's selected temporary debris management site or landfill disposal site and will record the estimated quantity on 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 debris load tickets. This is to be done on all types of debris removal contracts and force account vehicles.

Disposal Site Monitors will be staffed by the Disaster Monitoring Contractor personnel depending on the magnitude of the debris-generating event. The Disposal Site Monitors will be stationed at all debris management sites and landfill disposal sites for the purpose of verifying the quantity of material being hauled by the Contractor. The Disposal Site Monitor will be responsible for closing out and signing each load ticket and returning a copy to the DCOT Supervisor at the end of each day.

Alternately, the County may elect to pay contractors based on tons of debris hauled and not cubic yards. In this case, it will be unnecessary to construct observation towers at the disposal facility. Calibrated scales will be the pay basis with trucks weighing in (gross weight) and out (tare weight). The quantity of debris hauled will be the difference between the gross weight and the tare weight, i.e.:

***tons of debris hauled = gross weight, tons – tare weight, tons***

**2. Commercial Garbage Contractors**

Commercial garbage Contractors will continue to pick up refuse in accordance with current procedures, routes, and removal schedules. They will not haul disaster debris unless expressly authorized by the Debris Manager.

**3. Household Hazardous Waste and White Goods**

The Debris Manager will identify one or more Household Hazardous Waste (HHW) drop-off locations within each of the Debris Control Zones. Contractors will be encouraged to separate HHW at the curb and not haul it to a Debris Management Site. Residents will be encouraged to separate and transport HHW to pre-identified drop-off points. The Division Director for Solid Waste, (804) 727-8774, will coordinate with the Virginia Department of Environmental Quality (VDEQ) officials for the collection of eligible industrial or commercial hazardous waste resulting from the disaster.

White goods are defined as discarded household appliances. They include refrigerators, freezers, air conditioners, heat pumps, ovens, ranges, washing machines, clothes dryers, water heaters, etc. Refrigerants and other machine fluids are regulated and will only be reclaimed by certified technicians and disposed of at a permitted facility. To avoid the releases of refrigerants or oils, the collection of white goods will be accomplished carefully by manually placing the appliance on trucks or by using lifting equipment that will not damage the elements that contain refrigerants or regulated oils. Residents will be required to segregate these materials from other types of debris.

**4. Utility Company Property**

Dominion Virginia Power (800-826-1027) 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.

**5. Equipment Assets**

A table summarizing the equipment that details the equipment that Henrico County currently has in inventory that could be used to assist with debris removal is included in Appendix I.

**6. Contractor Debris Removal and Disposal Operations**

The County recognizes that disasters may generate debris of types and quantities that exceed the County's capabilities. Thus, the County will implement a pre-positioned contracting process to have Contractors on stand-by to respond within a pre-determined period to assist in requested aspects of the debris operation.

The Debris Manager or his or her authorized representative will contact the firm(s) holding pre-positioned debris removal and disposal contract(s) and advise them of impending conditions.

The scope of the pre-positioned contract provides for the removal and lawful disposal of all natural disaster-generated debris, excepting household, industrial, or commercial hazardous waste. Debris removal will be limited to County-maintained streets, roads, and other public rights-of-way, and public properties based on the extent of the disaster.

The County of Henrico maintains its own road network except for state and federal highways. There are roads within the County that are not municipal, state or federal roads but allow public access. These roads generally are classified as private roads they may include:

- Roads that run through gated communities.
- Roads that are owned by individuals that service one or a few residences or commercial properties.
- Roads that are owned and maintained by homeowner's associations that do not restrict public access. These roads often connect with VDOT roads and are routinely used by emergency vehicles, school buses, sheriff's vehicles, US Mail and other public purposes. (These roads while privately maintained are open and used by the public with access to the state roads in many situations.)
- The County does not perform work on private road networks without specific authorization from senior management.

Debris removal will be limited to disaster related material placed at or immediately adjacent to the edge of the rights-of-way by residents within designated Debris Control Zones.

Each Contractor, upon receipt of notice to proceed, will mobilize such personnel and equipment as necessary to conduct the debris removal and disposal operations detailed in the Contractor's General Operations Plan (required by the Debris Removal and Disposal Contract). All Contractor operations will be subject to review by the Debris Manager.

The Contractor will make multiple, scheduled passes (as required and authorized by the County) of each site, location, or area impacted by the disaster according to assigned Debris Control Zones and as directed by the Debris Manager. Schedules will be provided to the DMC PIO for publication and notification by the news media.

The load ticket, coupled with inspections by Roving, Load Site, and Disposal Site Monitors, will be the primary mechanism for monitoring Contractor performance and tracking quantities for pay purposes.

Federal support will be requested if the incident is beyond the County's capability and its Contractors. The USACE may be tasked by FEMA through the mission assignment process to provide the necessary support to the County.

If tasked by FEMA, USACE will respond by providing trained and experienced Debris PRTs that are responsible for managing the debris mission from removal to final disposal. These tasks are accomplished utilizing pre-awarded contracts to private industry Contractors experienced in debris removal operations. The USACE also has Debris Subject Matter Experts available to provide advice and support to the Contractor and the DMC staff.

***Procurement Procedures***

Procurement of all debris related services shall comply with current County procurement procedures and State procurement ordinances. The current debris contractors were selected through a competitive procurement issued by the Central Virginia Waste Management Authority (CVWMA). The CVWMA is a regional authority that contracts for waste collection and recycling. Henrico County is a charter member of that authority.

If needed, any emergency procurement shall be pre-approved by the County Procurement Officer.

In addition, procurement procedures shall be consistent with the procurement check list found in Appendix J.

**7. Temporary Debris Management and Landfill Sites**

The County recognizes the economic benefits of debris volume reduction, and will realize this benefit through the use of local debris management sites for processing of clean woody debris. The County has identified pre-designated vegetative debris management sites for the sole purpose of temporarily storing and reducing clean woody debris through either burning or grinding. A listing of debris management and landfill sites is located in Appendix E.

Contractors will operate the debris management sites made available by the County. Each Contractor will be responsible for all site setup, site operations, rodent control, closeout, and remediation costs at each of its sites. The Contractor must coordinate Park site setup with the Park Services Manager. The Contractor is also responsible for the lawful disposal of all by-products of debris reduction that may be generated.

The Contractor will restore the debris management sites as close to the original condition as is practical so that it does not impair future land uses. All sites are to be restored to the satisfaction of the Debris Manager with the intent of maintaining the utility of each site.

Contractors are also expected to haul and manage construction and demolition (C&D) waste. C&D materials will be hauled to debris management sites for temporary sorting and storage until final disposal arrangements are made.

It is important to note that all material deposited at debris management sites will eventually be taken to a properly permitted landfill for final disposal. Under certain circumstances, the Debris Manager may direct Contractors to bypass C&D debris management sites and approve the hauling of mixed C&D debris directly to a properly permitted landfill for disposal.

While residents will be encouraged to segregate HHW at curbside, small amounts of HHW may be mixed in with material deposited at the debris management sites. Therefore, the Contractor must be prepared to place any HHW in a separate enclosed and lined area for temporary storage, and must report any accumulation of HHW at the debris management sites

to the DCOT staff. The DCOT staff will notify the SWM Debris Coordinator, who will coordinate for removal and disposal.

## **8. Load Ticket Disposition**

The Load Ticket will be a 5-part pre-printed form (see Figure 2). This ticket and the process described below are representative of the flow of paperwork and the type of ticket required. Colors of the various parts of the form are representative only and may vary depending on those in use at that time by the monitoring and debris collection contractors.

At initiation of each load, the Load Site Monitor will fill out all items in Section 1 of the Load Ticket and will retain Part 1 (White Copy). The remaining copies will be given to the driver and carried with the load to the disposal site.

Upon arrival at the disposal site, the driver will give all four copies to the Disposal Site Monitor. The Disposal Site Monitor will complete Section 2 of the Load Ticket and retain Part 2 (Green). Parts 3, 4, and 5 will be given either to the Contractor's on-site representative or to the truck driver for subsequent distribution.

All trucks will be measured by the Contractor and DMC staff before the operation begins and periodically rechecked throughout the operation.

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 Part 4 (Pink) of the Load Ticket with the Contractor's invoice.

Load tickets will also be completed and retained for County force account vehicles as a primary mechanism for tracking debris quantities deposited at debris management sites.

## **9. Temporary Debris Management Site Setup and Closeout Procedures**

The Contractor will be responsible for preparing and closing out a temporary debris management site in accordance with the specifications in the Debris Removal and Disposal Contract and guidance contained in Appendix H.

## **10. Private Property Debris Disposal**

Dangerous structures are the responsibility of the owner to demolish in order to protect the health and safety of adjacent residents. However, experience has shown that unsafe structures will often remain in place due to lack of insurance or absentee landlords. Care must be exercised to ensure that Henrico County properly identifies structures listed for demolition.

The Debris Manager will coordinate with the County and State and FEMA Public Assistance Officers regarding:

- Demolition of private structures.
- Removing debris from private property.
- Local law and/or code enforcement requirement.

- Historic and archaeological sites restrictions.
- Qualified environmental Contractors to remove hazardous materials such as asbestos and lead-based paint.
- Execution of Right-of Entry/Hold Harmless agreements with landowners. A sample Right-of-Entry/Hold Harmless agreement is shown in Appendix H.

## **11. Recycling Storm Debris**

The intent is to recycle as much of the storm generated debris as feasible.

**Vegetative Debris** – ground yard trash/vegetative storm debris may be transported to agricultural fields for use as a soil amendment in accordance with VDEQ policies for use of such materials, sold as mulch and/or to cogeneration power plants for use as boiler fuel.

**Non-Vegetative, Non Hazardous Debris** – These materials commonly referred to as C/D (construction demolition debris) will be directed to VDEQ permitted C/D recycling facilities, if financially feasible and if volumes do not exceed the handling capacity of the Debris management System of TDSR sites.

## **12. Permitting**

Debris operations will comply with all Federal, State, and local regulations. Several agencies may be involved in issuing permits.

The following is a list of potential permits that may be required in debris operations:

- Waste processing and recycling operations permit
- Temporary land-use variances or permits
- Traffic or entrance permits
- Air quality permits
- Water quality permits
- HHW permits
- Fire department permits
- Freon removal from white goods
- Erosion and sediment control

## **13. Environmental Requirements**

Following a disaster event, compliance with environmental protection laws and regulations is required. Federal and State Environmental Protection Agencies including but not limited to VDEQ and local Health Departments should be consulted for applicable regulatory requirements.

All debris related activities shall be coordinate with Federal, State, and local agencies, to ensure compliance with environmental and historic preservation laws/regulations/policies and determining environmental monitoring and reporting requirements for TDSR's,

The agency shall also maintain records for historical purposes.

See Appendix H "Debris Clearing, Removal, and Disposal Guidelines"

#### **14. Health and Safety**

All debris related activities shall be done and comply with the health and safety requirements. The County Safety Officer shall assure that all appropriate safety procedures are followed and shall periodically check on the work of subcontractors and county agents to make sure that applicable provisions are followed.

The Health and Safety plan enables the agency and their contractors to avoid accidents during debris recovery operations and to protect workers from exposure to hazardous materials. The health and safety strategy establishes minimum safety standards for the agency and contractor personnel to follow.

The agency and contractor will disseminate safety information and how the agency will monitor compliance with the minimum safety standards to all emergency workers.

Debris operations involve the use of heavy equipment to move and process various types of debris. Many of these actions can pose safety hazards to emergency response and recovery personnel and the public. In addition to those safety hazards, exposure to certain types of debris, such as building materials that contain asbestos and mixed debris that contains hazardous materials, can pose potential health risks to emergency workers.

The health and safety plan provides emergency workers with information on how to identify hazardous conditions and specific guidelines on the appropriate and proper use of personal protective equipment.

#### ***V. Weapons of Mass Destruction/Terrorism Event***

The handling and disposal of debris generated from a Weapons of Mass Destruction (WMD) or terrorism event will exceed the capabilities of Henrico County and will require immediate Federal assistance.

Normally, a WMD or terrorism event will, by its very nature, require all available assets and involve many more Federal and adjacent State and County departments and agencies. The nature of the waste stream as well as whether or not the debris is contaminated will dictate the necessary cleanup and disposal actions. Debris handling considerations that are unique to this type of event include:

- Much of the affected area will likely be a crime scene. Therefore, debris may be directed to a controlled debris management site by Local, State, and/or Federal law enforcement officials for further analysis.
- The debris may be contaminated by chemical, biological, or radiological contaminants. If so, the debris will have to be stabilized, neutralized, containerized, etc. before disposal. In such an occurrence, the operations may be under the supervision and direction of a Federal agency and one or more specialty Contractors retained by that agency. The presence of contamination will influence the need for pretreatment (decontamination), packaging and transportation.
- The type of contaminant will dictate the required capabilities of the personnel working with the debris. Certain contaminants may preclude deployment of resources that are not properly trained or equipped.

The Debris Manager will continue to be the single point of contact for all debris removal and disposal issues within Henrico County. Coordination will be exercised through the USACE ESF #3 Branch located at the designated FEMA Disaster Field Office.

In this type of event, Henrico County will become a supporting element to the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency (USEPA), and/or the Department of Energy (DOE) and will operate as defined in the USACE WMD Emergency Response Plan (to be published).

#### ***VI. Administration and Logistics***

All Henrico County departments and agencies involved in the response will maintain records of personnel, equipment, load tickets, and material resources used to comply with this Plan. Such documentation will then 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 24-hour-staffing capability during implementation of this plan, if the emergency or disaster requires or as directed by the Debris Manager.

All County departments are responsible for the annual review of this Plan. It will be the responsibility of each tasked department and agency to update its respective portion of the Plan and ensure any limitations and shortfalls are identified and documented, and work-around procedures developed, if necessary.

The review will consider such items as:

- Changes in Mission
- Changes in Concept of Operations
- Changes in Organization
- Changes in Responsibility
- Changes in desired contracts
- Changes in pre-Positioned contracts
- Changes in priorities

This Plan also may be updated as necessary to ensure a coordinated response as other Debris Management Plans are developed.

## **APPENDIX A**

### **ACRONYMS AND DEFINITIONS**

#### **LIST OF ACRONYMS**

AC	Acre
ACI	Advance Contracting Initiative (USACE)
C&D	Construction and Demolition
CY	Cubic Yard
DCOT	Debris Contractor Oversight Team
DM	Debris Manager
DDM	Deputy Debris Manager
DMC	Debris Management Center
DPW	Department of Permitting Works
DPW	Department of Public Services
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
ESF	Emergency Support Function
FEMA	Federal Emergency Management Agency
GSA	General Services Administration
HEOC	Henrico County Emergency Operations Center
HCPS	Henrico County Public Schools
HHW	Household Hazardous Waste
OEM	Office of Emergency Management
PIO	Public Information Officer
PRT	Planning and Response Team
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VDEM	Virginia Department of Emergency Management
VDOT	Virginia Department of Transportation
WMD	Weapons of Mass Destruction

## DEFINITIONS

**Burning** – Reduction of woody debris by controlled burning. Woody debris can be reduced in volume by approximately 95% through burning. Air curtain burners are recommended because they can be operated in a manner to comply with clean-air standards.

**Chipping or Mulching** – Reducing wood related material by mechanical means into small pieces to be used as mulch or fuel. Woody debris can be reduced in volume by approximately 75%, based on data obtained during reduction operations. The terms “chipping” and “mulching” are often used interchangeably.

**Construction, Demolition and Land-Clearing Wastes** – Any type of solid waste resulting from land-clearing operations, the construction of new buildings or remodeling structures, or the demolition of any building or structure.

**Debris** - Scattered items and materials that were broken, destroyed, or displaced by a natural disaster. Examples: trees, construction and demolition material, personal property.

**Debris Clearance** – Clearing the major road arteries by pushing debris to the roadside to accommodate emergency traffic.

**Debris Removal** – Picking up debris and taking it to a temporary storage site or permanent landfill.

**Department of Public Services (DPW)** – Department typically responsible for clearing debris from the roads and rights-of-way.

**Department of Solid Waste** – Department typically responsible for managing and overseeing the collection and disposal or recycling of garbage, trash, construction debris, and disaster related debris.

**Department of Recreation and Parks** – Department typically responsible for managing and overseeing the County’s public park land and recreation facilities.

**Federal Response Plan** – A plan that describes the mechanism and structure by which the Federal government mobilizes resources and conducts activities to address the consequences of any major disaster or emergency that overwhelms the capabilities of State and local governments.

**Final Debris Disposal** – Placing mixed debris and/or residue from volume reduction operations into an approved landfill.

**Force Account Labor** – In this context, State, tribal or local government employees engaged in debris removal activities within their own jurisdiction.

**Garbage** – Waste that is normally picked up by a designated department (such as the Department of Solid Waste Management, or a Contractor). Examples: food, plastics, wrapping, papers.

**Hazardous Waste** – Any waste or combination of wastes of a solid, liquid, contained gaseous or semisolid form which because of its quantity, concentration, or physical, chemical, or infectious characteristics may:

- Cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or
- Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Also includes material and products from institutional, commercial, recreational, industrial and agricultural sources that contain certain chemicals with one or more of the following

characteristics, as defined by the Environmental Protection Agency: 1) Toxic, 2) Flammable, 3) Corrosive; and/or 4) Reactive. Such wastes may include, but are not limited to, those that are persistent in nature, assimilated, or concentrated in tissue or which generate pressure through decomposition, heat, or other means. The term does not include solid or dissolved materials in domestic sewage or solid dissolved materials in irrigation return flows, or industrial discharges, which are point sources subject to state or federal permits.

**Household Hazardous Waste (HHW)** – Used or leftover contents of consumer products that contain chemicals with one or more of the following characteristics, as defined by the Environmental Protection Agency: 1) Toxic, 2) Flammable, 3) Corrosive and/or 4) Reactive. Examples of household hazardous waste include small quantities of normal household cleaning and maintenance products, some paint, cleaning solvents, gasoline, oils, swimming pool chemicals, pesticides, and propane gas cylinders.

**Illegal Dumping** – Dumping garbage and rubbish, etc., on open lots is prohibited. No garbage, refuse, abandoned junk, solid waste or other offensive material shall be dumped, thrown onto, or allowed to remain on any lot.

**Monitoring** – Actions taken to ensure that a Contractor complies with the contract scope of work.

**Mutual Aid Agreement** – A written understanding between communities, states, or other government entities delineating the process of providing assistance during a disaster or emergency. (See FEMA Response and Recovery Directorate Policy Number 9523.6, “Mutual Aid Agreements for Public Assistance”, dated August 17, 1999.)

**Recycling** – The recovery and reuse of metals, soils, and construction materials that may have a residual monetary value: The City encourages the voluntary participation of all of its residents to reduce the waste stream through recycling. Residents are strongly encouraged to recycle all items that are recyclable and throw away for ultimate landfill disposal only those items, which cannot be recycled. Special containers are provided at numerous manned recycling and solid waste centers for the storage and collection of:

- Newspapers
- Glass
- Aluminum and metal cans
- HDPE jugs
- PET bottles
- Used motor oil
- Lead acid batteries
- Scrap metals and appliances including refrigerators, stoves, water heaters, etc.
- Mulch including ground leaves, limbs, brush, and yard wastes

**Rights-of-Way** – The portions of land over which facilities, such as road, sidewalks, utilities, highways, or railroads are built. Includes land on both sides of the road up to the private property line.

**Scale/Weigh Station** – A scale used to weigh trucks as they enter and leave a landfill. The difference in weight determines the tonnage dumped and a tipping fee may be charged accordingly. Also may be used to determine the quantity of debris picked-up and hauled.

**Sweeps** – The number of times a contractor passes through a community to collect all disaster-related debris from the rights-of-way. Usually limited to three passes through the community.

**Temporary Debris Storage and Reduction (TDSR) Site** – A location where debris is temporarily stored until it is sorted, processed, and reduced in volume and/or taken to a permanent landfill.

**Tipping Fee** – A fee based on weight or volume of debris dumped that is charged by landfills or other waste management facilities to cover their operating and maintenance costs. The fee also may include amounts to cover the cost of closing the current facility and/or opening a new facility.

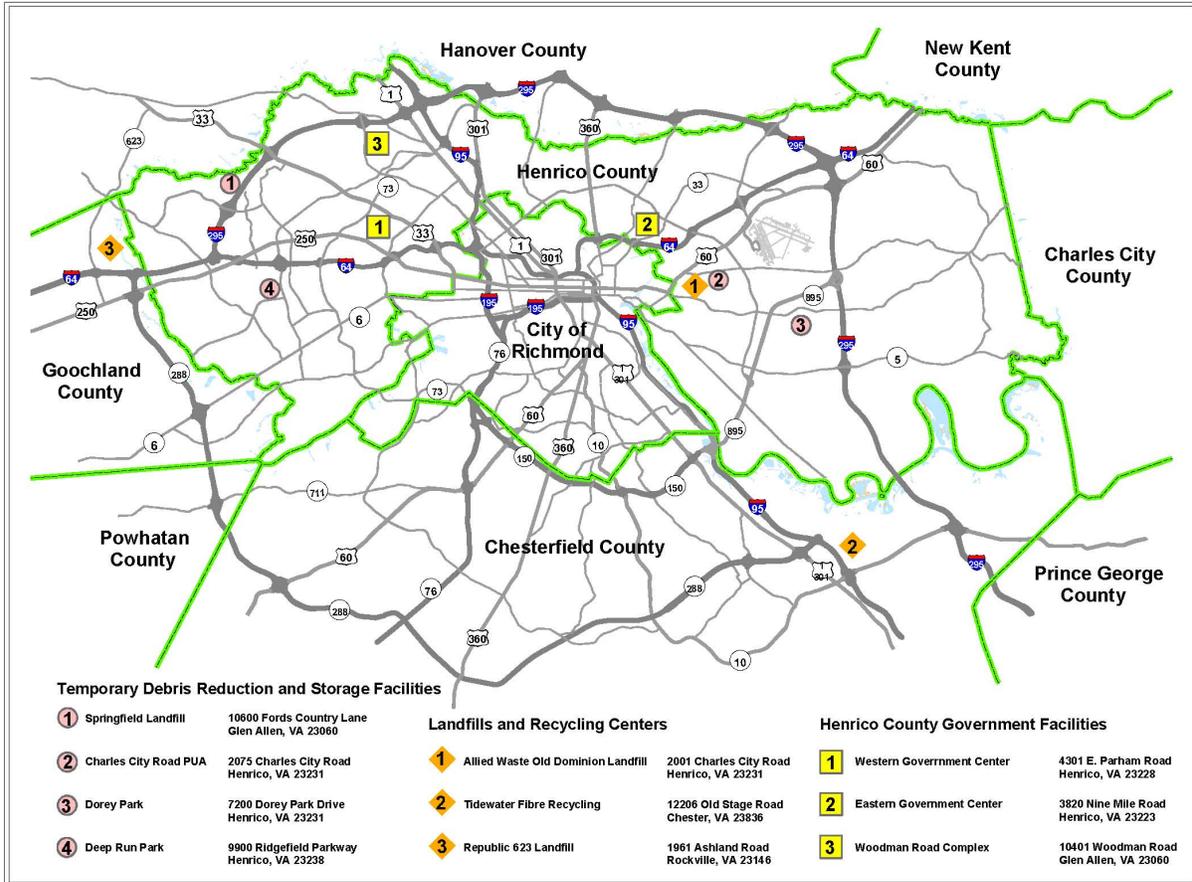
**Trash** – Non-disaster related yard waste, white metals, or household furnishings placed on the curbside for pickup by local solid waste management personnel. Not synonymous with garbage.

**United States Army Corps of Engineers (USACE)** – The primary missions of the USACE are the design and management of construction projects for the Army and Air Force, and to oversee various flood control and navigation projects. The USACE may be tasked by FEMA to direct various aspects of debris operations when direct Federal assistance, issued through a mission assignment, is needed.

**Volume Reduction Operations** – Any of several processes used to reduce the volume of debris brought to a temporary debris storage and reduction site. It includes chipping and mulching of woody debris, shredding and baling of metals, air curtain burning, etc.

**White Metals** – Household appliances such as refrigerators, washers, dryers, and freezers.

## APPENDIX B - TDSRS, Landfills, Recycle Centers and Government Facilities Map



FEMA Debris Plan



## **APPENDIX C**

### **CRITICAL FACILITIES**

#### **Government Command and Operations Centers**

Henrico County Western Government Center  
4301 E. Parham Road

Henrico County Public Safety Building  
7721 E. Parham Road

Henrico County Training Facility  
7701 E. Parham Facility

Eastern Government Center  
3820 Nine Mile Road

#### **Hospitals within the County of Henrico**

Bon Secours St. Mary's Hospital  
5801 Bremo Road – 285-2011

Henrico Doctor's Hospital  
1602 Skipwith Road – 289-4500

Henrico Doctor's Hospital  
7700 E. Parham Road - 747-5600

#### **County Shelters**

##### **Primary Shelters**

Hermitage High School -756-3000  
8301 Hungary Spring Road  
Henrico, VA 23228

Rolfe Middle School - 226-8730  
6901 Messer Road  
Henrico, VA 23231

Pocahontas Middle School – 364-0830  
12000 Three Chopt Road  
Henrico, VA 23233

Hungary Creek Middle School – 527-2640  
4909 Francistown Road  
Glen Allen, VA 2306

**Secondary Shelters**

Wilder Middle School – 515-1100  
6900 Wilkinson Road  
Henrico, VA 23227

Elko Middle School 328-4110  
5901 Elko Road  
Sandston, VA 23150

Godwin High School 750-2600  
2101 Pump Road  
Henrico, VA 23238

## APPENDIX D PRIMARY ROAD CLEARANCE LIST

These roads lead to critical facilities, hospitals, shelters and TDSRS sites.

### Government Facilities

Parham Road  
Hungary Spring Road  
Shrader Road  
Nine Mile Road  
Creighton Road

### Hospitals

Bremo Road  
Skipwith Road

### Shelters

Three Chopt Road  
Francistown Road  
Wilkinson Road  
Elko Road  
Pump Road  
Laburnum Ave. S of I 64

### TDSRS Facilities

Nuckols Road  
Fords Country Lane  
Ridgefield Parkway  
Charles City Road  
Darbytown Road

The following primary and secondary roads will be cleared when the critical facility roads are cleared and as needed to assure mobility to the county and its residents.

### Western County Roads

Anoka Road	College Road	Fargo Road
Ashburg Drive	Copperas Lane	Fitzhugh Avenue
Avalon Drive	Crowncrest Drive	Fords Country Lane
Azalea Avenue	Country Creek Way	Fordson Road
Bayberry Court	Courtney Road	Forest Avenue
Ballentine Lane	Cox Road	Fort McHenry Parkway
Bennett Lane	Dabney Road	Franklin Farms Drive
Bethlehem Road	Darracott Road	Gaskins Road
Blandfield Street	Denham Road	Gayton Road
Bremo Road	Derbyshire Road	George's Bluff Road
Brewster Drive	Diane Lane	Glen Eagles Drive
Broad Meadows Road	Dickens Road	Glen Forest Drive
Bronwood Road	Discovery Drive	Glenmore Road
Brookmont Drive	Dominion Club Drive	Glenside Drive
Burgoyne Road	Donora Drive	Greenwood Road
Burnside Lane	Doverland Road	Gunby Drive
Byrd Avenue	Doverton Road	Guyana Drive
Byrdhill Road	Dragana Drive	Hermitage Road
Cambridge Drive	Dresden Road	Holman Ridge Road
Carterwood Road	Dumbarton Road	Homeview Drive
Causeway Drive	Eastridge Road	Horsepen Road
Cedar Knoll Lane	Eunice Drive	Hungary Road
Church Road	Falmouth Street	Hungary Spring Road

Impala Drive  
Jacque Street  
JEB Stuart Parkway  
John Rolfe Parkway  
Lakeside Avenue  
Lakeway Drive  
Lakewood Drive  
Lauderdale Drive  
Lawndell Road  
Libbie Avenue  
Lydell Drive  
Magnolia Ridge Drive  
Markel Road  
Marshall Street  
Maybeury Drive  
Mayland Drive  
Maywill Street  
Michael Road  
Mill Road  
Monument Avenue  
Mooreland Road  
Mountain Road  
Nesselwood Road  
Nuckols Road  
Olde Milbrooke Drive  
Old Nuckols Road  
Old Washington Highway  
Old Wyndham Drive  
Parham Road  
Park Terrace Drive  
Pell Street  
Poplar Forest Drive  
Prince Henry Drive  
Pruett Lane  
Pump Road  
Quarter Mill Road  
Quioccasin Road  
Ranco Road  
Ridge Road  
Ridgefield Parkway  
River Road  
Rolling Hills Drive  
Santa Rosa Road  
September Drive  
Shady Grove Drive

Sherwin Place  
Shrader Road  
Skipwith Road  
Sleepy Hollow Road  
Starling Drive  
Summerwood Drive  
Tarrytown Drive  
Telegraph Road  
Thalbro Street  
Three Chopt Road  
Timber Pass  
Tuckernuck Drive  
Twin Hickory Road  
University Drive  
Virginia Center Parkway  
Vernon Road  
Villa Park Drive  
Walsing Drive  
Westek Drive  
Westmoreland Street  
Wilde Lake Drive  
Wilkinson Road  
Willow Lawn Drive  
Wilmer Avenue  
Wistar Road  
Woodman Road  
Woodrow Terrace  
Wyndham Forest Drive  
Wyndham Lake Drive  
Wyndham Park Drive

**Eastern County Roads**

Arrahatteck Trail  
Audubon Drive  
Battlefield Park Road  
Beulah Road  
Bradbury Road  
Britton Road  
Buffin Road  
Carolina Avenue  
Carters Mill Road  
Cedar Fork Road  
Charles City Road  
Creighton Road

Curles Neck Road  
Darbytown Road  
Doran Road  
Dry Bridge Road  
Eubank Road  
Gay Avenue  
Gill Dale Road  
Grapevine Road  
Hanover Road  
Hines Road  
Holly Avenue  
Hughes Road  
Kingsland Road  
Laburnum Avenue  
Long Bridge Road  
Meadow Road  
Meadowbridge Road  
Messer Road  
Midview Road  
Mill Road  
Miller Road  
Oakland Road  
Oakleys Lane  
Old Williamsburg Road  
Osborne Turnpike  
Portugee Road  
Scandia Road  
Strath Road  
Technology Boulevard  
Turkey Island Road  
Turner Road  
Varina Road  
Warriner Road  
Washington Street  
White Oak Road  
Wilson Avenue  
Wilton Farm Road  
Wilton Road  
WRVA Road  
Yahley Mill Road

## **APPENDIX E TEMPORARY DEBRIS STAGING AND REDUCTION SITES LANDFILLS**

### **I. TEMPORARY DEBRIS STAGING AND REDUCTION SITES**

Temporary Debris Staging and Reduction Sites are typically temporary in nature and used for debris segregation, stockpiling or reduction. The following Temporary Debris Staging and Reduction Sites are available for debris:

	Name	Address
1.	Springfield Road PUA	10600 Fords Country Lane
2.	Charles City Road PUA	2075 Charles City Road
3.	Dorey Park	7200 Dorey Park Drive
4.	Deep Run Park	9900 Ridgefield Parkway

### **II. LANDFILLS**

Permitted and final disposal

	Name	Address
1.	Allied Waste Old Dominion Landfill	2001 Charles City Road
2.	Tidewater Fibre Recycling	1958 Diamond Hill Road, Chester, VA
3.	Republic 623 Landfill	1961 Ashland Road
4.	Gillies Creek Industrial Recycling	4200 Masonic Lane, Richmond, VA

## **APPENDIX F DEBRIS CONTRACTOR OVERSIGHT TEAM STANDARD OPERATING GUIDELINES**

### **DEBRIS REMOVAL AND DISPOSAL OPERATIONS**

#### **General**

The County Debris Manager (DM) and Debris Management Center (DMC) staff will coordinate debris removal and disposal operations for all portions of the County. Phase II operations involve the removal and disposal of curbside debris by County force account and private contractors. While County agencies will provide oversight of their own removal operations, contractor operations will be overseen by the Debris Contractor Oversight Team (DCOT).

Mixed debris will be collected and hauled from assigned Debris Control Zones to designated TDSR sites or to designated landfill locations. Clean woody debris will be hauled to the nearest designated vegetative TDSR site for burning or grinding.

Load tickets will be used to track all debris that is loaded, hauled, and disposed of. Load tickets are to be used by both in-house and contracted haulers and will serve as supporting documentation for contractor payment as well as for requests for Federal assistance or reimbursement.

Franchise garbage contractors will continue to pickup refuse in accordance with current procedures, routes, and removal schedules. They will haul disaster debris as requested by the contracting authority.

### **DEBRIS CONTRACTOR OVERSIGHT TEAM**

#### **General**

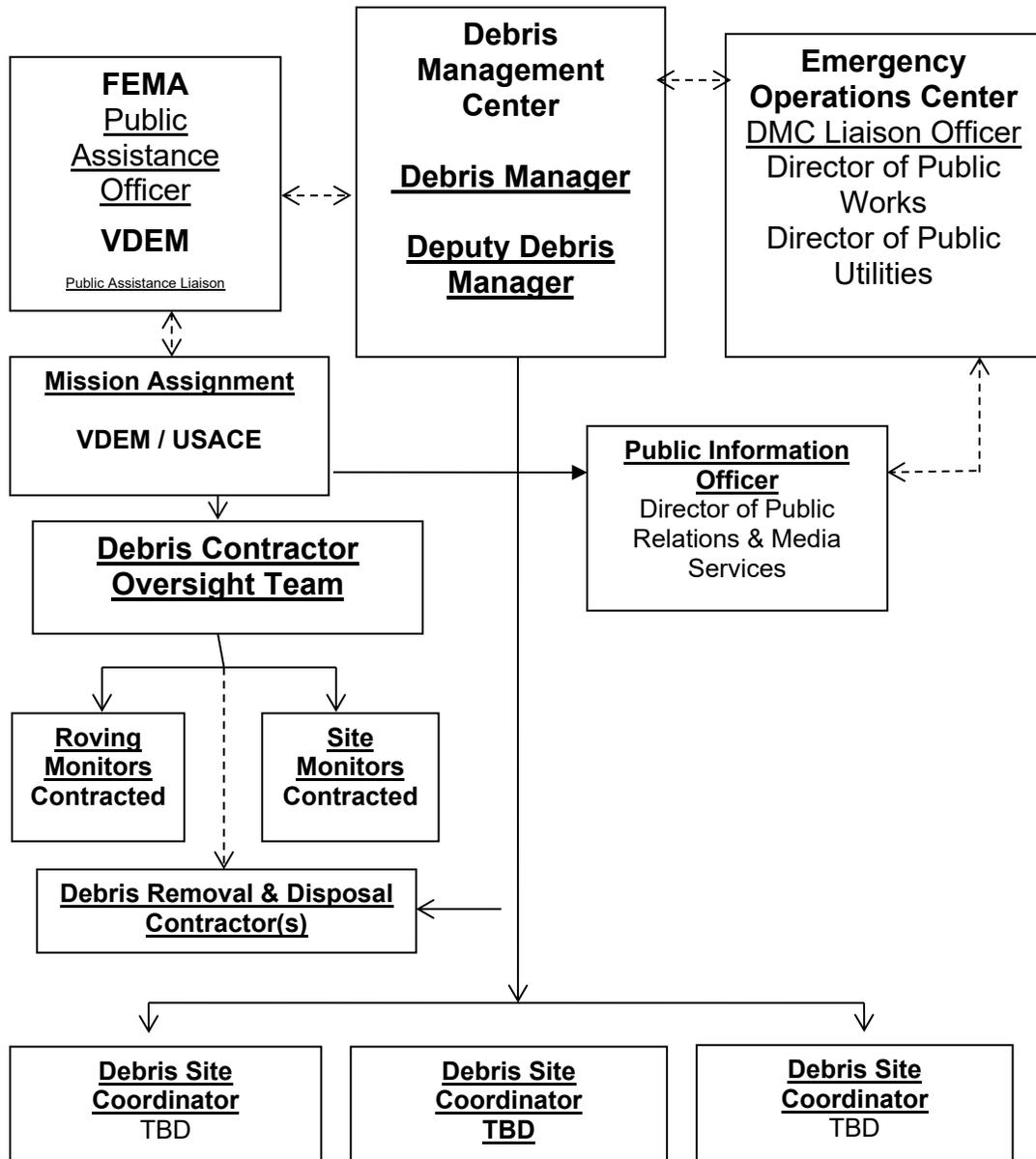
The DCOT supervisor and team members will be detailed from DPW, DPU, PA and other County Departments. The DCOT team may also be supplemented with contracted inspectors and other personnel as needed. Figure 1 below shows the organization of the DCOT within the DMC.

The DCOT team supervisor will be located at the Debris Management Center (DMC) and will provide overall supervision of the two field-based monitoring elements as described below. The DMC is located at the Woodman Road Operations Center. Specific DCOT Supervisor responsibilities include the following:

1. Planning, TDSR Site inspection, quality control, and other contractor oversight functions.
2. Receiving and reviewing all debris load tickets that have been verified by a Disposal Site Monitor (see description below).
3. Making recommendations to the County DM regarding distribution of in-house and contractor work assignments and priorities.
4. Reporting on progress and preparation of status briefings.

5. Providing input to the DMC PIO on debris removal and disposal activities and pickup schedules.

The DCOT Supervisor will oversee the activities of two types of field-based inspection teams. The functions and responsibilities of the field inspectors are described in the following sections.



### **Roving Monitors**

Teams of Roving Monitors will be assigned to a specific Debris Control Zones or to a specific Contractor depending upon the distribution of work assignments. Their mission is to act as the “eyes and ears” for the Debris Manager and DCOT Supervisor to ensure that all contract requirements, including safety, are properly implemented and enforced.

Staff to fulfill the Roving Monitor positions will be provided by DPW. Roving Monitors will have the authority to monitor contractor operations and to report back to the DCOT Supervisor. Roving Monitors may request contract compliance, but do not have the authority to otherwise direct contractor operations or to modify the contract scope of work.

The following actions will be initiated immediately after a debris-generating disaster:

1. The Debris Manager will establish two-person roving monitor teams with their own transportation and communications.
2. Roving Monitor teams will be assigned to each contractor's debris removal and disposal zone.

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 are responsible to do the following:

1. Obtain and become familiar with all debris removal and disposal contracts for which they are providing oversight.
2. Observe all phases of Debris Management operation, to include loading sites, TDSR sites, and final landfill sites.
3. Complete a Debris Loading Site Monitoring Checklist (Attachment 2) for every site visited.
4. Complete a Debris Disposal Site Monitoring Checklist (Attachment 3) for every TDSR Site visited. Ensure that operations are being followed as specified in the applicable Debris Removal and Disposal Contract with respect to local, state, and federal regulations.
5. Complete the Stockpiled Debris Field Survey Form (Attachment 4) at least weekly at all temporary TDSR Sites to determine estimated quantities of debris stockpiled.
6. Periodically measure curbside debris using the estimating formulas shown in Attachment 5.
7. Prepare a daily written report of all contractor activities observed to include photographs and the aforementioned checklists.

Roving Monitors will also submit daily written reports to the DCOT supervisor outlining their observations with respect to the following:

1. Is the contractor using the site properly with respect to layout and environmental considerations?
2. Has the contractor established lined temporary storage areas for ash, household hazardous wastes, and other materials that can contaminate soil and groundwater?
3. 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?

4. Are plastic liners in place under stationary equipment such as generators and mobile lighting plants?
5. Has the contractor established appropriate rodent control measures?
6. Are burn sites constructed and operating in accordance with the plans and requirements as stated in the contract?
7. Has the contractor establish procedures to mitigate:
  - a. Smoke – Are the incineration pits constructed properly and being operated according to the contract statement of work?
  - b. Dust – Are water trucks employed to keep the dust down?
  - c. Noise – Have berms or other noise abatement procedures been employed?
  - d. Traffic – Does the TDSR site have a suitable layout for ingress and egress to help traffic flow?

Roving Monitor's reports will also include observations at loading sites, disposal sites, and the locations of any illegal dumping sites.

### **Load Site Monitors**

Load Site Monitors will be stationed at designated contractor loading sites.

Load Site Monitor positions will be staffed from DPW and supplemented by other County department personnel depending on the magnitude of the debris-generating event.

Load Site Monitors will be assigned to each contractor loading site within designated Debris Control Zones. The Load Site Monitors' primary function is to verify that debris being picked up is eligible under the terms of the contract. They will initiate and sign load tickets as verification that the debris being picked up is eligible. See Figure 1 below.

The primary tracking mechanism for all debris loaded, hauled, and disposed of will be the Load Ticket. Load tickets will be initiated at pickup and closed-out upon drop-off of each load, and are to be used by both City and contracted haulers.

### **Disposal Site Monitors**

Disposal Site Monitors will be staffed by DPW or DPU personnel. The Disposal Site Monitors will be stationed at all TDSR sites and landfill disposal sites for the purpose of verifying the quantity of material being hauled by the contractor.

The Disposal Site Monitor will estimate the cubic yards of debris in each truck entering the TDSR site or landfill disposal site and will record the estimated quantity on pre-numbered debris load tickets. The contractor will only be paid based on the number of cubic yards or tons of material deposited at the disposal site as recorded on the debris load tickets. See Figure 2 below.

The Disposal Site Monitor will be responsible for completing and signing each load ticket and returning DCOT copies to the DCOT Supervisor. In addition, Disposal Site Monitors will maintain a daily Debris Disposal Site Load Tracking Log (Attachment 6), which will also be returned to the DCOT at the end of each day.

At each TDSR site and landfill disposal site, the Contractor will be required to construct and maintain a monitoring station tower for use by the Disposal Site Monitor unless the material is being collected and paid for on a per ton basis. The Contractor will construct the monitoring station towers of pressure treated wood with a floor elevation that affords the Disposal Site Monitor a complete view of the load bed of each piece of equipment being utilized to haul debris. The Contractor will also provide each site with chairs, table, and portable sanitary facilities.

<b>COUNTY OF HENRICO LOAD TICKET</b>		<b>Ticket No.</b> 000001
<b>Section 1</b>		
<b>Prime Contractor:</b>		<b>Date:</b>
<b>Subcontractor (Hauler):</b>		<b>Departure Time:</b>
<b>Driver:</b>		<b>Truck Plate No.:</b>
<b>Measured Bed Capacity (cu. yds. or tons):</b>		
<b>Debris Pickup Site Location:</b> (must be a street address)		
<b>Debris Type:</b> <input type="checkbox"/> <b>Vegetation</b> <input type="checkbox"/> <b>Construction &amp; Demolition</b> <input type="checkbox"/> <b>Mixed</b> <input type="checkbox"/> <b>Other:</b>		
<b>Loading Site Monitor: Print Name:</b>		
<b>Signature:</b>		
<b>Remarks:</b>		
<b>Section 2</b>		
<b>Debris Disposal Site Location:</b>		
<b>Estimate Debris Quantity: cu. yds.</b> _____		<b>Arrival Time:</b>
<b>Disposal Site Monitor: Print</b>		<b>Name:</b>
_____		
<b>Signature:</b>		
<b>Remarks:</b>		
Copies: White – Load Site Monitor                      Green – Disposal Site Monitor Canary, Pink, Gold – Onsite Contractor’s Representative or Driver		

**Figure 2 - Sample Load Ticket**

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

- Part 1 (White) Load Site Monitor (Turned in daily to the DMC)

- Part 2 (Green) Disposal Site Monitor (Turned in daily to the DMC)
- Part 3 (Canary) Driver or Contractor's on-site representative (Contractor Copy)
- Part 4 (Pink) Driver or Contractor's on-site representative (Contractor Copy)
- Part 5 (Gold) Driver or Contractor's on-site representative (Driver/Subcontractor Copy)

**Annual Training Workshop**

The County DM will be responsible for coordinating an annual training workshop for all assigned DCOT personnel. The purpose of the workshop is to review the Debris Management Plan procedures and to ensure that the DCOT operation works smoothly. Items of discussion will include:

1. Contractor responsibility
2. Mobilization sites
3. Logistical support
4. Pre-storm mobilization
5. Procedures for call-up of Contractor personnel and equipment
6. Haul routing
7. Contractor vehicle identification and registration
8. Debris hauling load ticket administration
9. Mobilization and operation of the TDSR sites
10. Contractor payment request submission, review, and verification
11. Special procedures for Household Hazardous Waste
12. TDSR site closure requirements

This training will be scheduled annually in April or May, prior to the start of the Hurricane Season.

## ATTACHMENT 2

### Debris Loading Site Monitoring Checklist

Date: \_\_\_\_\_  
Arrival Time: \_\_\_\_\_ Departure Time: \_\_\_\_\_ Weather Conditions: \_\_\_\_\_  
Loading Site Location: \_\_\_\_\_  
(Street address or nearest intersection)  
GPS Location: **N** \_\_\_\_\_ ; **W** \_\_\_\_\_  
Loading Site Monitor's Name \_\_\_\_\_  
(Print Name)  
Roving Monitor's Name: \_\_\_\_\_  
(Print Name)  
\_\_\_\_\_  
(Signature)

#### 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 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 within the general area as to overall cleanup activities)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ (U  
se reverse side if necessary)

**ATTACHMENT 3**

**Debris Disposal Site Monitoring Checklist**

Date: \_\_\_\_\_

Arrival Time: \_\_\_\_\_ Departure Time: \_\_\_\_\_ Weather Conditions: \_\_\_\_\_

Disposal Site Location: \_\_\_\_\_  
(Street address or nearest intersection)

GPS Location: **N** \_\_\_\_\_; **W** \_\_\_\_\_

Disposal Site Monitor's Name \_\_\_\_\_  
(Print Name)

Roving Monitor's Name: \_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Signature)

**Disposal Site**

1. Is the Disposal Monitor filling out the Load Ticket properly? YES  NO

If NO, explain actions taken:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Is the Disposal Monitor attaching a copy of the Weight Ticket to the Load Ticket? YES

NO

If NO, explain actions taken:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Are the Contractor's trucks loaded to capacity? 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

**Henrico County Debris Management Plan**

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If YES, list photo log numbers:

\_\_\_\_\_ ; \_\_\_\_\_ ; \_\_\_\_\_ ; \_\_\_\_\_ ; \_\_\_\_\_

General Notes and Comments: (Include observations of operations at the landfill)

---

---

---

---

---

\_\_\_\_\_ (Use reverse side if necessary)

ATTACHMENT 4

Stockpiled Debris Field Survey Form

**Stockpiled Debris Field Survey Form**

Type of Material:  
Clean Vegetative\_\_\_ Mixed\_\_\_ C&D\_\_\_ Mulch\_\_\_ Other\_\_\_\_\_

Stockpile Location: \_\_\_\_\_ Date: \_\_\_\_\_

Average Length of Stockpile: \_\_\_\_\_ Feet

Average Width of Stockpile: \_\_\_\_\_ Feet

Average Height of Stockpile: \_\_\_\_\_ Feet

Total Cubic Feet : \_\_\_\_\_ Cubic Feet

Total Cubic Yards:(Cubic Feet divided by 27) \_\_\_\_\_ Cubic Yards

Contractor's Representative: \_\_\_\_\_ Date \_\_\_\_\_

Government's Representative: \_\_\_\_\_ Date \_\_\_\_\_

Remarks: \_\_\_\_\_

**See Sketch of Site on Reverse Side**

**Stockpiled Debris Field Survey Form**

Stockpile Location: \_\_\_\_\_

Width \_\_\_\_\_ Feet

Height \_\_\_\_\_ Feet

Height \_\_\_\_\_ Feet

Height \_\_\_\_\_ Feet

Width \_\_\_\_\_ Feet

Length \_\_\_\_\_ Feet

Length \_\_\_\_\_ Feet

Remarks: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

$\frac{L' \times W' \times H'}{27} = \text{CY}$

## ATTACHMENT 5

### Debris Estimating Formulas

#### Estimating Rule of Thumb:

- 15 trees, 8 inches in diameter = 40 CY
- Single wide mobile home = 290 CY
- Double wide mobile home = 415 CY
- Root system (8'-10' dia.) = One flat bed trailer to move
- Treat debris piles as a cube, not a cone, when performing estimates.
- Average pace = 2' 6"

#### Formulas

##### Conversions:

- 27 cubic feet = 1 cubic yard
- One mile = 5280 feet or 1760 yards

Building formula:

$L'xW'$  (building footprint) x No. of Stories x 0.2 = \_\_\_\_\_ Cubic Yards of debris

Debris pile formula:

$\frac{L'xW'xH'}{27}$  = \_\_\_\_\_ Cubic Yards of debris.

27

#### Conversion Factors from Cubic Yards to Tons

- Mixed Construction & Demolition Debris = 500 LBS/CY or  $CY \times 0.25 = \text{Tons}$
- Yard Vegetation = 300 LBS/CY or  $CY \times 0.15 = \text{Tons}$
- Mulch = 500 LBS/CY or  $CY \times 0.25 = \text{Tons}$
- Regular Trash = 300 LBS/CY or  $CY \times 0.15 = \text{Tons}$
- Concrete = 2000 LBS/CY or  $CY \times 1.0 = \text{Tons}$
- Sand = 2600 LBS/CY or  $CY \times 1.3 = \text{Tons}$
- Land Clearing (Root balls with dirt) 1500 LBS/CY or  $CY \times 0.75 = \text{Tons}$



## **APPENDIX G**

### **SAMPLE DEBRIS REMOVAL AND DISPOSAL MONITORING PLAN**

#### **DEBRIS REMOVAL AND DISPOSAL MONITORING PLAN**

##### **GENERAL**

The County of Henrico has entered into a contract with the Central Virginia Waste Management Authority (CVWMA) and its subcontractors, for the purposes of:

- Removing debris from County rights-of-way to temporary debris staging sites, and hauling vegetative and recyclable C&D and mixed debris to a debris volume reduction site.
- Setting up and operating temporary debris volume reduction sites (TDSRs).
- Hauling chips/mulch from the debris volume reduction site to a landfill or a location of the Debris Manager's choosing.
- Hauling recycled concrete, metal and other recycle C&D and mixed debris to an approved landfill or recycling facility of the Debris Manager's choosing or, if permitted under the terms of the contract, to a location of the Contractor's choosing for profit.

The County's Debris Manager will be responsible for monitoring the Contractor's debris removal and disposal activities using County personnel or contract resources to prepare Debris Load Tickets and contract oversight.

##### **PURPOSE**

The purpose of this plan is to outline the monitoring responsibilities of the county's contract oversight team personnel. This plan is subject to revision based on changing conditions.

##### **MONITORING OPERATIONS**

Henrico County has been divided into eastern and western primary Debris Management zones. The Contractor will be responsible for removing all eligible vegetative, C&D and mixed debris from County street rights-of-way and hauling limbs, branches, and yard wastes to designated TDSR sites.

Monitoring activities will be controlled by the Debris Manager from the DMC located at Woodman Road Operations Center, and day-to-day operations or contracting questions should be directed to the Debris Manager at 804-727-8259.

Debris Contract Oversight Team monitor's work day is expected to be from 7 AM. Until 5 PM with 1/2 hour for lunch or maximum of 9.5 hours/day 7 days per week.

Monitors will be responsible for initiating Debris Load Tickets at Contractor debris loading sites and estimating and recording the type and quantity of debris, in cubic yards, of Contractor vehicles entering the TDSR sites on Debris Load Tickets. See Figure 1 below.

### **DEBRIS LOADING SITES MONITORS**

The debris loading site monitors will complete Section 1 of the load ticket. The monitor will keep one copy and give the remaining copies to the truck driver. The monitor's copy will be turned into the Debris Manager or designated representative on a daily basis. Load ticket information will be entered into a database by the County's Debris Monitor personnel.

### **TDSR SITE MONITORS**

The TDSR site monitors will record the estimated quantity, in cubic yards, on Section 2 of the load ticket. The monitor will keep one copy and give the remaining copies to the truck driver. The monitor's copy will be turned into the Debris Manager or designated representative on a daily basis. Load ticket information will be entered into a database by the County's Debris Monitor personnel.

Monitors will be located at the entrance to the TDSR site where the inspection tower is located. They will be responsible for estimating and recording the cubic yards of debris in Section 2 of the Load Ticket for all incoming Contractor's debris hauling vehicles. A copy of the Debris Load Ticket is shown on the following page.

<b>COUNTY OF HENRICO LOAD TICKET</b>		<b>Ticket No.</b>
<b>Section 1</b>		
<b>Prime Contractor:</b>		<b>Date:</b>
<b>Subcontractor (Hauler):</b>		<b>Departure Time:</b>
<b>Driver:</b>		<b>Truck Plate No.:</b>
<b>Measured Bed Capacity (cu. yds. or tons):</b>		
<b>Debris Pickup Site Location: (must be a street address)</b>		
<b>Debris Type:</b> <input type="checkbox"/> <b>Vegetation</b> <input type="checkbox"/> <b>Construction &amp; Demolition</b> <input type="checkbox"/> <b>Mixed</b> <input type="checkbox"/> <b>Other:</b>		
<b>Loading Site Monitor: Print Name:</b>		
<b>Signature:</b>		
<b>Remarks:</b>		
<b>Section 2</b>		
<b>Debris Disposal Site Location:</b>		
<b>Estimate Debris Quantity: cu. yds. _____</b>		<b>Arrival Time:</b>
<b>Disposal Site Monitor: Print _____</b>		<b>Name:</b>
<b>Signature:</b>		
<b>Remarks:</b>		
Copies: White – Load Site Monitor                      Green – Disposal Site Monitor Canary, Pink, Gold – Onsite Contractor's Representative or Driver		

**Figure 1 – Sample Load Ticket**

**COMPLETING THE LOAD TICKET**

- The disposal site monitor will be stationed in the inspection tower and make an estimate of the quantity of debris contained in the truck or trailer in cubic yards. Each truck or trailer will have the measured hauling capacity in cubic yards recorded on the side of the truck or trailer. That number should be validated with the quantity stated in Section 1.
- The disposal site monitor will indicate the name and the arrival time of the truck and indicate the type of debris in the truck.
- The disposal site monitor will record the estimated volume, in cubic yards, on the load ticket in the Estimated Debris Quantity block of material contained within the bed of the truck or trailer.
- Examples of a Truck / Trailer Estimating Table and Truck Capacity Table are shown on the following page.
- The monitor will print and sign his/her name in the designated block. .
- The disposal site monitor will retain one copy of the load ticket and give the remaining copies to the truck driver. The disposal site monitor’s copy will be turned into the City Debris Manager or his representative at the end of each day. These are controlled forms and cannot be lost since they will

be used to verify the amount of money paid to the Debris reduction site Contractor and to the debris hauling Contractor.

**EXAMPLE TRUCK / TRAILER ESTIMATING TABLE**

**EXAMPLE TRUCK CAPACITY TABLE**

Truck/Trailer Size - CY	100% CY	90% CY	85% CY	80% CY	75% CY
32	32	29	27	25	24
46	46	41	39	37	35
47	47	42	40	38	35
Note: Truck/Trailer without tailgate is rated at 85% of capacity					
Truck Number	Driver	Model	License #	Capacity in CY	
101	Joe	Self Loader	39X2520 GA	32 CY	
102	Kim	Self Loader	39X2522 TX	32 CY	
103	Steve	Trailer	63XN362 MD	47 CY	
104	David	Self Loader	63X5542 LA	46 CY	
105	Chip	Trailer	W5008 FL	47 CY	

List Vehicle Numbers, Drivers Name, Model, License Number and Measured Capacity of Truck / Trailer Bed In Cubic Yards.

NOTE: Debris Contract Oversight Team members must measure and photograph every truck and trailer used by the contractor to move debris. This should be done jointly with the contractor’s representative before debris removal operations begin.

**MONITORING STAFF ASSIGNMENTS**

Monitoring assignments and personnel names should be recorded in a table similar to the following:

**EXAMPLE MONITORING STAFF TRACKING TABLE**

Date	Monitor’s Name	Monitor’s Title	Disposal Site Name	Disposal Site Address	Hours Worked
10/1/03	Betty	Inspector	Mulching Park	123 Main St.	7 a.m. – 6 p.m.
10/1/03	Joe	Tow Truck Operator	Redux Central	5000 South St.	7 a.m. – 7 p.m.

**TRAINING**

All assigned monitors will attend a 2 hour training session prior to beginning work. The times the training will start and locations training will be held will be announced when the contract is activated.

## APPENDIX H

### DEBRIS CLEARING, REMOVAL, & DISPOSAL GUIDELINES

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**Right of Entry / Hold Harmless Agreement Sample**

I/We \_\_\_\_\_ (*Owners Names*), the owner(s) of the property commonly identified as \_\_\_\_\_ (*street address*), County of Henrico, Commonwealth of Virginia, do hereby grant and give freely and without coercion, the right of access and entry to Henrico County, its agencies, contractors, and subcontractors, for the purpose of removing and clearing any or all storm-generated debris of whatever nature from the above described property.

It is fully understood that this permit is not an obligation to perform debris clearance. The undersigned agrees and warrants to hold harmless the County of Henrico, Commonwealth of Virginia, its agencies, contractors, and subcontractors, for damage of any type whatsoever either to the above described property or persons situated thereon and hereby release, discharge, and waive any action, either legal or equitable, that might arise out of any activities on the above described property. The property owner(s) will mark any storm damaged sewer lines, water lines, and other utility lines located on the described property.

I/We (have, have not) (will, will not) receive(d) any compensation for debris removal from any other source, including the Small Business Association (SBA), Agricultural Stabilization and Conservation Service (ASCS), private insurance, individual and family grant program or any other public assistance program. I will report for this property any insurance settlements to me or my family for debris removal that has been performed at government expense. For the considerations and purposes set forth herein, I set my hand this \_\_\_\_\_ (Day) day of \_\_\_\_\_ (Month), 20\_\_\_\_ (last two digits of year).

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Owner

\_\_\_\_\_  
Owner

\_\_\_\_\_  
Telephone Number and Address

## **TDSR Site Setup and Closeout Guidelines**

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### ***VII. TDSR Site Setup***

The topography and soil/substrate conditions should be evaluated to determine best site layout. When planning site preparation, think of ways to make restoration easier. For example, if the local soils are very thin, the topsoil can be scraped to bedrock and stockpiled in perimeter berms. Upon site closeout, the uncontaminated soil can be spread to preserve the integrity of the tillable soils.

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.

### ***VIII. TDSR Site Baseline Data Checklist***

#### **A. 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.

#### **B. After Activities Begin**

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

#### **C. Progressive Updates**

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

**IX. TDSR Site Operations**

Lined 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.

**X. TDSR Site Closeout**

Each TDSR Site will eventually be emptied of all material and be restored to its 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 Henrico County 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 TDSR site operation(s).

**A. TDSR Site Closeout Planning**

The Contractor must assure the Debris Manager that all TDSR sites are properly remediated. There will be significant costs associated with this operation as well as close scrutiny by the local press and environmental groups. Site remediation will go smoothly if baseline data collection and site operation procedures are followed. Closeout or re-approval of a TDSR site should be accomplished within 30 days of receiving the last load of debris.

**B. TDSR Site Closeout Steps**

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

7. Contractor obtains acceptance from the Debris Manager, appropriate environmental agency, and the landowner.

### **C. TDSR Site Closeout Coordination**

The Contractor will coordinate the following closeout requirements through the DCOT staff:

- 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.
- Refer to 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.

### **D. Material Removal**

1. All processed and unprocessed vegetative material and 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 scrap metal 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, wallboard, plastics, roofing material, painted wood, and other material from demolished buildings that is not inert debris (see #1 above) as well as inter debris that is mixed with such materials shall be removed to a properly permitted C&D recycling facility, C&D landfill, or municipal solid waste landfill.

### **E. TDSR Site Remediation**

During the debris removal process and after the material has been removed from each of the TDSR 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.

**F. TDSR 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 contractor has vacated the temporary site

**G. Site Re-approval**

Sites that were approved as TDSR sites will require re-approval for long-term storage, continuing reduction processing, and permanent disposal if site is not closed out in accordance with guidelines stated here. Sites shall be managed and monitored in accordance with the Health Department requirements and to prevent threats to the environment or public health.

## Temporary Construction and Demolition Staging / Transfer Site Guidelines

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### ***XI. 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.

### ***XII. 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:

- Sites should be located outside of identifiable or known floodplain and flood prone areas; consult the Flood Insurance Rate Map for the location in your City to verify these areas. Due to heavy rains associated with hurricanes and saturated conditions that result, flooding may occur more frequently than normally expected.
- 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.
- Storage areas for incoming C&D debris shall 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.
- Materials separated from incoming C&D debris (white goods, scrap metal, etc.) shall be at least 50 feet from site property lines. Other non-transferable C&D wastes (household garbage, larger containers of liquid, household hazardous waste shall be placed in containers and transported to the appropriate facilities as soon as possible.
- 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 will be necessary to delineate areas of concern. Once areas are delineated, the areas shall be flagged and a 100-foot buffer shall be maintained for all activities on-going at the site.
- 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.

- Sites shall 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.
- 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.
- 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.
- Final written approval is required to consider any TDSR site to be closed. Closeout of processing/recycling sites shall be within one (1) year of receiving waste. If site operations will be 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 shall be closed until conditions are corrected or permanently closed. Closeout of sites shall be in accordance with the closeout and restoration of TDSR sites guidelines.

### ***XIII. 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:

- Contact the City Health Department for information on managing asbestos containing materials (ACM's) or materials that are considered regulated asbestos containing materials.
- Sites should be located outside of identifiable or known floodplain and flood prone areas; consult the Flood Insurance Rate Map for the location in your City to verify these areas. Due to heavy rains associated with hurricanes and saturated conditions that result, flooding may occur more frequently than normally expected.
- 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.
- Storage areas for incoming debris shall be located at least 100 feet from property boundaries and on-site buildings/structures.
- 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 will be necessary to delineate areas of concern. Once areas are delineated, the areas shall be flagged and a 100-foot buffer shall be maintained for all activities on-going at the site.
- Storage areas for incoming C&D debris shall 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.
- 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

burner (ACB) device. Underground utilities need to be identified prior to digging pits for using the ACB device.

- 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.
- 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.
- Final written approval is required to consider any TDSR site to be closed. Closeout of processing / recycling sites shall be within six months of receiving waste. If site operations will be 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 shall be closed until conditions are corrected or permanently closed

Temporary Vegetative TDSR Site  
Guidelines

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***XIV. General***

When preparing temporary facilities for handling debris resulting from the cleanup efforts due to hurricane damage, the following guidelines should be considered when establishing Temporary TDSR 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.

***XV. 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:

- Sites should be located outside of identifiable or known floodplain and flood prone areas; consult the Flood Insurance Rate Map for the location in your City to verify these areas. Due to heavy rains associated with hurricanes and saturated conditions that result, flooding may occur more frequently than normally expected.
- 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.
- Storage areas for incoming debris and processed material shall be at least 100 feet from the site property boundaries and on-site buildings/structures. Management of processed material shall be in accordance with the guidelines for reducing the potential for spontaneous combustion in compost/mulch piles.
- Storage areas for incoming debris shall be located at least 100 feet from residential dwellings, commercial or public structures, potable water supply wells, and septic tanks with leach fields.
- 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 will be necessary to delineate areas of concern. Once areas are delineated, the areas shall be flagged and a 100-foot buffer shall be maintained for all activities on-going at the site.

- 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.
- Sites shall 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.
- 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.
- 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.
- Grinding of clean wood waste such as pallets and segregated non-painted/non-treated dimensional lumber is allowed.
- Final written approval is required to consider any TDSR site to be closed. Closeout of staging and processing sites shall be within six 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 shall be closed until conditions are corrected or permanently closed. Closeout of sites shall be in accordance with the closeout and restoration guidelines for TDSR sites.

## **Air Curtain Burner Site Location and Operations**

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Locating sites that are intended for air curtain burning (ACB) operations is a coordinated effort between Henrico County and VADEQ for evaluating the surrounding areas and to reevaluate potential sites used in the past.

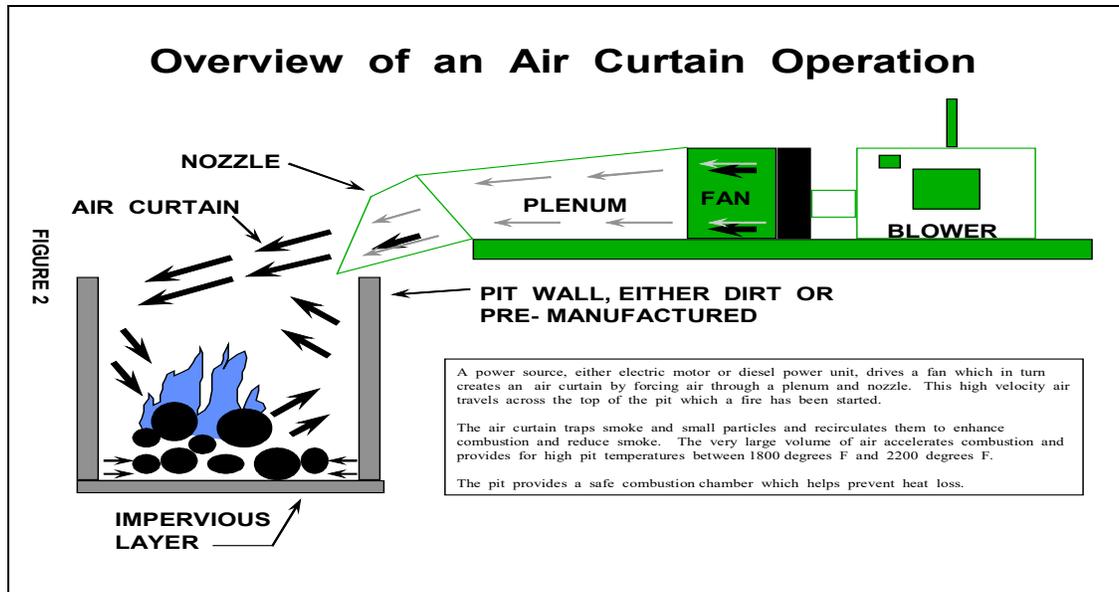
The following guidelines are presented for selecting an ACB site and operational requirements once a site is in use:

- Contact the local fire marshal or fire department for input into site selection in order to minimize the potential for fire hazards, other potential problems related to firefighting that could be presented by the location of the site, and to ensure that adequate fire protection resources area available in the event of an emergency.
- The requirements for ACB device(s), in accordance with Air Quality rules require the following buffers: a minimum of 500 feet from the ACB device to homes, dwellings and other structures and 250 feet from roadways. Contact VADEQ for updates or changes to their requirements.
- Sites should be located outside of identifiable or known floodplain and flood prone areas; consult the Flood Insurance Rate Map for the location in your City 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.
- 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.
- Storage areas for incoming debris shall be located at least 100 feet from property boundaries and on-site buildings/structures.
- Air Curtain Burners in use should be located at least 200 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.
- Wood ash stored on-site shall be located at least 200 feet from storage areas for incoming debris, processed mulch or tub grinders (if a grinding site and ACB site is located on the same property). Wood ash shall 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.
- Wood ash to be land applied on site or off site shall be managed in accordance with the guidelines for the land application of wood ash from storm debris burn sites. The ash shall be incorporated into the soil by the end of the operational day or sooner if the wood ash becomes dry and airborne.
- 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 will be

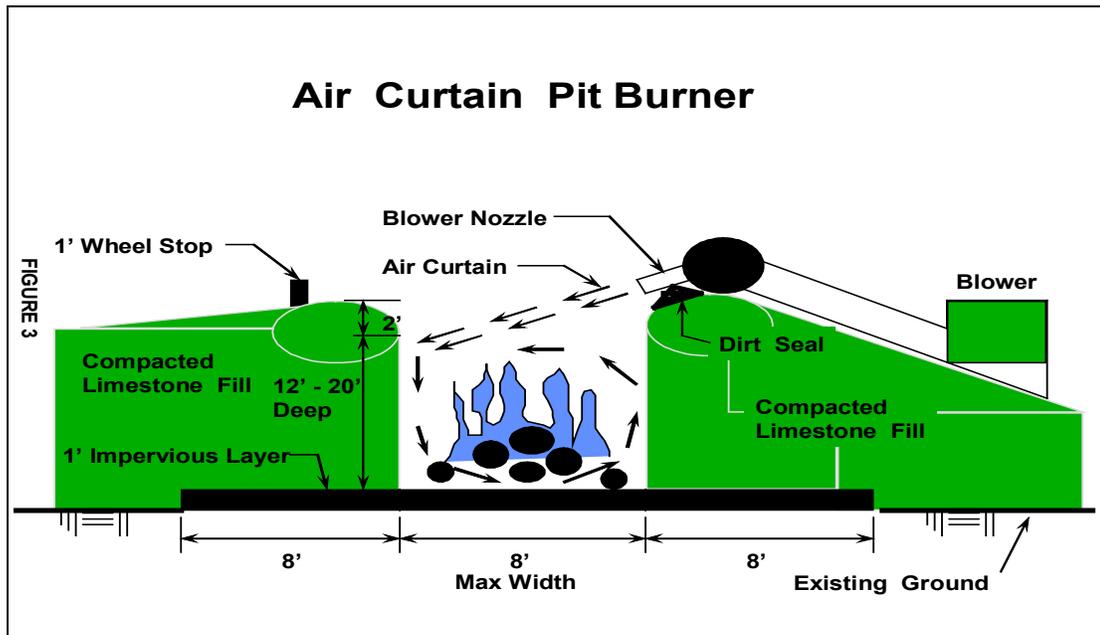
necessary to delineate areas of concern. Once areas are delineated, the areas shall be flagged, and a 100-foot buffer shall be maintained for all activities on-going at the site.

- 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.
- 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.
- 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.

Closeout of air curtain burner sites shall 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 shall be closed until conditions are corrected or permanently closed.



Based on FEMA 325, *Debris Management Guide*, Appendix H, Figure 2, 1999.



Based on FEMA 325, *Debris Management Guide*, Appendix H, Figure 3, 1999.

### **Environmental Checklist for Air Curtain Pit Burners**

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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 1,000 feet should be maintained between the debris piles and the incineration area. Keep at least 1,000 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 overlap the pit edge by 3 to 6 inches.
- 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**

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- Whenever possible, soil test data and waste analysis of the ash should be available to determine appropriate application rate.
- 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.
- Ash should be land applied in a similar manner as agricultural limestone.
- Ash should not be land applied during periods of high wind to avoid the ash blowing off the application sites.
- 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.
- Records should be maintained to indicate where ash is applied and the approximate quantities of ash applied.
- As an option to land application, ash may be managed at a permitted municipal solid waste landfill after cooling to prevent possible fire.
- Assistance in obtaining soil test data and waste analysis of ash should be available through VADEQ.

**Reducing the Potential for Spontaneous Combustion in Compost or Mulch Piles Guidelines**

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- 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.
- Spontaneous combustion is more likely to occur in larger piles of debris. If wind rows can be maintained 5 feet to 6 feet high and 8 feet to 10 feet wide, the possibility of spontaneous combustion will be reduced.
- Turning piles when temperatures reach 160 degrees can also reduce the potential for spontaneous combustion. Pile turning cools the contents of the pile. 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.
- Large piles should be kept away from wooded areas and structures and should be accessible to firefighting 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.

**APPENDIX I  
DEBRIS MANAGEMENT EQUIPMENT ASSETS**

<b>COUNTY of HENRICO DEPARTMENT of PUBLIC WORKS AVAILABLE EQUIPMENT</b>			
<b>DESCRIPTION</b>	<b>Western Depot</b>	<b>Eastern Depot</b>	<b>TOTAL</b>
DUMP TRUCK 6 CY	18	13	31
DUMP TRUCK TDM.10 CY	18	10	34
EXCAVATOR	5	3	9
ASPHALT PATCH TRUCK	1	1	2
STREET SWEEPER	3	2	5
VACCUM JET TRUCK	2	1	3
MOTOR GRADER	3	2	5
TRACTOR TRAILER	2	0	2
RUBBER TIRED BACKHOE	4	2	6
CRAWLER DOZER	2	1	3
LOADER 2 ½ CY	2	2	5
TRACTOR SWEEPER	1	1	2
VACCUM LEAF LOADER	10	2	12
FORKLIFT	2	1	3
P/U TRUCKS			22
BUCKET TRUCK	1	1	2

<b>COUNTY of HENRICO DEPARTMENT of RECREATION AND PARKS AVAILABLE EQUIPMENT</b>	
<b>DESCRIPTION</b>	<b>TOTAL</b>
DUMP TRUCK 6 CY	3
MOTOR GRADER	1
RUBBER TIRED BACKHOE	1

<b>COUNTY of HENRICO DEPARTMENT of PUBLIC UTILITIES - SOLID WASTE DIVISION AVAILABLE EQUIPMENT</b>	
<b>DESCRIPTION</b>	<b>TOTAL</b>
DUMP TRUCK TDM. 10 CY	5
ALUMINUM WASTE TRAILER, 110 CY	5
ROAD TRACTOR	2
TRACK EXCAVATOR	1
REAR LOAD REFUSE TRUCK, 25 CY	15
KNUCKLE BOOM SELF LOADING TRUCK	1
WATER TRUCK	1
RUBBER TIRED BACKHOE	4
CRAWLER DOZER	2
LOADER 2 ½ CY	1
P/U TRUCKS	4

## APPENDIX J DEBRIS REMOVAL APPLICANTS CONTRACTING CHECKLIST



FEMA

RECOVERY DIVISION

FACT SHEET

RP9580.201

### DEBRIS REMOVAL APPLICANT'S CONTRACTING CHECKLIST

#### Overview

To be eligible for reimbursement under the Public Assistance Program, contracts for debris removal must meet rules for Federal grants, as provided for in 44 CFR Part 13.36 *Procurement* ([http://www.access.gpo.gov/nara/cfr/waisidx\\_04/44cfr13\\_04.html](http://www.access.gpo.gov/nara/cfr/waisidx_04/44cfr13_04.html)). Public Assistance applicants should comply with their own procurement procedures in accordance with applicable State and local laws and regulations, provided that they conform to applicable Federal laws and standards identified in Part 13. The following guidance is provided to assist Public Assistance applicants in the procurement process.

#### Contracting Process Checklist

- Use competitive bidding procedures. Complete and document a cost analysis to demonstrate price reasonableness on any contract or contract modification where adequate price competition is lacking, as detailed in 44 CFR 13.36(f).
- Provide a clear and definitive scope of work and monitoring requirements in the request for proposals/bids. Use acceptable emergency contracting procedures that include an expedited competitive bid process only if time does not allow for more stringent procedures.
- Require bidders to provide copies of references, licenses, financial records, and proof of insurance and bonding.
- Obtain review from your legal representative of your procurement process and any contract to be awarded to ensure they are in compliance with all Federal, State, and local requirements.
- Document procedures used to obtain/award contracts (procurement information, bid requests and tabulations, etc).
- Use load ticket requirement to record with specificity (e.g., street address) where debris is picked up and the amount picked up, hauled, reduced and disposed of.

*FEMA will, when requested by applicants, assist in the review of debris removal contracts. However, such a review does not constitute approval.*



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FACT SHEET

RP9580.201

## DEBRIS REMOVAL APPLICANT'S CONTRACTING CHECKLIST

### Contract Provisions Checklist

**All contracts must contain/reflect the following provisions:**

- All payment provisions must be based on unit prices.
- No payments may be based on time and material costs unless limited to work performed during the first 70 hours of actual work following a disaster event.
- That payment will be made only for debris that FEMA determines eligible, referencing FEMA regulations and Public Assistance guides and fact sheets. (This is an optional provision to protect the applicant, and is used only following a major disaster declaration.)
- An invoice provision requiring contractors to submit invoices regularly and for no more than 30-day periods.
- A "Termination for Convenience" clause allowing contract termination at any time for any reason.
- A reasonable limit on the period of performance for the work to be done.
- A subcontract plan including a clear description of the percentage of the work the contractor may subcontract out and limiting use of subcontractors to only those you approve.
- The preference that the contractor use mechanical equipment to load and reasonably compact debris into the trucks and trailers.
- The requirement that the contractor provide a safe working environment, including properly constructed monitoring towers.
- Option of a unit price for extracting from ground and removing FEMA-eligible stumps (only for stumps with diameters larger than 24 inches, measured 24 inches above the ground, and with 50% or more of the root ball exposed), or including all stumps in the unit price.



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**DEBRIS REMOVAL  
APPLICANT'S CONTRACTING CHECKLIST**

Contract Provisions Checklist - Continued

All contracts must contain/reflect the following provisions:

- Requirement that all contract amendments and modifications be in writing.
- Requirement that contractor obtain adequate payment and performance bonds and insurance coverage.

Pre-Disaster and Stand-By Contracts Checklist

- It is recommended that you pre-qualify contractors prior to an event and solicit bid prices from this list of contractors once an event has occurred.
- The solicitation for pre-qualifying contractors must adequately define in the proposed scope of work all the potential types of debris, typical haul distances, and size of events for which a contract may be activated.
- To ensure reasonable debris removal costs, award debris removal contracts based on unit prices (volume or weight).
- If the contract is awarded on a time and material basis, it should be limited to no more than 70 hours of actual clearance and removal operations.
- After the initial 70-hour period, payment should be on a unit price basis (volume or weight).



FEMA

# RECOVERY DIVISION FACT SHEET RP9580.201

## DEBRIS REMOVAL APPLICANT'S CONTRACTING CHECKLIST

### Avoidance Checklist

- DO NOT:** Award a debris removal contract on a sole-source basis.
- DO NOT:** Sign a contract (including one provided by a contractor) until it has been thoroughly reviewed by your legal representative.
- DO NOT:** Allow any contractor to make eligibility determinations, since only FEMA has that authority.
- DO NOT:** Accept any contractor's claim that it is "FEMA certified." FEMA does not certify, credential, or recommend debris contractors.
- DO NOT:** Award a contract to develop and manage debris processing sites unless you know it is necessary, and have contacted the State for technical assistance concerning the need for such operations. Temporary debris storage and reduction sites are not always necessary.
- DO NOT:** Allow separate line item payment for stumps 24 inches and smaller in diameter; these should be treated as normal debris.
- DO NOT:** "Piggyback" or utilize a contract awarded by another entity. Piggybacking may be legal under applicable state law; however, the use of such a contract may jeopardize FEMA funding.
- DO NOT:** Award pre-disaster/stand-by contracts with mobilization costs or unit costs that are significantly higher than what they would be if the contract were awarded post-disaster. Such contracts should have variable mobilization costs depending upon the size of the debris work that may be encountered.

# APPENDIX K DEBRIS CLEARANCE MISSION SOP

## U.S. Army Corps of Engineers Mission Doctrine Guide For Contaminated Debris Management

March 1, 2012

### Reference:

- a. Weapons of Mass Destruction Debris Management Guide, November 2007 – Draft
- b. DHS FEMA/EPA/USACE Draft MOA for Contaminated Debris Management

### 1. INTRODUCTION

Under Emergency Support Function 3 of the National Response Framework (NRF), USACE has responsibilities for contaminated debris management (CDM) within a debris zone when mission assigned by DHS\FEMA, and or sub-mission assigned by EPA/ESF 10.

This Mission Doctrine Guide describes USACE roles, responsibilities, and functions to facilitate debris mission planning and execution. Contaminated debris management is a complex undertaking encompassing many different functional activities ranging from the highly technical operations associated with the handling, removal, and disposal of contaminated debris, to the recovery and disposition of human remains and personal property, to security and law enforcement. As such, the referenced Weapons of Mass Destruction Debris Management Guide should be considered a companion document to this Guide, and should be utilized as a reference for more detailed information for selected topics, and/or a source of references for additional or related information.

### 2. MISSION

The Contaminated Debris Management (CDM) Mission results from a detonation that creates general construction debris, and the like, that is contaminated with a hazardous material or a chemical, biological, radioactive, nuclear agent. Appropriate representatives from FEMA, USACE, and EPA will establish the boundaries of a debris zone. While the contaminated debris waste streams within the debris zone will primarily include demolished building components, including architectural and structural systems, roofing, flooring, wall systems, mechanical systems (e.g. plumbing, fire protection, HVAC), and electrical or electronic systems, other contaminated debris waste streams may include:

- Damaged Infrastructure, such as roads, bridges, water and wastewater treatment systems
- Building contents, such as asbestos containing materials, electronic waste, household hazardous waste, small motorized equipment, municipal solid waste, construction and demolition debris, white goods and personal belongs and other materials that are not salvaged

- Vegetative debris, damaged landscaping, etc.
- Trains, planes, automobiles, trucks, boats, mobile homes, storage tanks
- Site elements, such as soils, sands, sediments, gravel, dirt, dust, creating highly contaminated debris subject to removal action
- Animal carcasses that result from a mass contamination event, as determined by USDA, EPA, and/or FEMA
- Debris resulting from decontamination of equipment, supplies, and workers during debris management operations

The scope of the USACE, ESF 3, CDM Mission includes the following response activities:

a. Emergency Clearing: ESF-3 – Public Works and Engineering will be the primary ESF for clearing contaminated debris from roads and other infrastructure during the emergency phase to facilitate lifesaving and other emergency response activities. The scope of this action will be limited to moving the contaminated debris to create safe egress and ingress corridors for emergency personnel and / or the public.

b. Structural Assessment: ESF-3 will take actions to evaluate structural instability threats posed by damaged infrastructure. This infrastructure may be contaminated with CBRN agents. ESF-3 may employ temporary stabilization measures or take other actions as necessary to address structural instability concerns.

c. Demolition: ESF 3 will perform demolitions after a determination is made that a building is unstable and creates an imminent hazard to workers and/or after ESF-10 makes a determination that contaminated buildings or infrastructure cannot be decontaminated, and that demolition is the desired clean up approach. Demolitions must be performed in consultation with FEMA and EPA.

Mission assignments for the tasks listed above will be issued to ESF-3 by FEMA. These activities should be conducted in coordination with FEMA, and EPA/ESF-10.

Additionally, ESF 3 may be sub-mission assigned by EPA the following supporting recovery activities:

- a. Storm Water Management: Control and management of contaminated runoff and / or wastewater;
- b. Contaminated Debris Characterization: Sampling and analysis of contaminated debris for waste characterization;
- c. Contaminated Debris Removal and Staging: Removal of contaminated debris from the blast zone to a staging site;
- d. Contaminated Debris Treatment, Transportation, and Disposal: Treatment, transportation and disposal of contaminated debris;
- e. Contaminated Soil: Removal of highly contaminated soils under the debris zone to reduce potential exposure or continued impact to the subsurface.

Other sub-mission assignments may be issued by USACE, under ESF-3, to support agencies such as EPA. These include provision of technical assistance during the assessment and stabilization of damaged and potentially contaminated infrastructure, and consultation relative to demolition strategies.

The USACE scope of CDM does not include work activities specifically addressing public health or environmental considerations, nor remediation or decontamination of structures for re-occupancy, as EPA is responsible for these functions under ESF10. Also, CDM does not include decontamination of human remains resulting from the event.

### **3. CONCEPT OF OPERATIONS**

#### **A. GENERAL**

Mission assignments are issued to USACE directly by DHS/FEMA, or through the sub-mission assignment process by EPA. The USACE executes CD Mission Assignments through partial or full deployment of CDM Planning and Response Teams (PRT). Representatives are deployed to national, regional, and local nodes to provide a basis for incident specific strategic and tactical planning and execution. This process is performed in conformance with the National Response Framework and its doctrinal framework, the National Information Management System.

Consistent with this concept, USACE initially staffs and trains a total of two CDM PRTs. Planning and Response Teams for CDM are comprised of personnel from national USACE assets with specialized skill sets required to address the challenges of a CBRNE event, including cost reimbursable contract administration for time-sensitive environmental actions, debris characterization and treatment, data and information management, transportation and disposal of highly contaminated materials, and worker safety under extremely hazardous conditions. Team development and training is led by MVD and is supplemented with resources from the NWO Rapid Response Program.

The responsibility for PRT administrative support is assigned to the Vicksburg District. Administrative support includes current postings of team rosters and readiness status in ENGLink, maintenance of individual team member training documentation, provision of requisite supplies and equipment, providing funds for deployment, and keeping team members informed of policy or doctrinal changes affecting established CDM concept of operations.

#### **B. PREPAREDNESS**

The Mississippi Valley Division, in close coordination with the NWO, Rapid Response CDM Program Manager, is the Lead Division for contaminated debris management, and coordinates the following activities:

- a. CDM PRT staffing
- b. CDM PRT participation in national and regional exercises
- c. CDM training and certifications
- d. CDM PRT readiness monitoring and reporting (Delegated to MVK)
- e. UOC coordination for team activation and deployment
- f. Funding for training and deployment
- g. Maintaining coordination with Rapid Response Program pursuant to contracts, contractors, capacities, personnel, etc. for CDM execution of the contract for CDM

Rapid Response representatives will coordinate the following activities:

- a. Execution of the variance of contract capacities.

- b. Award of new disposal contracts, if not already available through existing contract.
- c. Status of contracts, contractors, capacities, personnel, etc. for incorporation of the Rapid Response Contract for CDM execution.

**C. ACTIVATION**

Initial coordination to place a CDM PRT on alert status or to immediately deploy may occur between the FEMA Regional Response Coordination Center (RRCC) and the USACE Lead Division, or between FEMA HQ and HQUSACE. In the former case, the Lead Division will immediately notify MVD and the UOC to place on alert status or to deploy a CDM PRT. In the latter case, the UOC will coordinate with MVD regarding team notification and deployment. Team members should maintain a readiness status such that they deploy within six hours of notification.

The Supporting Division (MVD) and Supporting District (MVK) will coordinate directly with the Supported Division/District for CDM PRT Reception, Staging and Onward Integration (RSOI).

**D. EXECUTION**

(1) Deployment

Management team members may deploy as an advance element for initial situation assessment, coordination, and planning, followed by the remaining team members in support, or the entire team may deploy concurrently. Contaminated Debris Management PRT members deploy either to the National Response Coordination Center (Liaison Officer), Regional Response Coordination Center (RRCC), Joint Field Office (JFO), Recovery Field Office (RFO), or to the Emergency Field Office (EFO). Annex C provides additional detailed PRT position descriptions, while typical CDM PRT composition and organization is shown at Figure 1. Team member locations upon deployment are illustrated in Figure 2. Mission assignment is coordinated through the ESF 3 Team Leader located at the JFO, but the team reports operationally to the Recovery Field Office Commander, which may or may not be the Supported District Commander. The PRT executes the CDM mission “cradle to grave”, or until such time as the Supported District can assume long-term execution responsibility.

Because of the exigencies of any catastrophic event, strategic decisions are made at the Joint Field Office and tactical decisions, during time-sensitive phases, are made at the Incident Command Post - not at District, Division, or HQ levels.

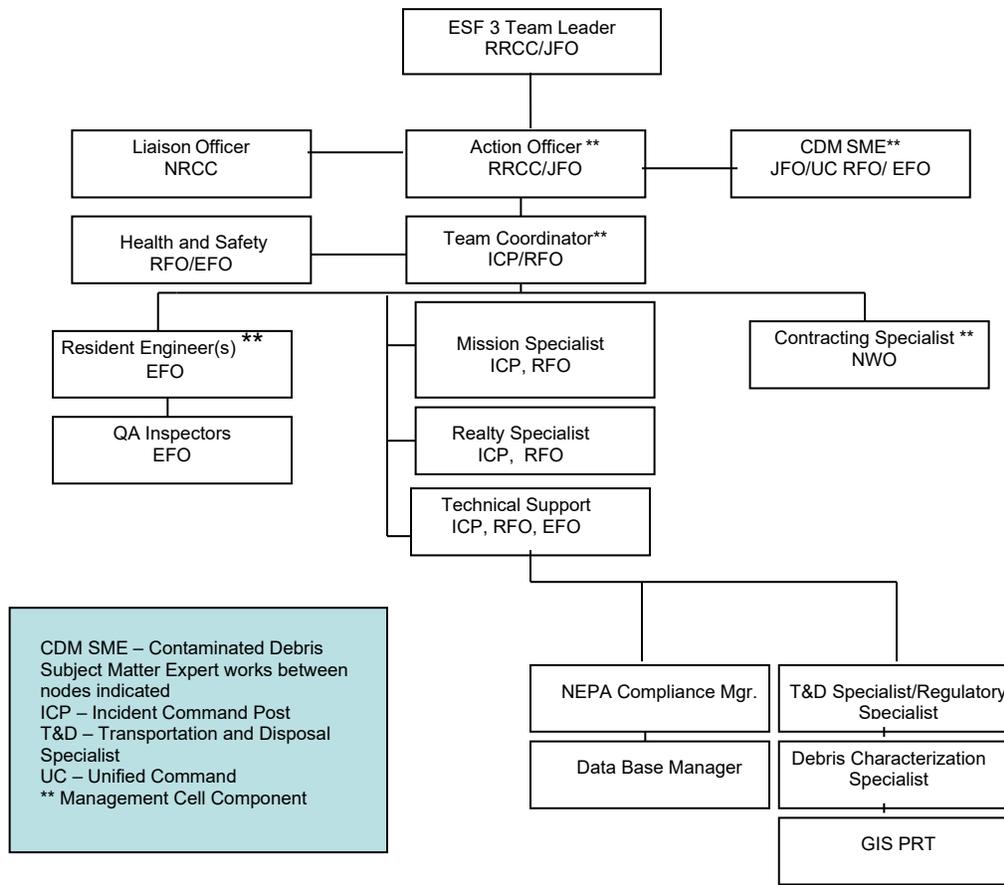


Figure 1. CDM PRT Composition and Organization

(2) Data/Information Management

USACE is responsible for data management, modeling, and GIS outputs concerning CDM scope of CDM, including worker protection, and debris characterization, stabilization, and treatment. Reference Annex K for Data Management Guidelines.

USACE is responsible for information management at the Incident Command Post, or tactical level, such that upward reporting can be made throughout appropriate nodes. On a daily basis, a common operating picture will be developed and uploaded into ENGLink and/or Web-based GIS Portals as well as into the Lead Coordinating Agency system. Reference Annex K for additional information.

(3) Contracting and Contract Management

Cost Reimbursement Contracting is the preferred contract method when time-sensitive environmental response is required and many uncertainties exist, as is anticipated for contaminated debris management. Cost reimbursable contracts provide the government and contractor with flexible response capability to address frequently changing conditions and

uncertainties such as unknown quantities, uncertain regulatory requirements, differing site conditions, evolving expectations, and dynamic human interaction at federal, state, and local levels.

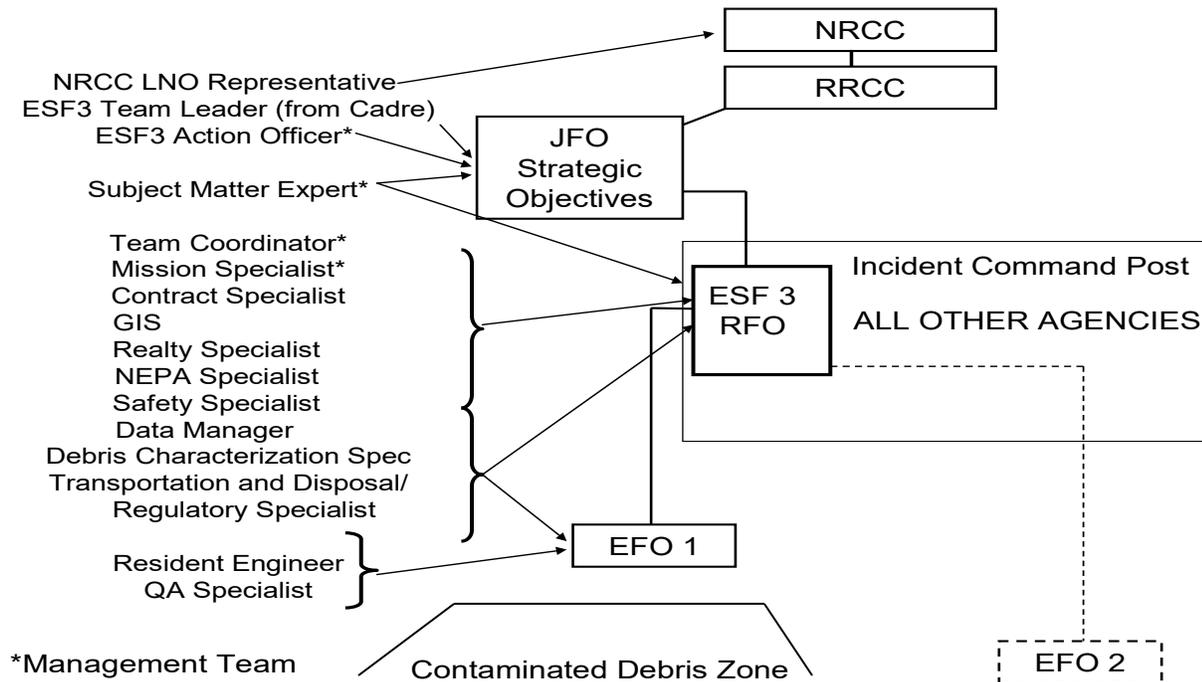


Figure 2. CDM PRT Member and Primary Locations

Administration of cost reimbursable type contracts requires substantial training and a substantial change of philosophy from traditional fixed price contract management. Contracting personnel who are empowered and on-site are essential to successful execution of cost reimbursable projects. Government representatives must possess sufficient skill sets to protect the government interest, and maintain compliance with contract requirements, cost effectiveness, and timeliness while planning and executing highly complex work. Experienced and trained project/field managers are requisite to success. The Team Coordinator and Subject Matter Expert positions will be filled by senior representatives from the Rapid Response Program. Both shall act as Contracting Officer Representative. Through coordination with Rapid Response Program Management, both shall provide the expertise needed to administer the Cost Reimbursable Contracts.

**E. Command and Control**

The RFO Commander will act as the USACE CDM Incident Commander, reporting to the Supported Division Commander. The CDM Incident Commander will collaborate with the other Incident Commanders, including agency representatives from the Lead Coordinating Agency (e.g. EPA or DOE). The RFO Commander/Incident Commander for CD will operate from the Incident Command Post. The RFO/Incident Commander will coordinate the necessary labor, instruments, controls, equipment, materials, supplies, analysis, etc. for planning and tactical execution for the CDM scope of work with other Incident Commanders. See Figure 3 for RFO organizational location within context of the Unified Command Organization.

If USACE is mission assigned other missions (e.g. Water, Power, Ice, Temporary Housing) outside the area of contamination, USACE may establish a traditional RFO, physically separate from the Incident Command Post.

### Contaminated Debris Management—Unified Command

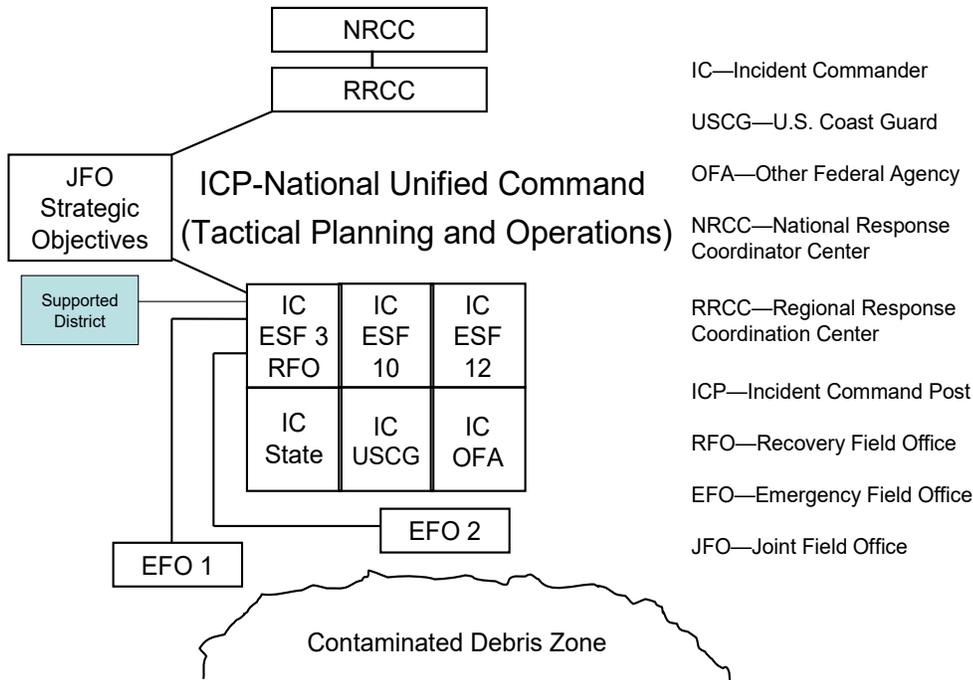


Figure 3. RFO Location and Unified Command

#### ANNEXES

- Annex A- EPA/USACE/FEMA Memorandum of Agreement
- Annex B- CDM PRT Position Descriptions

SEP 7 2010

**MEMORANDUM OF UNDERSTANDING  
Among  
Department of Homeland Security’s Federal  
Emergency Management Agency, Environmental  
Protection Agency and U.S. Army Corps of Engineers  
For  
Contaminated Debris Management**

**I. INTRODUCTION**

A. Parties: The Parties to this Memorandum of Understanding (MOU) are the Department of Homeland Security’s Federal Emergency Management Agency (DHS/FEMA), the U.S. Environmental Protection Agency (EPA), and the U.S. Army Corps of Engineers (USACE).

B. The National Response Framework (NRF) currently addresses the contaminated debris mission through both Emergency Support Function 3 – Public Works and Engineering (ESF-3) and Emergency Support Function 10 – Oil and Hazardous Materials (ESF-10). The language in the ESF-3 Annex to the NRF states that the contaminated debris mission will be a joint effort among ESF-3, ESF-10 and DHS/FEMA. The scope of work outlined below is for contaminated debris missions as opposed to “ordinary” debris missions. The Parties recognize that successful response and recovery from a contaminated debris event will require the collaborative and coordinated efforts of all three agencies.

C. For the purposes of this MOU, “contaminated debris” means debris that is generated from a blast or explosion associated with a chemical, biological, radiological or nuclear (CBRN) threat agent.

**II. PURPOSE**

A. This MOU is intended to more clearly define the leadership and support roles and responsibilities of the Parties engaged in the contaminated debris mission and ensure that the mission is properly managed and coordinated through the mission assignment process. Included in this effort are prompt advance and collaborative preparedness and planning activities for the Parties based on the roles agreed to herein.

B. This MOU will clarify and further explain the specific roles and responsibilities of the lead agencies for the Emergency Support Functions (ESFs) listed in the Annexes to the

NRF, and provide guidance to the Parties regarding the development and assignment of contaminated debris management missions under the Stafford Act.

**III. SCOPE**

- A. The scope of this MOU is *contaminated debris* incidents that are major disasters or emergencies declared by the President under the authority of the Stafford Act.
- B. The scope of this MOU is intended to outline roles and responsibilities of the Parties to manage *contaminated debris* that is generated from a blast or explosion associated with a chemical, biological, radiological or nuclear (CBRN) threat agent, resulting in a contaminated debris field. Examples of incidents that are expected to generate such a contaminated debris field include a radiological dispersal device, improvised nuclear device, and an explosion involving a chemical or biological weapon.
- C. Contamination that is generated from other types of oil, hazardous material and non-explosive CBRN incidents (e.g., anthrax) is managed by ESF-10 and is outside the scope of this MOU. Further, this MOU will not address “ordinary” debris, such as general construction debris that is generated by a man-made or natural disaster, even if it contains hazardous materials inherent to building construction (e.g., asbestos, paint). Such debris may be created by an explosion or blast, such as an improvised explosive device, that is not associated with a CBRN weapon. This type of debris mission is led by ESF-3, and supported by ESF-10 as outlined in the ESF-3 Annex to the NRF.
- D. This MOU does not supplement or alter the Parties’ legal, statutory or regulatory authorities to respond to and manage the release or threat of release of hazardous substances, pollutants or contaminants into the environment during non-Stafford Act events.

**IV. LEGAL AUTHORITIES**

- A. Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. §§5170a, 5170b, and 5192, as amended;
- B. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §9601, et seq.;
- C. National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR 300, et seq.; and
- D. Antideficiency Act, 31 U.S.C. §§1341 and 1342.

**V. ROLES AND RESPONSIBILITIES**

The ESF-3 Annex to the NRF states that the management of contaminated debris will be a joint effort among ESF-3, ESF-10 and DHS/FEMA. Given the complexity of the contaminated debris mission, it is necessary to clearly define lead and support agency roles to ensure that each agency involved is adequately prepared to perform their roles and responsibilities under this MOU. In an effort to simplify and align statutory authorities, technical expertise, capabilities, and resources, and to streamline administrative processes (i.e., mission assignment tasking and funding streams), the Parties expect to have the following roles and responsibilities for the contaminated debris mission. The Parties further intend to engage in a cooperative and collaborative effort across all contaminated debris mission areas.

**A. Lead Agency Roles and Responsibilities**

**1. ESF-10 – Oil and Hazardous Materials**

EPA is the lead agency for ESF-10 with responsibility for hazardous materials and oil response activities, including the coordination and management of contaminated debris. These activities may include:

- a. Actions to prevent, minimize, or mitigate the release of oil or hazardous materials;
- b. Actions to detect and assess the extent of contamination;
- c. Actions to stabilize the release of oil or hazardous materials and prevent the spread of contamination;
- d. Analysis and implementation of options and cleanup decisions for the protection of public health and the environment, including decontamination of contaminated structures; and
- e. Managing waste storage, treatment, transportation and disposal.

DHS/FEMA expects to issue a mission assignment(s) to ESF-10 for these contaminated debris tasks. ESF-10 may assign sub-tasks to support agencies, such as USACE, for activities listed in Section V.B.2 of this MOU.

EPA intends to act consistent with existing statutory and regulatory authorities that apply to contaminated debris, including the authorities given to the Federal On-Scene Coordinator (FOSC) under applicable sections of CERCLA and the NCP. CERCLA is one of the statutes that provides EPA with authorities to respond to the release or threat of release of hazardous substances, pollutants, or contaminants into the environment. The scope of hazardous substances, pollutants or contaminants includes chemical, biological or radiological substances whether released accidentally or intentionally. The NCP is the

Federal regulation that provides the framework for EPA and the U.S. Coast Guard to manage response actions. These authorities would apply to contamination in the debris zone and outside the debris zone of a contaminated debris incident and may be exercised by EPA. These authorities also include the ability for EPA to monitor others who perform actions to mitigate releases of hazardous materials. EPA plans to integrate and manage the contaminated debris mission in support of its overall hazardous materials response effort under ESF-10.

2. ESF-3 – Public Works and Engineering

USACE is the lead agency for ESF-3, with responsibility for the following contaminated debris management activities:

- a. Emergency Clearing: ESF-3 – Public Works and Engineering expects to be the primary ESF for clearing contaminated debris from roads and other infrastructure during the emergency phase to facilitate life saving and other emergency response activities. The scope of this action is expected to be limited to moving the contaminated debris to create safe egress and ingress corridors for emergency personnel and/or the public.
- b. Structural Instability: ESF-3 expects to take actions to evaluate structural instability threats posed by damaged infrastructure. This infrastructure may be contaminated with CBRN agents. ESF-3 may employ temporary stabilization measures or take other actions as necessary to address structural instability concerns.
- c. Demolition: ESF-3 expects to perform demolitions after a determination is made that a building is unstable and creates an imminent hazard to workers and/or after ESF-10, in conjunction with other appropriate federal, state and local authorities, makes a determination that contaminated buildings or infrastructure cannot be decontaminated, and that demolition is the desired clean up approach. ESF-3 should perform demolitions in consultation with DHS/FEMA and EPA.

Mission assignments for the tasks listed above are expected to be issued to ESF-3. These activities should be conducted in coordination with DHS/FEMA, EPA and ESF-10. ESF-3 may assign subtasks to support agencies, such as EPA, for activities listed in Section V.B.1 of this MOU.

B. Support Agency Roles and Responsibilities

The contaminated debris mission calls for the synthesis of technical and management experience, expertise and capabilities of both EPA and USACE, as well as other support agencies. EPA serves as a support agency to ESF-3, and USACE serves as a support agency to ESF-10. The Parties acknowledge that during a contaminated debris incident, some activities may be sub-tasked from the ESF lead agency to a support agency,

pursuant to an ESF Mission Assignment Sub-tasking Request Form or similar document containing the same information. To facilitate the planning and preparedness efforts of the Parties, a discussion of the support roles and possible sub-tasking assignments are outlined below for EPA and USACE. Although EPA may sub-mission assign to USACE the tasks identified in Section V.B.2 below, the decisions on which sub-tasks will be issued may be based on the type of CBRN agent involved, the size and scale of the incident, the amount and kind of debris generated and whether the lead ESF has the expertise, capability and resources to adequately manage the mission without support agency involvement.

1. Environmental Protection Agency

ESF-3 may sub-task activities to EPA that may include, but are not limited to, the following:

- a. Provide technical assistance during the assessment and stabilization of damaged and potentially contaminated infrastructure;
- b. Provide technical assistance and consultation on demolition strategies.

2. U.S. Army Corps of Engineers

ESF-10 may sub-task activities to USACE that may include, but are not limited to, the following:

- a. Storm Water Management: Control and management of contaminated runoff and/or wastewater;
- b. Contaminated Debris Characterization: Sampling and analysis of contaminated debris for waste characterization;
- c. Contaminated Debris Removal and Staging: Removal of contaminated debris from the blast zone to a staging site;
- d. Contaminated Debris Treatment, Transportation, and Disposal: Treatment, transportation and disposal of contaminated debris; and
- e. Contaminated Soil: Removal of highly contaminated soils under the debris zone to reduce potential exposure or continued impact to the subsurface.

**VI. COORDINATION PROCEDURES**

A. Management of a contaminated debris mission calls for close coordination and collaboration among EPA, USACE and DHS/FEMA, as well as other Federal, state and local agencies. This coordination is expected to occur in two phases. The first phase consists of interagency planning and preparedness activities prior to an event. The second phase consists of interagency coordination of response and recovery activities during an event.

B. Coordination during the pre-event phase is expected to be accomplished through the Emergency Support Function Leaders Group (ESFLG). ESF leaders plan to assign staff to work on contaminated debris issues and develop integrated plans and procedures for the contaminated debris mission.

C. Coordination during an actual contaminated debris event is expected to occur at the field, regional and national level. Field, regional and national coordination procedures may be outlined further in a Pre-Scripted Mission Assignment(s), Standard Operating Procedure, contaminated debris planning documents, or coordination documents. These documents are expected to incorporate the roles and responsibilities outlined in this MOU. Field coordination is expected to be consistent with the National Incident Management System (NIMS) and the Incident Command System. Such field coordination may involve the co-location of USACE and EPA response infrastructure within an Incident Command Post, and the exchange of Liaison Officers (LOs) and Technical Specialists (TS) at the Incident Command Post, Recovery and Area Field Offices, and Joint Field Office levels. In addition, further coordination of the contaminated debris mission is expected to occur through the establishment of a Contaminated Debris Task Force (CDTF) within the JFO during an actual incident. When activated, the CDTF provides technical and management advisory support to the Federal Coordinating Officer and the JFO leadership. National level coordination is expected to occur through the ESFLG and the senior agency officials or LOs assigned to the JFO or National Response Coordination Center.

**VII. POINTS OF CONTACT**

The following are the points of contact for each Party:

Ed Hecker  
Chief, Homeland Security Office  
U.S. Army Corps of Engineers  
(202) 761-4601

Dana S. Tulis  
Acting Director, Office of Emergency Management  
U.S. Environmental Protection Agency  
(202) 564-8600

James Walke  
Director, Public Assistance Division  
Federal Emergency Management Agency  
U.S. Department of Homeland Security  
(202) 646-2751

**VIII. FUNDING AND RESOURCES**

As required by the Antideficiency Act, 31 U.S.C. 1341 and 1342, all commitments made by EPA, DHS/FEMA, and USACE in this MOU are subject to the availability of appropriated funds and budget priorities. Nothing in this MOU, in and of itself, obligates EPA, DHS/FEMA or USACE to expend appropriations or to enter into any contract, assistance agreement, interagency agreement, or incur other financial obligations. Any transaction involving transfers of funds between the parties to this MOU will be handled in accordance with applicable laws, regulations, and procedures under separate written agreements.

**IX. NO PRIVATE RIGHT OF ACTION**

This MOU does not create any right or benefit, substantive or procedural, enforceable by law or equity, by persons who are not party to this agreement, against EPA, DHS/FEMA or USACE, their officers or employees, or any other person. This MOU does not direct or apply to any person outside of EPA, DHS/FEMA and USACE.

**X. EFFECTIVE DATE**

The term of this MOU is effective upon signature by all Parties.

**XI. MODIFICATION**

This MOU may be modified upon the mutual written consent of the Parties.

**XII. TERMINATION**

The terms of this MOU, as modified with the consent of all Parties, will remain in effect until terminated. Any Party may, upon 60 days written notice to the other Parties, terminate their involvement in this MOU.

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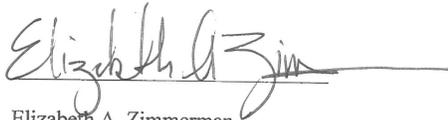
XIII. SIGNATURES



Merdith W.B. Temple  
Major General, U.S. Army  
Deputy Commanding General  
U.S. Army Corps of Engineers



Mathy Stajislaus  
Assistant Administrator  
Office of Solid Waste and Emergency Response  
U.S. Environmental Protection Agency



Elizabeth A. Zimmerman  
Assistant Administrator  
Disaster Assistance Directorate  
Federal Emergency Management Agency  
U.S. Department of Homeland Security

Annex B  
CONTAMINATED DEBRIS PRT POSITION DESCRIPTIONS

ESF3 Team Leader*	TL
NRCC LNO Representative*	NRCC LNO
Subject Matter Expert*	SME
Action Officer	AO
Team Coordinator*	TC
Resident Engineer	RE
Mission Specialist	MS
Data Management	DBS
Debris Characterization Specialist	DCS
Transportation and Disposal Specialist	TDS
QA Specialist	QA
Realty Specialist	RS
NEPA Specialist	NEPA
Contract Specialist*	CS
GIS*	GIS
Health and Safety Specialist*	HSS

\*Divisions\Districts do not need to fill these positions for the CD PRT. They will be filled by the UOC, Rapid Response Program, or GIS PRT.

**a. Emergency Support Function 3 (ESF 3) Team Leader (TL):** While the ESF3 TL is not part of the PRT, the TL must be situationally aware of the scope of CDM, have an understanding of CDM vernacular and concepts, and understand other agency roles and responsibilities under ESF10, ESF 12, Nuclear\Rad Annex, and the Worker Safety and Health Annex. Since the ESF3 TL is not technically part of the CDM PRT, no further descriptions are provided.

**b. NRCC LNO:** The National Response Coordination Center, Liaison Officer (NRCC LNO) is located in the FEMA HQ Building, Washington DC, and reports to the ESF 3 TL at the NRCC.

(1) Responsibility: While the NRCC LNO has no strategic nor tactical responsibilities, the NRCC LNO is responsible for tracking and purveying contaminated debris mission status as developed at strategic (JFO) and tactical levels (RFO), to other federal representatives at the NRCC.

(2) Relationships: The NRCC LNO must develop strong working relationships with the Team Leader, SME, and Action Officer to understand mission status, and manage expectations at the national level for incident specific context.

(3) Qualifications: The NRCC LNO must have familiarity with the agency roles, responsibilities, and functions in the NRP, more specifically in ESF 3, ESF 10, ESF 12, and the Nuclear\Radiation Annex. The NRCC LNO must have trained with the CDM PRT and have a basic understanding for CDM planning and execution activities under ESF 3.

**c. CDM Subject Matter Expert:** The Subject Matter Expert (SME) works in the Joint Field Office (JFO), Recovery Field Office (RFO) or Emergency Field Office (EFO) and reports to the Emergency Support Function 3 (ESF 3) Team Leader.

(1) Responsibility: The SME is an individual familiar with all aspects of a CDM debris mission. The CDM SME is expected to take an active and leadership role in the planning and execution of CDM as described in the NRP as applicable to ESF3. The CDM SME is the lead coordinator with federal, state,

and local agencies to determine expectations for execution of the work, including all technical, regulatory, construction, operational, and/or other aspects. Additionally, the Debris SME is responsible for leading development of the Debris Management Guideline and Plan. The CDM SME mentors PRT personnel for appropriate execution and will include appropriate PRT members for development of CDM-related guides and plans, and participation in meetings as needed.

(2) Relationships: When initially deployed, the SME will usually work for the ESF 3 Team Leader but will be located with the ESF 3 element at the RFO, co-located with the Unified Command. As the mission develops, the SME will "float" as needed between the JFO, RFO, and EFO. Throughout the process, the SME will keep the TL informed concerning the progress of the Debris mission, and will work with the PRT to help resolve any issues that may arise. The SME evaluates the performance of the PRT and makes recommendations as needed.

(3) Qualifications: The CDM SME must be knowledgeable of all aspects of the CDM mission. The CDM SME must have extensive "battle-tested" field experience (e.g. technical, construction, operations, cost-reimbursable contract administration) with industry knowledge of time-sensitive environmental actions, and a working knowledge of the NRP, Department of Homeland Security operations, Public Law (PL) 84-99 authorities, operational dynamics of a JFO and RFO, and USACE role, responsibility, and function under ESF 3. The CDM SME must have demonstrated acceptable performance in past, environmentally time-sensitive response actions and/or disasters, and have become recognized as leaders in this mission area. They must be knowledgeable of the various types of environmental contracts under which debris is executed. The SME must have good communications and interpersonal skills, and the ability to brief high level officials.

**d. ESF3 Action Officer:** The Action Officer (AO) works in the ESF 3 cell in the JFO and reports to the Team Leader.

(1) Responsibility: The AO functions as the overall contaminated debris mission Program Manager, provides liaison to the Team Leader for CDM PRT field functions, and coordinates with the USACE Area Engineer/Mission Manager, local and state government officials, FEMA, and other ESFs to define the scope of the mission. The AO is responsible for coordinating with DHS FEMA for issuance and receipt of CDM mission assignments, as well as funding for the mission.

(2) Relationships: The AO is the Corps liaison with DHS, other federal agencies, and local and state governments for debris mission planning, execution, and resolution of problems/issues. The AO facilitates coordination meetings with federal, state, and local officials and the DHS debris team. In addition, the AO serves as the primary liaison between the JFO and RFO on all activities relating to mission execution including mission taskings. The AO works with the SME, TL, and Mission Manager (MM) on specialized issues to ensure appropriate actions are accomplished, and that problems are resolved. The MM, Contract Specialist, Area Engineer, Resident Engineer, SME, and the AO work closely as a team to determine the appropriate contract format and plan of execution for the mission.

(3) Qualifications: The AO must be knowledgeable of cradle-to-grave environmental needs under time-sensitive constraints e.g. debris characterization, sampling and analysis, health and safety, disposal requirements, construction, operations, and contract administration. The AO must have a working knowledge of ESF 3 CDM mission activities as well as other agency responsibilities, roles, and functions under ESF 10, ESF 12, the Nuclear \Rad Annex, and the Worker Safety Annex to the NRP. Additionally, the AO must be knowledgeable of DHS operations, and the operational dynamics of a JFO. The AO must be knowledgeable of cost reimbursable contracting processes, as well as the CD debris contracts. The AO must have good communication skills and the ability to effectively brief high level officials.

e. Team Coordinator: The Team Coordinator (TC) works in the Incident Command Post (ICP)/RFO, and reports to the RFO Commander, SME, or other designated representative.

(1) Responsibility: The TC serves as the Debris Mission Area Engineer and Project Manager. The TC is responsible for developing scopes of work, cost estimates, working with the contracting officer specialist in negotiating and awarding task orders\contracts, tracking of funds, contract administration, managing the technical support and construction personnel, contractor QA, and reporting. The TC will act as the contracting officer representative and may be required to sign hazardous waste manifests on behalf of USACE.

Managing CDM taskings including debris characterization, staging, profiling, treating, manifesting, and disposal of contaminated debris are key responsibilities of the TC. The TC is also responsible for reporting costs, mission execution status and maintaining internal USACE coordination. While the TC contributes to the development of the Debris Execution Plan, a primary responsibility is to maintain understanding for mission execution within the PRT through on going communications with the CDM SME and other technical support staff.

(2) Relationships: The TC must work very closely with the CDM SME, Resident Engineer, Contracting Specialist, and RFO Commander for support.

(3) Qualifications: The TC must be field-tested in planning and executing time-sensitive environmental work. The TC must possess proficient technical, construction, contractual, cost reimbursable contract administration, and contractor management skill sets in order to manage PRT personnel, and maintain compliant and cost effective planning and execution for time-sensitive contaminated debris activities during response and recovery phases. Further, the TC must possess the ability to communicate mission requirements to the RFO Commander, PRT personnel, and to Engineering, Emergency Management, and other district elements. The TC position requires the experience of a senior-level manager/engineer/construction manager. The MM must have good communication skills and the ability to effectively brief high level officials.

f. Resident Engineer: The Resident Engineer works at the EFO, and reports to the TC.

(1) Responsibilities: The RE provides input for planning, administers cost reimbursable and firm fixed price contract execution, manages quality assurance program execution consistent with planning requirements, and provides daily reports on mission status. The RE is responsible for on-site training and supervision of the quality assurance inspectors. The RE is also responsible for maintaining proficient understanding of cost reimbursable and firm fixed contract formats and types, including quality assurance tracking and documentation required for each. The RE determines contractor work schedules based upon mission requirements. The RE instructs QA Inspectors regarding procedures for documenting contractor compliance with contract requirements. As QA Supervisor the RE provides clear and concise direction to QAs, and trains the QAs on safety requirements. As unforeseen site conditions arise, the RE consults with the TC and SME for appropriate planning and approval prior to commencing with new scopes of work. The RE may be required to sign manifests, and act as COR. The RE is also responsible for providing staffing or other support to the SME, TC.

(2) Relationships. The RE must have the ability to establish a working relationship with the contractor. The RE must establish positive relationships with Corps TC, SME, and technical support staff to include the Debris Characterization Specialist, Regulatory Specialists, Transportation and Disposal Specialists and Quality Assurance Inspectors to implement a safe and operationally compliant and effective work process. The RE must also establish good working relationships with contractor personnel in the field.

(3) Qualifications: The RE should be an experienced field manager or team leader familiar with quality assurance requirements and possessing good management capabilities and training skills. The RE must know contract formats, and be qualified to serve as COR for either cost reimbursable or firm fixed price service or construction contracts. The RE should be familiar with EM 385-1-1 and be experienced in personnel management and safety and health requirements for field operations. The RE must be qualified to sign manifests.

**g. Mission Specialist:** The Mission Specialist (MS) develops communication documents, works in the ICP and reports to the Mission Manager.

(1) Responsibility: The MS develops communication documents including briefings and reports, and assists the TC. As a back-up for the TC, the MS should possess many of the capabilities that are described in the TC duties. The MS will usually be given the responsibility to insure mission reporting is accomplished in a timely manner.

(2) Relationships: The MS must be familiar with the procurement process and have the ability to communicate mission requirements to Contracting, Engineering, Emergency Management, Action Officer, Area Engineer and other district elements. The MS must work very closely with the SME, AO and TC for support.

(3) Qualifications: The MS position requires an experienced manager/engineer. The MS should be familiar with or have a general understanding of equipment leasing contracts, various types of equipment, and unit price contracts; also general knowledge of GIS. The MS must be knowledgeable of the current Rapid Response Contractors for debris. Generally, an engineer with field experience in construction is best suited for this position. The MS must have good communication skills and the ability to effectively brief high level officials. The MS should be versed in ENLink and have the capability to coordinate with field personnel to gather data and prepare information tables, prepare reports, and mission fact sheets. The MS should also be proficient in the use of the Microsoft Office Suite of software and should have a good understanding of Power Point and Excel, or other spreadsheet programs.

**h. Data Manager:**

(1) Responsibility: The Data Manager (DM) manages the database for up-to-date and accurate record keeping of sampling and analytical data. Additionally, the DM is responsible for managing data input from debris load tickets. This includes managing the data input process and personnel, and producing load ticket reports based upon the weighing or volumetric content of each transport vehicle. The DM is also responsible for managing data records from other associated missions such as demolition or private property debris removal.

(2) Relationships: The DM works for the TC and must establish strong working relationships with the CDM SME, DCS, and RS.

(3) Qualifications: The DM must be proficient in the use of data bases and a working knowledge of sampling and analysis.

**i. Realty Specialist:** The Realty Specialist (RS) works in the RFO or EFO and reports to the Mission Manager.

(1) Responsibilities: The Realty Specialist is responsible for acquiring necessary rights of entry, lease agreements and other similar documents used in the acquisition of debris staging, handling, processing, and treatment sites and support facilities. The primary requirements of the RS are providing

leasing services, coordinating with local governments to provide a resolution to hold and save the federal government harmless, and to provide city/county lands and easements and private property access agreements for mission execution. The RS may be required to support other missions.

(2) Relationships: The RS must have the ability to interface with federal, state and local partners and the general public. The RS works closely with the TC and keeps him/her informed with regular progress reports.

(3) Qualifications: The RS position requires experience at handling dynamic real estate transactions and fast paced execution while maintaining flexibility to adapt to changing mission requirements.

a. j. NEPA Compliance Manager: The National Environmental Policy Act Compliance Manager (NCM) works in the RFO or EFO and reports to the Mission Manager or Resident Engineer.

Responsibilities: The NCM is responsible for monitoring NEPA compliance during all phases of debris removal, storage and disposal. Debris reduction sites and removal operations must comply with NEPA (endangered species, historical resources, wetlands).

(1) Relationships: The NCM must coordinate closely with federal, state and local environmental authorities. The NCM must communicate early and often to the Mission Manager and/or Resident Engineer to ensure timely compliance with applicable standards. The NCM must also establish a good working relationship with the local USACE regulatory office and ensure that NEPA records are provided to that office at the completion of the mission.

(2) Qualifications: The NCM must have excellent communications skills and be able to work under severe time constraints. The NCM must also be able to adapt to different environments and work under different sets of state and local regulatory standards. The NCM should be experienced in executing NEPA requirements in emergency situations.

Quality Assurance Inspectors: The Quality Assurance Inspector (QA) works for the RE at the EFO.

Responsibilities: QA inspectors are responsible for the daily/hourly monitoring of contractor operations to document and assure the contract requirements are met. The inspectors provide daily reports of progress, deficiencies, and observations to the RE. The QA inspectors are responsible for ensuring safe work practices in accordance with EM 385-1-1.

Relationships: QA inspectors must establish good working relationships with contractor personnel in the field. QA Inspectors must also establish a good relationship with the RE and respond to work assignments in a timely and professional manner.

Qualifications: QA Inspectors should be experienced field workers familiar with USACE contract requirements, applicable safety and health regulations (e.g. EM 385-1-1), technical needs, and operational procedures. The inspectors should have a general knowledge of the various contract formats and specific knowledge of the monitoring/documentation required. There are no specific grade level requirements. However, this position is 95% fieldwork and, if possible, should be filled by non-exempt employees.

Debris Characterization Specialist: The Debris Characterization Specialist (DCS) provides technical support to the CDM PRT, and works directly for the TC. The DCS works from the RFO/EFO.

Responsibilities. The DCS is responsible for the development, evaluation and dissemination of methods for determining characterization of contaminated debris. The DCS makes the determination whether contaminated debris materials are hazardous under RCRA for determining the composition of

materials of concern, (e.g., air, water, sludge, liquids, solids), and evaluates the toxic hazard posed by debris materials. The DCS may also participate in interagency meetings to identify innovative sampling and analysis procedures when standards do not exist for contaminants. The DCS is also responsible for providing oversight for the sampling and analytical activities, and will be requested to provide preparatory and follow up meetings with site personnel concerning the same. In addition, as a member of a multidisciplinary team, the DCS will specialize in the area of analytical chemistry. The DCS initiates and manages contractor work assignments aimed at evaluating existing test methods, developing new or improved methods and developing sampling guidance manuals or other materials for dissemination to the site personnel. These methods are needed to implement the RCRA regulations, e.g., hazardous waste identification, and waste characterization activities. The DCS interfaces with EPA personnel for the transfer of technology from the Office of Solid Waste (OSW) to state and federal Agencies, the regulated community, and their supporting laboratories. Also included is participation in the Workgroup review process for these documents and the preparation of supporting documents such as background documents. Develops responses to inquiries from other EPA, federal and state offices and from the general public on characteristic and other test methods, sampling and quality control and quality assurance. Additionally, the DCS collaborates in the preparation of planning, permitting and design documents to treat debris to below regulatory levels for disposal. As such, the DCS collaborates with the EPA National Decontamination Team and other such agencies for potential technologies, as well as serves as a technical consultant during construction and operation of treatment technologies. The DCS assesses and correlates treatment data, verifies results, resolves environmental problems and discusses technical aspects of treatment with scientists, engineers and other environmental experts pursuant to compliance, cost-effectiveness, and timeliness. The DCS works closely with the NCM on site surveys to determine if prior contamination of proposed sites has made them unsuitable for use. The DCS also monitors contractor operations to ensure compliance with site permits, and that applicable pollution prevention standards are achieved. Responsible for sound contracts management and participation in Methods Team activities. Serves as an advisor to USACE ESF 3 TC, SME, and TL

**b.** (2) Relationships: the DCS must be capable of establishing strong working relationships with the TL, CDM SME, and TC.

**c.** (3) Qualifications: The DCS must possess sufficient knowledge of the principles of analytical chemistry, sampling and quality assurance, experience in analyzing chemical testing methodology, and experience in evaluating chemical data in order to effect a hazard assessment on particular compounds of interest. The DCS must possess working knowledge of RCRA, the CERCLA, and other health and environmental regulations, laws and practices concerning hazardous waste chemicals, including the testing methods use (e.g., ignitability uses of Seta Flash and Pensky Martin, toxicity characteristic uses TCLP, etc.). The DCS should have thorough knowledge and field level experience and understanding of the practical implementation of sampling and analytical strategies and regulatory requirements and the impacts of each on field operations. Also required is practical knowledge of risk assessment procedures and policies, and the effects and impact of pollutants on the environment and humans (e.g. toxicology, fate and transport) to ensure project remedial action objectives are appropriate for the risks presented by a site, or to develop project remedial objectives.

**d.** Additionally, the DCS must possess thorough knowledge of radioactive waste sampling, analysis, transportation, and disposal procedures as well as familiarity with general Health Physicist principles to ensure proper characterization of radiological contaminated sites and safe and proper transportation/disposal of project wastes.

Knowledge of general construction practices, equipment, and capabilities to ensure practicability and practicality of remedial alternatives is also required.

Transportation and Disposal Specialist: The Transportation and Disposal Specialist (TDS) provides technical support to the CDM PRT, and works directly for the TC. The TDS works from the RFO/EFO

**Responsibilities:** The TDS is responsible for assisting in the technical interpretation, implementation and oversight of the contaminated debris management (CDM) program under ESF 3, and ensuring compliance with emergency declarations and applicable federal, state, and local environmental statutes and regulations. The TDS may also address compliance issues with curb-side and demolition debris. The assignment primarily concerns Emergency Declarations issued by the impacted state, but also may address needs under Resource Conservation and Recovery Act (RCRA), but may include other such related areas as Hazardous Materials Transportation Act (HMTA), Toxic Substances Control Act (TSCA), Superfund Amendment and Reauthorization Act (SARA), Occupational Safety and Health Act (OSHA), Clean Air Act (CAA), Clean Water Act (CWA) and the Comprehensive Environmental Restoration Compensation and Liability Act (CERCLA). The TDS provides technical guidance and assistance to civilian and contractor personnel in the collection, packaging, storage, recycling, decontamination, shipment, and disposal of contaminated debris generated as the result of natural disasters or terrorists events.

The TDS also provides technical guidance (e.g. DOT compliance) for the collection, packaging, storage, shipment, and disposal of contaminated debris. The TDS assists in the development of written plans and procedures to address and to safely manage and dispose of contaminated debris which is of a dangerous chemical, physical and/or biological nature. The TDS analyzes compliance status of the contaminated debris operations to ensure debris waste streams are properly identified, accounted for, handled, packaged and routed for disposal. The TDS develops standard operating procedures to facilitate quality assurance\quality control inspections pursuant to compliant site operations. The TDS prepares and provides inspected activities with written reports identifying regulatory findings, noting significant observations, and recommending necessary corrective actions when required. Researches problems and provides adequate guidance to ensure activities remain or promptly return to regulatory compliance. The TDS determines the nature and extent of noncompliance and develops strategies to correct problems, coordinating with appropriate personnel. The TDS performs necessary follow-up actions to ensure necessary steps have been taken and procedures are followed to prevent recurrences of non-compliance. Reviews and may sign hazardous waste manifests as authorized agent for USACE. Assures respective HW loads, manifests and land disposal restriction documentation are in compliance with federal and state off-site shipping requirements. The TDS provides oversight to hazardous material and HW (including unexploded ordnance), spills, releases or incidents, developing and overseeing required regulatory notifications, preparing emergency permits, and advising response personnel on proper waste clean-up and disposal and filing of after action reports. The TDS researches problems and develops corrective actions to ensure facilities and operations remain or come into regulatory compliance.

**Relationships:** The TDS serves as advisor to the TC, TL, CDM SME for interpreting, implementing, and maintaining compliance with environmental management policies, directives, and programs that embrace a wide range of subjects, to include Department of Transportation (DOT), Resource Conservation Recovery Act (RCRA), TSCA, CAA, CWA, SARA HMTA and OSLIA.

**Qualifications:** The TDS must possess working knowledge of knowledge of statutes, regulations, operations and precedent decisions governing environmental operations, sufficient skill to ensure compliance with regulations. The TDS must possess working knowledge of one or more environmental sciences or related fields (chemistry, toxicology, health and safety), sufficient to assess and correlate environmental data, verify results, resolve environmental problems for which guidelines provide little assistance, and discuss technical aspects of work with scientists, engineers and other environmental experts. Knowledge and skill to troubleshoot and investigate problems related to compliance with prescribed standards for transportation, storage and disposal of contaminated debris. Practical

knowledge of risk assessment procedures and policies, the effects and impact of pollutants on the environment and humans (e.g. toxicology, fate and transport) to ensure project remedial action objectives are appropriate for the risks presented by a site or develop project remedial objectives.

The TDS must have a thorough knowledge of mixed, low-level radioactive waste sampling, analysis, transportation, and disposal procedures, and familiarity with general Health Physicist principles to ensure proper characterization of radiological contaminated sites and safe and proper transportation/disposal of project wastes.

Health and Safety Specialist: Industrial Hygienist/Health Physicist (IH/HP)

e. The Industrial Hygienist/Health Physicist (IH/HP) originates in the Industrial Hygiene Hazardous Toxic and Radiological Waste (HTRW) Community of Practice to include the Radiation Safety Support Team, and would be assigned by the UOC. This individual works in the RFO, in the field, and may be asked for mission support at other nodes as well.

f. (1) Responsibilities: The H&S Specialist provides technical support concerning worker health and safety, including worker air sampling and work practices to lower potential exposure. This individual is to provide the interpretation of the technical requirements for worker health and safety for planning and execution purposes. They are responsible for assisting in the technical interpretation, implementation and oversight of compliance with OSHA, State, NRC, USACE health and safety regulations with regard to safe procedures for the collection, packaging, storage, shipment, and disposal of contaminated debris. The HSS assists in the development of written plans and procedures to safely manage and dispose of contaminated debris of a chemical, physical, radiological, and/or biological nature. The HSS develops standard operating procedures to ensure that workers on the CDM PRT are adequately trained and protected, and that the public is protected from the hazards associated with site operations. The HSS inspects all aspects of site operations, including but not limited to: engineering controls, safe work practices, personal protective equipment, air monitoring, monitoring for ionizing radiation, personnel radiation monitoring, site control, spill containment, and decontamination procedures, and provides written reports identifying health and safety concerns and deficiencies, and recommending necessary corrective actions when required. The HSS has authority to stop work if unacceptable health or safety conditions exist, and take necessary action to re-establish and maintain safe working conditions. The HSS will coordinate any changes to health and safety plans. If necessary, the HSS will assist in accident investigations. The HSS conducts follow-up inspections to ensure necessary steps have been taken and procedures are followed to prevent recurrences of health and safety deficiencies. The HSS researches problems and develops health and safety protocols to ensure all site operations comply with health and safety regulations.

g. (2) Relationships: The HSS serves as an advisor to the TC, TL, CDM SME for interpreting, implementing, and maintaining compliance with Federal, State, and USACE health and safety regulations and for compliance with health and safety programs and plans. The HSS communicates health and safety assessment to the RFO and JFO staff, and may be required to brief representatives from other agencies concerning the same.

h. (3) Qualifications: The HSS must possess a working knowledge of statutes, regulations, and precedent decisions governing health and safety regulations, especially those pertaining to environmental operations, and sufficient skill to ensure compliance with regulations. The HSS must possess working knowledge of one or more environmental sciences or related fields (chemistry, toxicology, health and safety), sufficient to assess worker monitoring data, verify results, resolve health and safety concerns for which guidelines provide little assistance, and discuss health and safety aspects of work with scientists, engineers and other environmental experts. Should have

knowledge and skill to troubleshoot and investigate problems related to compliance with health and safety standards for managing contaminated debris. Practical knowledge of risk assessment procedures and policies, the effects and impact of pollutants on the environment and humans (e.g. toxicology, fate and transport) to ensure project remedial action objectives are appropriate for the risks presented by a site or develop project remedial objectives. They shall have at least one year experience in developing and reviewing work plans, disposal plans, health and safety plans, and sampling plans for major HTRW projects. The IH should also have experience in writing and reviewing asbestos inspections and work plans and should be at least asbestos inspector trained.

Contract Specialist: The Contract Specialist (CS) works in Omaha for Rapid Response Task Order Execution (cost reimbursable contracts), or may work in the RFO or District Office for the impacted District's Contracting Officer (CO) for administration of other contract types.

Responsibilities: The CS is responsible for preparing the task order\contract packages, advertising, negotiating, and awarding for the Contracting Officer's signature, and for addressing any protests/claims.

Relationships: The CS communicates contract requirements to the RFO staff and in particular to the TC and RE (CORs). The CS also directs the contractor to comply with pertinent requirements in a clear, concise and timely manner.

Qualifications: The CS should have experience in handling large solicitations and fast paced execution. The CS may be warranted or non-warranted. The CS must be familiar with the various details and formats for the contracts required to execute the mission. The CS must be fully aware of the requirements to expedite emergency contracts under the urgent and compelling allowances of the Federal Acquisition Regulations (FAR) as well as provisions to increase contract capacities for terrorist events as described in the FAR. The CS must be knowledgeable of the various types of debris contracts.