

Monitoring your Debris Operation



FEMA



Monitoring – Debris Ops

- *FA or Contracted Monitors*
 - *Proper Training*
 - *Applicant-Developed Program*
 - *FEMA & State Assistance*
 - *Adequate Oversight*
 - *Eligible Debris, Accurate Quantifications*
 - *Applicant is Accountable, Not Contractors*
 - *Protection of Funding*

Monitoring – Debris Ops

- *Roles of your Monitors*
 - *Your representative*
 - *Your eyes and ears*
 - *Make or break a debris operation*
 - *Every time a tower monitor signs a load ticket, they are accepting the load*
- *Roles of FEMA Monitors*
 - *Protect the Applicant's funding*
 - *Protect Government funds from waste*

DEBRIS MONITORING OPERATIONS

A debris monitoring program generally provides debris monitors at the following locations:

Debris pick-up sites

Debris Management Sites

Debris disposal sites

This section will briefly discuss monitoring activities and responsibilities for each of these locations.

Typically, most of the following activities will be observed and documented by the applicant's field monitor. However, debris monitors need to be familiar with these activities in order to identify trends toward non-compliance with the terms of the Project Worksheet, the contract, or the overall debris operations plan.

Debris Monitoring, cont.

- *Ensure there are procedures in place to measure trucks and re-measure them if there are questions.*
- *If the contract is one where the contractor is paid by weight, both empty trucks and scales should be checked periodically.*
- *Ensure that the debris is being properly segregated. Vegetative debris and household hazardous waste should not be mixed.*
- *Ensure there is a process for removing Freon from white goods before disposal.*
- *Ensure documentation is complete. Truckloads must be accurately documented.*
- *Document measurements of each truck if present when measured, and re-measured*
- *Document recycling/reduction methods*

Removal of Debris by the public



Safety

- *Emergency phone numbers*
 - *Verify phone numbers work*
- *Be alert for potential safety problems*
 - *Children playing in the loading area*
 - *Propane tanks or fuel tanks in debris piles*
 - *Reckless equipment operators*
 - *Etc*
- *Stop work if a safety hazard jeopardizes life or property*

Safety

- *Traffic Control*
 - *Flagmen*
 - *Traffic cones*
 - *Barricades*
 - *Etc.*
- *Power Lines*
 - *Establish safe work zones around power lines*
- *Personal Safety Equipment Required*
 - *Hard hats*
 - *Steel toe boots*
 - *Etc.*



FEMA Truck Measurement Form

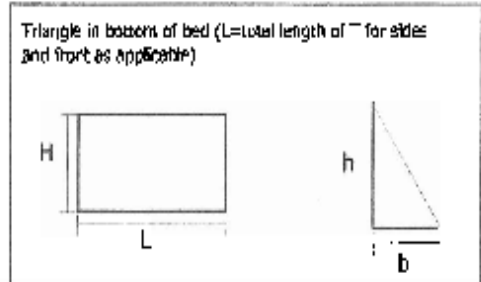
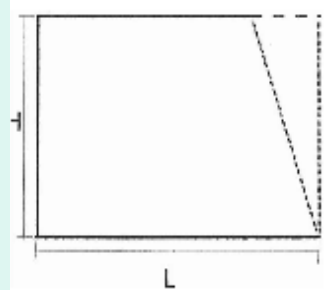
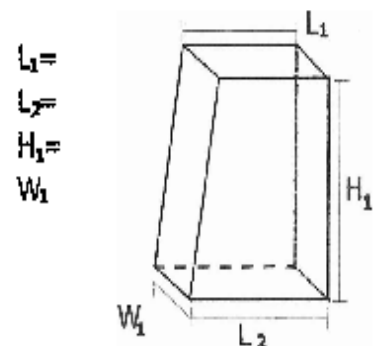
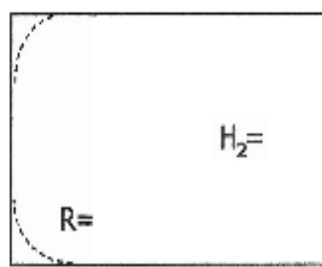
Truck Number	
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Applicant: _____ FEMA Monitor: _____

Contractor: _____ Date: _____

Declaration Number: _____ Applicant Monitor: _____

Truck Make:	Year:	Bob:	Trailer:	State License:
Trailer Make:	State License		Color:	
Measured By:	Date:		Drivers Name	
Calculated By:	Date:		Owners Name	
Checked By:	Date:		Owners Address	
TRAILER	Length:	Width	Height:	
HOIST	Length 1 (L1):	Length 2 (L2):	Width 1 (W1):	Height 1 (H1):
RADIUS			Radius (R):	Height 2 (H2):
ROUND BOTTOM TRAIL	Length 3 (L3):	Radius (R2):		



Bed Volume: (LW ₁ H ₁)	Inches/Feet		Grand Total (GT)	
Radius: $3.14(R)^2(H_2)/2$	Inches/Feet		To Cover: Side Inches x 2.46 Feet	÷ 1728
Hoist: $(L_1+L_2)/2 (W_1)(H_1)$	Inches/Feet		To Cover: Side Feet to Cubic Yards	÷ 27
Round Bottom: $3.14 (R_2) (L_3)$	Inches/Feet			
Grand Total (GT)			Total Cubic Yards	

Quantity Determination

- *The volume in a truck is determined at the inspection tower, not at the loading site*
- *Inspection tower personnel determine the pay volume and indicate it on the ticket, this completes the load ticketing process*
- *The responsibility of the applicant to ensure the monitors are calling the correct load*
- *Your reimbursement depends on all the loads being inspected and correctly called*

Debris Monitoring

Monitoring includes:

- Verifying all debris picked up is a direct result of the disaster*
- Measuring and inspecting trucks to ensure they are fully loaded*
- On-site inspection of pick-up areas, debris traffic routes, temporary storage sites, and disposal areas*
- Verifying the contractor is working in its assigned contract areas*
- Verifying all debris reduction and disposal sites have access control and security.*

Monitored Operation



Load Ticket Monitoring

The most common method of documenting and verifying work performed is by the use of load tickets.

The load ticket documents pick-up and disposal information and is signed by responsible parties at appropriate check points

Payment to the contractor is based on the information contained on the tickets. The contractor will submit the ticket with the invoice.

If used, the load tickets should be of the multi-copy, sequentially numbered variety so that the applicant's representative has a copy to compare with the contractor's copy.

The applicant's monitors at the loading site initiates the ticket, keeps one copy, and gives the other copies to the driver. The driver provides the ticket to the monitor at the dumping site who completes the tickets, keeps one copy, and gives the other copy (or two copies) to the driver for submittal to the contractor's representative.

Payment is made when the contractor submits copies with invoices and all copies match.

Quantity Determination

- *Original or white copy is for the applicant.*
- *Gold copy is for the truck driver.*
- *Pink copy is for the contractor.*
- *Green copy can be used for subcontractors as needed*

Load Ticket		Ticket No. 0012345	
Municipality (Applicant)		Prime Contractor	
		Sub-Contractor	
Truck Information			
Truck No		Capacity	
Truck Driver (print legibly)			
Loading Information			
Loading	Time	Date	Inspector/Monitor
Location (Address or Cross Streets)			
When Using GPS Coordinates use Decimal Degrees (N xx.xxxxx)			
N		W	
Unloading Information			
Debris Classification		Estimated %, CYs, or Actual Weight	
<input type="checkbox"/> Vegetation <input type="checkbox"/> C&D <input type="checkbox"/> White Goods <input type="checkbox"/> HHW <input type="checkbox"/> Other* See Below			
Unloading	Time	Date	Inspector/Monitor
DMS Name and Location			
*Other Debris Explanation		Original: Applicant Copy 1: _____ Copy 2: _____ Copy 3: _____	

Debris Pick-up Sites

*The primary activity at pick-up sites is to **monitor** all debris cutting and removal activities, verifying the eligibility of the location and the work being done.*

Load tickets are required for a contracted debris truck, the monitor must ensure they are accurately and completely filled out and the eligible debris is noted, as well as any ineligible debris.

Ensure the trucks are properly loaded, not “lightly” loaded. Document observations.

Ensure the trucks are properly marked, and the truck number and volume are visible on the truck decal located on the driver side of the truck.

Periodically, trucks should be pulled out of operation and re-measured.

*In some instances, equipment may cause damage to the surrounding area, particularly to vegetative debris. Note whether crews caused the debris damaged by the equipment. This activity would be **ineligible** for FEMA assistance.*

Load Tickets

- *Method of recording the type & quantity of eligible debris hauled to a dump site and to justify cost reimbursement*
- *Tickets need to be simple and legible*
- *Need to indicate location address the debris was picked up at.*
- *Need to indicate type of debris*
- *Ticket will be completed at the inspection tower to determine actual volume of load by applicants monitors*

Load Tickets

- *Do not issue load tickets for ineligible debris that was not caused by the disaster or is from:*
 - *Piles of tires*
 - *Automobile or truck frames*
 - *Mobile homes, etc.*
 - *Debris on Private Property*
 - *Commercial Property*
- *Protect load tickets as if they were your own checkbook as it represents a form to submit for payment (reimbursement)*

Stumps

- *Monitors should be knowledgeable of FEMA stump policy to ensure that full reimbursement is forthcoming:*
 - *Stumps on Private Property, not eligible*
 - *Stumps that originated in the right-of-way*
 - *Eligible and ineligible stumps*
 - *How to measure stumps correctly*

Stumps

- *Must meet general debris eligibility criteria*
- *Root ball must be 50% exposed and be an immediate threat to health and safety, & come from Public Property or the public right-of-way maintained by the applicant.*
- *Stumps from private property are considered as debris only and are converted into cubic yards by using the conversion chart supplied by FEMA.*

Stumps

- *How to determine the size of the stump*
 - *Measure 24 inches from the ground up the trunk of the tree*
 - *Then measure around the trunk of the tree*
 - *Take that measurement and divide by 3*
 - *You will then have the size of the stump*

Stumps

- *Using Contractors:*
 - *Unit Cost per stump, for eligible stumps*
 - *Unit Cost as Debris*
 - *Based on experience in dealing with storms over the past few years, cradle to grave contracts including hauling, reduction, disposal & any tipping fees, are less confusing and more efficient.*

Stumps

Uprooted 50% or less, and poses an immediate threat to life, public health and safety; on a public ROW, improved public property or improved property of a PNP

- Flush cut. Cut portion as a unit cost rate of veg debris*

Covered under 9523.11 Stump Policy

Grinding of stumps in the ground

- Is not eligible.*

Stumps

- *Validation*
 - *Pre Validation*
 - *Lists with GPS locations & photos to provide to FEMA monitors.*
 - *Post Validation: **Preformed by FEMA***
 - *Lists, Pictures, Descriptions, etc*
- *Eligibility*
 - *Uprooted 50% or more, and poses an immediate threat to life, public health and safety; coming from the public ROW, improved public property or improved property of a PNP*
 - *24 inches and above, removed on a per stump cost by cubic yard*
 - *24 inches and below, removed at a unit cost rate of veg debris*

Hangers

- *Validation/Eligibility*
 - *Pre Validation*
 - *Lists with GPS locations & photos to provide to FEMA monitors.*
 - *Post Validation: **Preformed by FEMA***
 - *Lists, Pictures, Descriptions, etc*
 - *Eligibility*
 - *2” or greater at the break*
- *Contracts*
 - *Unit Cost per hanger or “hanger tree”*
 - *Preferred contract by “Hanger Tree”, with single or split scope*

Hazardous Limbs

- *Hazardous limbs are eligible for removal. Hazardous limbs considered to pose a threat are those that are still hanging in the tree and are threatening a public-use area, such as a trail, sidewalk, road or golf cart path, or other improved and maintained property. If a tree has only limb damage, the tree is not eligible for removal. Maintenance trimming is not eligible.*
- *Removal of fallen trees in a forested or wilderness area is not eligible.*
- *Removal of trees from subdivisions under development or off the right-of-way in rural areas is not eligible, as this condition generally does not pose an immediate threat.*
- *If a tree fell from a public area onto private property, **only the part on public property would be eligible for removal.***
- *If a tree fell from a privately owned area onto public property, **only the part on public property would normally be eligible for removal.***
- *If a property owner cut up a disaster damaged tree on their property and pushed it to the curb, its removal would be eligible.*

Broken Trees

If a broken tree is on public property, eligibility is limited to cutting the trunk at ground level and then removing the debris.

If a broken tree is on private property, it is typically the responsibility of the property owner. Refer to the following section on Private Property.

Dead Trees

- *Dead trees are only eligible when they meet the general eligibility criteria for trees and limbs that are posing an immediate threat.*
- *However, you may find applicants that want to remove dead trees as part of the disaster debris removal.*
- *Note that in most cases, the tree probably did not die as a result of the disaster (unless it was a fire). Therefore, its removal would not be eligible unless demonstrated that it is posing an immediate threat.*
- *The fact that a tree may die, or is dead, does not alone make it eligible for FEMA assistance.*

Hangers



Find the hanger! Is it eligible?

Hangers



Find the hanger! Is it eligible?

Leaners

- *Validation/Eligibility*
 - *Pre Validation*
 - *Lists with GPS locations & photos to provide to FEMA monitors.*
 - *Post Validation*
 - *Lists, Pictures, Descriptions, etc*
- *Contracts*
 - *Unit Cost per Tree*
 - *Unit Cost as Debris*
 - *Based on experience in dealing with storms over the past few years cradle to grave contracts including disposal, are less confusing and more efficient.*

Less than 24", were they eligible Learners?



Clear Cutting, is this eligible?



Debris Loads

- *Debris evenly distributed in the bed of the truck and compressed as much as practical*
- *Monitors should not encourage over filling above sideboards as it can create safety hazards as well as prevent tarp from covering the load.*
- *Above sideboards debris is not calculated into the load, inside the truck bed is what is calculated only.*

Unsafe Sideboards



Extended unsafe sideboards



Debris Management and Disposal Sites

- *An inspection tower must be in place and staffed because it is impossible to accurately check the volume of debris in a truck from the ground. A monitor must be in a tower.*
- *The contractor and/or applicant should allow a FEMA debris monitor to enter the tower or the disposal site to observe, measure, and verify the work being performed.*
- *Review the site layout to ensure that trucks can't enter and then leave without unloading which would then allow them to return to have the same load counted again.*
- *If there is equipment working at the site (grinders, air curtain incinerators, etc.), make sure there is a safety zone set up.*
- *Ensure there are procedures in place to measure trucks and re-measure them if there are questions.*

HOW MANY CAN YOU FIT INTO THE VOID SPACES IN THE TRUCK. THIS PORT-A-JOHN = 2 CUBIC YARDS



Monitoring – Debris Ops

- *Monitoring Schemas*

- *Tower*

- *Entrance*

- *Suggested - One monitor in tower and one spotter on the ground to quantify amount of debris*

- *Exit*

- *Used to prevent contractor from “recycling” debris*

Monitoring – Debris Ops

- *Overall*
 - *All Debris Contractor work must be monitored*
 - *Either FA or Contract Monitors*
 - *Origination location of debris*
 - *Use a standardized Load Ticket*
 - *Important Point – Know where your debris originated*
 - *Documentation is a Must*

Portable Tower at staging area



Reviewing Tower



Tailgate issue?



Reviewing tower



Reviewing Tower



Loaded above DOT Regulations



Loading Trucks

- *Machine Loads*
 - *Loaders should have height capability to “compact” load into truck/trailer.*
 - *Mechanical loaders*
 - *Include Front-end loaders*
 - *Bobcats*
 - *Knuckle-Boom type loaders*

Machine Loading Vehicle



Loading in the field



Unsafe Load?



Eligible or Ineligible?



Tree Trunks



Tub Grinder



Air Curtain Burning



What's your call? Debris, Stumps?



What's your call on this load?



What's your call on this load?



Unsafe Load?



How many cubic yards are in this vehicle? (100 cy truck bed)



A good operator can pick a piece of wood out of a trash can.



Public, Non-Federal Aid Roads & Streets

Debris cleared from roads and highways, including the travel lanes and shoulders, roadside ditches and drainage structures, and the maintained right-of-way, may be eligible. Debris that is blocking streets and highways is considered a threat to public health and safety because it blocks passage of emergency vehicles or it blocks access to emergency facilities such as hospitals. Debris removed from travel lanes, shoulders, roadside ditches and drainage features, and maintained rights-of-way is eligible if it constitutes a threat to public health and safety as described above.

Federal-Aid Systems Roads

For Federal-Aid Systems (FAS) Roads being repaired under the Federal Highway Administration's (FHWA) Emergency Relief Program, the debris in these locations would be removed as part of that program not the FEMA Public Assistance Program.

However, when the Emergency Relief Program is activated for an area, FHWA assistance is granted only for portions of the FAS Roads actually damaged by the disaster. Therefore, limited debris clearance on undamaged sections of FAS Roads for emergency access may be eligible for FEMA assistance. This determination will be made by FEMA on a case-by-case basis. Debris operations for FAS Roads should be identified and separated from FEMA debris operations.

Homeowners' Associations & Gated Communities

Homeowners' Associations and Gated Communities may be eligible applicants when they meet the eligibility criteria for a "Private-Non-Profit" (PNP) entity.

Since roads are not typically eligible PNP facilities, debris removal activities from the roads by the Homeowners' Association are not eligible for FEMA assistance, except in specific circumstances:

Agreements between the association/community and an eligible applicant are in place prior to the disaster and documentation is provided that demonstrates that the agreement was active.

An eligible applicant, such as the local government (not the PNP), may be reimbursed for debris removal activities to allow passage of emergency vehicles.

Debris Basins, Drainage/Irrigation Channels

Removal of silt, mud and other debris from lined and unlined basins and engineered channels may be eligible if the pre-disaster level of debris can be determined. Such facilities must have a regular schedule of debris removal.

Natural Streams

Debris removal from natural streams is normally not eligible. Only debris that causes an immediate threat to lives or public health and safety or damage to improved property is eligible. Eligibility is limited to only removing material that could cause flooding during a 5-year flood event. Any work in natural streams must be closely reviewed and monitored to minimize undesirable environmental effects.

The NRCS has authority for debris removal from natural streams when the debris creates a flood threat to lives and property by blocking the flow of water. See your supervisor for disaster specific guidance regarding the NRCS. Removal of debris from the banks is generally not eligible because it does not typically pose an immediate threat.

Parks & Recreation Areas

The removal of debris from parks and recreational areas used by the public is eligible when it affects public health or safety or the proper utilization of such facilities. For example, a maintained public walking path is blocked. However, debris removal from wilderness or unused areas is not eligible.

Damage to publicly owned marinas may include abandoned sunken boats and other debris that may impede navigation: Identified navigation hazards are eligible for removal

Disaster-related debris on beaches is eligible if the beaches are consistently used for public purposes and a health and safety hazard exists

PNP recreational facilities are not eligible facilities; therefore debris removal from those facilities is not eligible.

Private Property

Debris removal from private property, whether it is residential or commercial, is generally the responsibility of the individual property owner.

Within a specified period of time as defined by FEMA, a private property owner may move disaster-related debris from their property to the curbside for pick-up by an eligible applicant.

Private property blown onto a street is no longer on private property and is, therefore, eligible for removal. (Note that this does not apply to privately owned automobiles).

FEMA assistance is not available to reimburse private property owners for their cost of removing debris from their property.

FEMA Authorized Removal from Private Property

If removal of debris from private property is authorized by FEMA, review all Disaster Specific Guidance on this issue and discuss the eligibility parameters with your supervisor. Become clear as to what your role as debris monitor is for this activity.

Remember that only FEMA makes eligibility determinations regarding removal of debris from private property. Not all actions that may be taken by the local governments are eligible for FEMA assistance.

In some cases, when removal of debris from private property is authorized by FEMA, some property owners will use this opportunity to clean up their property. Removal of pre-disaster items awaiting normal disposal is not eligible.

Examples can include:

Old tires, batteries awaiting proper disposal

Old white goods awaiting proper disposal

Removal of Private Vehicles is not eligible.

- Debris should not be removed from commercial property until there is a clear indication of a health/safety threat, the owner has proven he/she has no insurance, and is not capable of cleaning up the debris. Normally, that is not an eligible activity. Contact your supervisor if this becomes an issue in the field.*
- Removal of swimming pools, basements and foundations are not eligible. If they present a safety hazard, the cost of filling might be eligible.*
- Damaged or remaining slabs on grade, sidewalks and driveways generally do not pose an immediate threat, and as such, are not eligible for removal – even when they are broken and brought to the curb.*

Construction Debris

- *Construction rubble or debris is not eligible. This is debris that results from reconstruction of damaged structures. Such debris is not considered a health or safety threat, and disposal is the responsibility of the owner.*
- *Sometimes, during early construction activities, contractors making repairs will move construction rubble from the facility where they are working to a nearby area where FEMA is paying for debris removal. The disposal of this debris by the applicant is not eligible.*
- *The removal of miscellaneous debris, such as minor vegetation and rubble, is not eligible. Raking of private property to ensure glass and nails are removed is not eligible. Non-threatening debris is not eligible.*

Overloaded Mulch Truck



FEMA References

- Most of these documents can be accessed at www.fema.gov. Disaster Field Offices may also have hard copies of these documents.*

Publications

- Debris Operations Job Aid, FEMA 9580.1*
- Public Assistance Policy Digest, FEMA 321*
- Public Assistance Guide, FEMA 322*
- Debris Management Guide, FEMA 325*
- Debris Management Brochure 329*
- Field Monitors Handbook*

Appendix E: Glossary

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.*

Debris - *Scattered items and materials broken, destroyed, or displaced by a natural disaster. Example: 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 Management Site (DMS) – *A location for temporary storage and/or deduction, recycling and segregation before final disposal. Also see Temporary Debris Storage and Reduction (TDSR) Site*

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

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

Garbage - *Waste that is regularly picked up by the Department of Solid Waste Management. Examples: food, plastics, wrapping, papers.*

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