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Colorado Department of Public Health and Environment

2013 Floods – Guidance: Management and Disposal of Flood Debris

In response to the flood disaster, the Colorado Department of Public Health and Environment ("Department") is providing guidance and regulatory relief for the management and disposal of damaged or destroyed structures, vegetation debris, vehicles, spoiled food, household chemicals, dead animals, septage and sewage. This guidance only applies to flood debris resulting from the September 2013 floods.

Flooding can create debris and waste that warrant rapid response. Prompt cleanup and appropriate management of flood debris enables residents to move forward with their lives while minimizing potential public health and environmental issues that may be exacerbated the longer the debris is left in place. For instance, prompt cleanup can prevent nuisance conditions, odors, disease, and water contamination from runoff. To enable timely cleanup of flood debris items referenced above, the Department will temporarily not enforce certain regulatory requirements, as described below.

The Department's choice not to apply certain regulatory requirements extends only to flood debris and sediment from the September 2013 floods; the Department will entertain requests for similar treatment in later years if necessary.

The Department is providing a list of landfills (http://goo.gl/maps/l3ksY) that will accept flood debris and waste from the recent flooding. Roll-offs can be taken to any one of the landfills on the list. Please call the landfill contact before transporting loads to alert the landfill that the material is coming and confirm it will accept the waste.

Handling and Disposal of Flood Debris:

A)Vegetation

The Department has determined it will not enforce the following regulatory requirements for vegetative debris:

1) Vegetation debris and sediment laying in-place following the flood may be managed by the property owner or the property owner's contractor in accordance with local (city and county) rules and ordinances. The Department will not enforce solid waste requirements so long as the management does not create a nuisance or violate the Water Quality Control Division's stormwater regulations.
2) Vegetation debris, and sediment transported by stormwater (rain or other forms of

precipitation) into ditches, natural or manmade ponds or other low lying areas may be removed to preserve the function of these structures. Vegetative debris and sediment wastes, once removed or stockpiled, must be managed in accordance with local (city or county) rules and ordinances. The Department will not enforce solid waste requirements so long as the waste material does not create a nuisance.

3) Vegetation debris should be handled and stored in a manner to prevent a release to storm drains, streams, ditches, and other surface waters. Waste should be stored in upland areas away from concentrated stormwater flows, and in a manner that prevents erosion and transport of materials.

B)Mud, Soil and Sediment

1) It is important to remember that current sediments are a result of redistribution of soil and sediment.
2) To this point, there have been few reported spills of hazardous materials that have been known to enter flood waters.
3) Most flooded areas do not have soil that typically has elevated levels of chemicals or heavy metals.
4) Some of the flood water that carried the sediment may have been contaminated with sewage that does contain bacterial, viral and parasitic pathogens. However, this risk can be minimized by avoiding contact with the sediment or appropriate hand washing after contact.
5) To further minimize risk, we recommend that remaining sediments be spread out and allowed to dry fully in the sunlight, which will further reduce the concentrations of pathogens in the sediment.
6) Individuals working with the sediment in a way that generates visible dust should consider wearing an N95 respirator as an additional precaution and make sure they wash their hands with soap and water.
7) If you have concerns about the sediment, it can be discarded as solid waste. Soil that is comingled with other visible waste or that is visibly stained should be discarded. Objectionable odors may or may not indicate presence of pathogens. When in doubt, throw it out.

C) Structures

Damaged and destroyed structures may be managed by the property owner or property owner's contractor. Structures that are partially damaged, but safe to enter, can manage house hold hazardous waste (HHW) (i.e., paints, car batteries, pesticides, etc.) at the County or municipal HHW facility. Structures should be handled in a manner that will minimize potential exposures to any unknown hazardous materials that could potentially be present in a damaged structure or debris from structures. Older structures have a greater potential to contain asbestos and lead. Some inert debris (nonleachable) and sediment may be disposed of onsite (as described below). If you wish to bring debris from a damaged structure to a landfill, please contact the facility to alert them that flood debris is coming and confirm the landfill will accept the waste.

D)Vehicles

Fuel, oil, hydraulic fluid, and other automotive fluids along with the battery from a vehicle must be removed and managed appropriately prior to recycling or disposal of the vehicle at a landfill.

E)FoodWaste

Spoiled, contaminated, or expired food managed by residents and businesses may be disposed at a landfill or taken to a composting operation approved to accept food waste. Food waste may be managed by the property owner or the property owner's contractor in accordance with local (city and county) rules and ordinances. The Department will not enforce solid waste requirements so long as the management: 1) does not create a nuisance, 2) does not violate the Water Quality

Control Division's stormwater regulations and 3) is done in accordance with the following criteria:

1) No food waste shall be placed in any body of water or seasonal creek or pond;
2) Surface water should be diverted from the pit utilizing an upgradient diversion berm or other method;
3) All food waste must be buried at least 150 feet down gradient from any groundwater supply source;
4) In no case should the bottom of the burial pit be closer than five feet to the groundwater table.
5) The food waste burial is done in accordance with local (city and county) rules and ordinances.

F) HouseholdChemicals

Household Chemicals (i.e., Household Hazardous Waste (HHW)) can be taken to a county or municipal HHW facility for recycling or potentially reuse. Check with your local environmental health representative to see if a temporary HHW collection site has been established. If HHW cannot safely be removed from other flood debris or no recycling option is available, HHW can be taken to a landfill for disposal.

G) DeadAnimals

The property owner must follow the *Emergency Livestock Disposal Policy* issued by CDPHE.
If the homeowner cannot meet the requirements of the preapproved plan defined in the Policy, they will need to submit a disposal plan to the Department and local governing body. Alternatively, dead animals may be taken to a landfill for final disposal.

H) SeptageandSewage

Many waste water treatment plants were impacted by the flooding. In some cases flood waters inundated domestic wastewater treatment plants resulting in untreated and partially treated sewage leaving the plant and being carried away by flood waters. Likewise, a number of septic systems may have been destroyed or compromised from the flooding. If during cleanup sewage or septage is encountered comingled with other flood debris, the waste does not need to be separated, but can be disposed at a landfill mixed with other flood debris.
Property owners and contractors should take precautions to prevent exposure when working in or around setpage and sewage. Care should be taken to minimize or eliminate contact with the contaminated materials and to not spread the septage or sewage.

I) ElectronicWaste

Items such as televisions, computers, DVD players and other electronic devices can be taken to an electronics recycler or electronics recycling collection location if the material is not adversely contaminated by sewage, septage or other flood debris. Electronic waste that has been submerged or damaged by water can still be recycled. The Department is issuing a temporary waiver of the electronic waste landfill ban (please see the department's web page for the waiver). The waiver allows the disposal of only **residential** electronic waste at a solid waste landfill if the electronic waste has been contaminated by sewage, septage or deemed unrecyclable from flood debris contamination. Collection locations for electronics recycling are shown in the map titled "electronics recycling and collection locations" at the end of this document. The waiver does not include electronic waste from businesses. Electronic waste from businesses must be managed as a universal waste, or as a hazardous waste, depending on the material characterization and is required to be managed as a hazardous waste.

I)White Goods

The term “white goods” is used to describe major household appliances such as washers, dryers, refrigerators, freezers, hot water heaters, and other larger appliances. Because white goods are manufactured with a high percentage of metal, they are favorable for recycling. However, prior to recycling or disposal at a permitted landfill, white goods containing refrigerants (chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), or hydrofluorocarbons (HFCs)) must have those refrigerants properly recovered and appropriately managed by an EPA-certified technician with proper equipment. In addition, the facility accepting the white good for final disposal or recycling must keep documentation verifying refrigerant recovery on site for three (3) years. Please contact the CFC Unit for the Owner’s Refrigerant Recovery Record form to meet this requirement.

In Colorado, small appliance refrigerant recovery is regulated by the Colorado Department of Public Health and Environment, Air Pollution Control Division, Indoor Environment Program. A Chlorofluorocarbon HOTLINE is available to leave messages, report violations or to request assistance for either the state or federal chlorofluorocarbon programs. **The number for the state Chlorofluorocarbon HOTLINE is 303-692-3200**.

At the landfill, white goods staged for recycling should separate those containing refrigerants from those that never contained refrigerants. This should expedite the technicians’ removal of the refrigerant.

On Site Disposal of Flood Debris:

The Solid Waste Act and Regulations allow any person, other than governmental entities, to dispose of their own waste on their own property provided the Department approves an engineering and operations plan that complies with the landfill: 1) location restrictions and standards; 2) design requirements; and 3) operating criteria. The landfill design and operating requirements vary depending on the site setting and type of material being disposed. We typically encounter three major types of disaster debris including: 1) inert (non- leachable and/or non-reactive) materials; 2) vegetation; and 3) non-inert (leachable and/or reactive) materials. All of these materials, if managed appropriately, should not cause an unsafe impact to people, wildlife, groundwater, surface water or air. The inert materials are the easiest to manage because they are not mobile and will not present a significant risk to human health or the environment. Inert materials include earthen materials, hardened concrete, cured asphalt, masonry, some metals and other approved materials. Inert materials may be disposed of on property with the following provisions:

1) The disposal of inert waste on the property must be approved by the local government agency;
2) The inert waste may be disposed of in a basement if present or in a hole in the ground (the base of the hole should be at least 5 feet above groundwater);
3) The materials need to be covered with at least two feet of clean fill;
4) The cover needs to be sloped to achieve positive drainage and prevent ponding;
5) The cover should be revegetated to prevent erosion of the cover and surrounding materials; and
6) A notice of the fill location should be placed in the property deed.

Non-inert materials may be disposed of on one’s own property, but will require an engineering

design and operation plan that is submitted to the Department for review and approval prior to implementation. Disposal of non-inert materials or materials that present a risk to human health (including asbestos) will also require a post-closure care plan, financial assurance and an environmental covenant. All on site disposal activities must be in accordance with local (city and county) rules and ordinances.

Temporary Stockpile Location for Flood Debris

The department is working with local agencies that choose to establish temporary stockpile locations for flood debris. Certain waste and flood debris may not be accepted at temporary locations because of the high threat of vectors and other nuisance conditions. Please check with your local health department representatives for locations and acceptable waste and flood debris.

Asbestos

As the flooding recedes, communities are moving from the more immediate emergency response to longer term cleanup and recovery. The Department has updated this section of its guidance to reflect the changing nature of the disaster response, and to clarify questions we have received regarding building debris that has the potential to contain asbestos.

This guidance only applies to state protocols. This guidance does not alter any federal requirements (e.g., EPA, OSHA) that may also apply with respect to debris cleanup and worker safety. Please contact the appropriate federal agencies if you have questions regarding the applicability of their regulations.

For the purposes of this section on Asbestos, the following definitions apply:

Tier 1 Building Materials: Any and all building materials that have been displaced or dislodged as a result of the heavy rains and flooding. This includes, for example debris from demolished homes that may have washed away.

Tier 2 Building Materials: All other building materials not defined in Tier 1. This includes, for example, building materials from comparatively lesser damaged homes, such as drywall in a flooded basement.

Trigger levels for single family residential dwellings are 50 linear feet on pipes, 32 square feet on other surfaces or the volume equivalent of a 55-gallon drum. Trigger levels for public and commercial buildings are 260 linear feet on pipes, 160 square feet on other surfaces or the volume equivalent of a 55-gallon drum.

Tier 1 Building Materials Handling Procedures

If asbestos-containing materials are known to be present in flood debris in amounts greater than regulatory trigger levels, they must be removed in accordance with Colorado Air Quality Control Commission Regulation No. 8, Part B.

If it is not known if asbestos is present in the building materials, any wet material may be handled as non-asbestos flood debris and disposed of at a permitted landfill. Dry building materials should be wetted and then may be handled as above.

A state-issued demolition permit is not required to remove the debris from buildings that have been partially or completely destroyed. However, flood debris may contain unknown substances, including chemicals. People should take care when handling any materials from buildings that either are partially damaged by the floods (i.e., salvageable building materials remaining) or completely destroyed (i.e., only debris remains). All debris should be handled in a manner that will minimize potential exposure to both the people handling the material and those in the surrounding area. The heavy rains and flooding will presumably have resulted in debris that is thoroughly wetted, which should minimize dust and related potential risks from airborne materials during cleanup (including, potentially, asbestos fibers). Any material that has dried out should be thoroughly wetted to minimize dust release.

The Department will not require flood soaked or thoroughly wetted materials transported for immediate disposal at the landfills to be wrapped with plastic. Roll-offs and trucks need to be covered to prevent: 1) the materials from drying out and 2) the material from blowing out of the vehicles between the point of pick-up and disposal. If the material is thoroughly wetted from flood waters/mud, then potential airborne contaminants should be sufficiently contained for short haul and immediate disposal purposes. In addition, handling flood soaked and muddy materials is hard enough; adding plastic wrapping could increase personal injury risk and hamper timely and effective cleanup.

The risks from potential asbestos fibers and other airborne contaminants could increase as the debris dries out. If the material is not thoroughly wetted, then the materials should either be thoroughly wetted or, if that is not possible, the debris should be packaged inside a 6-mil plastic sheeting liner. This is done to contain the debris as it is transported from the site to the landfill.

Metal debris must be washed clean of mud/debris prior to recycling. Concrete debris (foundations) removed from a site must be disposed of at an approved landfill. If you wish to recycle this material, it must be inspected by a certified asbestos building inspector and found to be free of asbestos-containing materials prior to recycling.

Tier 2 Building Materials Handling Procedures

NOTE: Homeowners doing their own work in their primary residences are exempt from the Tier 2 requirements. However, homeowners must dispose of asbestos-containing debris in accordance with applicable regulations.

All Tier 2 suspect building materials in amounts greater than the trigger levels must be sampled for the presence of asbestos in accordance with Regulation No. 8, Part B

If asbestos-containing materials are present in amounts greater than the trigger levels, and are going to be removed or impacted by renovation or demolition activities, those activities must be done in accordance with the Major Spill Response section (III.T.) of Regulation No. 8, Part B.

In order to further facilitate the timely and protective cleanup of confirmed asbestos containing materials from this natural disaster, the Department is providing relief from the following regulatory requirements until further notice:

For sampling:

- The Colorado individual Building Inspector certification requirement is waived, so long as the individual's AHERA training is current.
- The requirement for a Building Inspector to work for a Registered Asbestos Consulting firm is waived.
- The requirement for a laboratory to be registered in Colorado to conduct bulk sample analysis is waived, but the requirement for the laboratory to be NVLAP-accredited is not waived.

For asbestos spill response requirements:

- Immediate notification to the division by telephone is waived.
- The 10-day waiting period to begin an abatement project is waived.
- The Colorado individual Worker and Supervisor certification requirements are waived, so long as the individual's AHERA training is current.
- The requirement for an abatement company to obtain Colorado certification is waived.

Lists of and contact information for landfills that will accept Tier 2 material can be found on the Air Pollution Control Division's Asbestos Program website: www.colorado.gov/cdphe/asbestos .

If you need additional information, please contact the Asbestos Unit at 303-692-3100 or cdphe.asbestos@state.co.us .

Hazardous Materials

In all likelihood, hazardous materials will be encountered during the cleanup phase of the flood recovery effort: containers and other vessels that may hold materials that can either pose an immediate risk to cleanup crews if disturbed or might be classified as a hazardous waste for disposal purposes, a waste that most landfills are not licensed to accept. Several examples include propane cylinders, chemical tote tanks, 55-gallon drums, tanks, cans, buckets and automobiles. These items will need to be safely removed, segregated, sampled and disposed of properly. The recovery of fluids and other hazardous materials from vehicles was discussed in Section C of this guidance document. Further discussion on two primary categories of containers is discussed below.

A) Pressurized Containers: Propane Tanks, Propane Cylinders, Gas Cylinders and Other large Pressurized Containers

Most propane and other compressed-gas related emergencies probably will involve small cylinders and non-bulk containers. The majority of these incidents can be handled safely and effectively by the local fire department with some technical assistance from the local propane and other gas marketers. Larger scale emergencies such as cargo tank truck rollovers, train derailments, or fires involving large stationary tanks or bulk plants containing flammable materials may require resources from a number of different agencies to resolve the problem, requiring coordination of information and resources among various players to safely and efficiently resolve the situation.

Trained first responders will decide whether an incident requires aggressive leak and fire control measures designed to quickly control or mitigate the problem or other means of isolating the area to protect themselves and the public. Only after the incident site is stabilized and the area has been re-evaluated for hazards and risks should removal and recovery operations commence.

Product transfer and removal procedures will vary based upon the type of container involved, container design and construction, container stress and actual or potential breach, and the position and location of the container. Small containers deemed to be in good condition or other larger vessels in good condition due to their inherent structural strength might be reusable or safe for delivery to the marketer for reuse or recycling of the contents. If the situation warrants it, the product contained within the pressurized vessel should be transferred and removed by propane industry responders, product specialists or container specialists who are hired as contractors by the owner/operator while public safety responders oversee the operations and maintain overall site safety.

As a last resort, if the condition of the pressurized vessel prevents its disturbance or removal, it may become necessary to vent the gas directly into the atmosphere. This approach may be suitable for propane, which dissipates quickly in open air, its dispersal accelerated with the use of firehoses with nozzles on fog pattern. This technique may not be suitable under certain weather conditions or for other products that pose a different hazard, such as highly toxic gasses or those that might be explosive. These vessels will require special handling techniques recommended by first responders in consultation with marketers and other people familiar with the hazard.

For more information regarding response actions when vessels containing propane are encountered, please consult the publication "Propane Emergencies, Third Edition," by Michael S. Hildebrand and Gregory G. Noll, 2007, a link to which can be found at http://www.propanesafety.com/uploadedFiles/Safety/Workforce_Training_programs/Propane_Emergencies_(PE)_Program/REVISED_PE3_Text.pdf

B) No-Pressurized Containers: 55-Gallon Drums, Tote Tanks, Fuel Tanks, Cans, Buckets and Other Storage Vessels

The first concern when approaching these vessels is to ensure protection of the first responders and the public. Extreme care should be taken when handling these containers because although normally not pressurized, damage to the containers during their movement or their placement outdoors where they are exposed to warmer temperatures could result in pressure buildup such that the contents could escape suddenly if caps, covers or valves are loosened.

Once determined safe for movement, the vessels should be removed from the debris, segregated and eventually sampled for characterization purposes (assuming labels are missing) and eventual reuse or disposal as either a solid or hazardous waste. The condition of the vessel may dictate that they be overpacked or transferred to a new container. If determined to be a listed or characteristic hazardous waste, as defined in 6 CCR 1007-3 Part 261 of the Colorado Hazardous Waste Regulations (http://www.colorado.gov/cs/Satellite?c=Page&childpagename=CDPHE-Main%2FCBONLayout&cid=1251607573131&pagename=CBONWrapper), the contents of the vessel will need to be disposed of at a permitted disposal facility. In cases where a vessel appears to be damaged to the extent that its disturbance may result in the release of its contents, efforts should be made to empty the vessel in place, putting the contents into a new container for sampling, characterization and disposal. During any disturbance of these containers, equipment should be on hand to control any sudden release if the container were to leak or rupture as a result of physical damage to the container. Any debris that is visibly contaminated from a release should also be segregated until a determination can be made as to its classification and appropriate disposal.

Following removal of these containers of hazardous materials, the ground should be inspected for evidence of a release, as demonstrated by visible staining or odors. Any contaminated environmental media can also be collected, containerized and disposed of along with the original contents of the vessel. If a release occurred, this information should immediately be reported to the Department's 24-hour **Emergency Reporting Line** at 1-877-518-5608. The resulting report will be routed to the appropriate agency for follow-up response actions, including conducting further investigations and cleanup.

As discussed in Section E (Household Chemicals) above, intact containers of paint and other chemicals up to 5-gallons in size known or presumed to be derived from homes can be managed as

Household Hazardous Waste (HHW). These potentially hazardous materials HHW can be taken to a county or municipal HHW facility for recycling, reuse or disposal. The waiver does not include similar items derived from businesses, these containers needing to be segregated, characterized and disposed of in accordance with its waste classification (i.e., solid or hazardous waste).

If you need additional information, please contact, for solid waste information, Charles Johnson at 303-692-3348 or charlesg.johnson@state.co.us, or Roger Doak at 303-692-3437 or roger.doak@state.co.us; the Asbestos Unit at 303-692-3100 or cdphe.asbestos@state.co.us., or for hazardous waste information please call Doug Knappe at 303-692-3414 or doug.knappe@state.co.us

Facilities covered by Water Quality Control Division CDPS stormwater discharge permits and municipalities with MS4 permits must ensure practices are in accordance with the facility Stormwater Management Plan or MS4 CDPS Stormwater Management Program, respectively. For more information on Water Quality Control Division requirements, please contact Nathan Moore at 303-692-3555 or Nathan.Moore@state.co.us

The following websites provide additional references and information:
Colorado Counties Inc.- http://www.ccionline.org/ (site provides county contact information)
Solid Waste Program - http://www.colorado.gov/cs/Satellite/CDPHE-HM/CBON/1251616361201
Active Solid Waste Facilities List, Compliance Assurance Staff Assignments Map, Permitting Staff Assignments Map

Landfill Disposal Location Map (shows nearest landfill location/information to current floods)-
https://maps.google.com/maps/ms?msid=216854535921100171945.0004c36169c9023be7678&msa=0
Electronics Recycling & Collection Location Map -
https://maps.google.com/maps/ms?msid=216854535921100171945.0004c7633c4c89e731414&msa=0