



## **GUIDELINE 1 - EMERGENCY WASTE MANAGEMENT AND DISPOSAL**

North Dakota Department of Health - Division of Waste Management

918 E. Divide Ave., 3rd Fl., Bismarck, ND 58501-1947

Telephone: 701.328.5166 • Fax: 701.328.5200 • Website: [www.ndhealth.gov/wm](http://www.ndhealth.gov/wm)

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### **I. Introduction**

The collection, management and disposal of large amounts of waste resulting from emergencies such as natural disasters and large-scale accidents, may overwhelm local waste management programs. Local officials, emergency management professionals and solid waste managers are advised to evaluate and plan for emergency waste cleanup procedures. Planning for emergency waste cleanup will help protect public health and safety, control cost and stress of the situation, and minimize impact on local communities and the environment. This guideline and attachments address emergency waste management and provide information for efficient and cost-effective waste collection, recycling and disposal.

Local officials are familiar with neighborhoods, businesses and industries in their community which may generate large amounts of waste during emergency situations. These officials should apply knowledge of their community to effectively use equipment, contractors and solid waste disposal facilities during the emergency. Local officials and emergency personnel should have plans to reach the public with waste management information through newspapers, electronic media announcements or through pamphlets.

Additional information is available upon request, or online at [www.ndhealth.gov/wm](http://www.ndhealth.gov/wm).

### **II. Priorities in Waste Identification, Segregation and Management**

Wastes generated in an emergency may pose health and environmental risks, depending on their nature and if the emergency has created a waste exposure pathway (such as damage to containers, spills, etc.). Advance removal of waste or materials from potential natural disaster areas is an effective preventive measure. For example, the public should be encouraged to remove paints, household chemicals, pesticides, oil, lead-acid batteries and appliances from a basement or a structure if a flood is forecast. Once a disaster has struck, prioritizing the early cleanup of waste materials which pose the most risk will protect the public and help avoid contamination of high-volume, low-toxicity inert (demolition) waste materials. Following is a prioritized description of potential emergency waste, from highest to lowest priority.

#### **A. Hazardous Materials and Hazardous Waste**

Hazardous materials and hazardous waste pose environmental and health risks if their containers are disrupted and the material is exposed. Waste materials of concern include solvents, paints, pesticides (insecticides, herbicides, fungicides, etc.), fertilizers, oil, lead-acid batteries, acids and bases (such as drain cleaners), and even explosive materials (such as ammunition). If these types of materials have not been removed from property prior to the emergency, an evaluation should be made to look for any leaking or damaged containers. If the property owner or the emergency coordinators know that materials within the property pose the danger of exposure, they should ensure that the area is cordoned off until

emergency personnel can remediate the site. Emergency coordinators can use their discretion for what types of leaks or spills require cleanup assistance. For example, in most cases, property owners should be able to cleanup paint spills or leaks on their property.

Leaking containers of hazardous materials or chemicals can be placed in more secure labeled containers; however, mixing chemicals or products should be avoided. Leaking containers of oil-based paints can be consolidated into labeled five-gallon containers or larger drums for later reuse. Spilled materials can be absorbed with cat litter and then placed in a plastic bag or durable container. Damaged or saturated bags of yard chemicals, pesticides, fertilizers, etc., should be placed in plastic bags or other containers, labeled and placed in a secure location. Avoid mixing incompatible materials such as acids and bases or chlorine and ammonia-based compounds, as injurious reactions may result. Labels placed on the new containers should contain the following information: (a) container contents, (b) container owner, and (c) condition of the contents.

If at all possible, usable materials should be segregated and conserved for eventual reuse. Exposing usable contents of containers during demolition of a structure may result in managing the material as a hazardous waste. Usable materials that are properly labeled, placed in a secure location and segregated by waste type can be evaluated later for proper reuse. If materials are stored outside, they should be placed in segregated locations, surrounded with a small earthen dike or berm to control surface water runoff and run-on and covered to keep out moisture.

#### B. Municipal Solid Waste/Putrescible Waste

Municipal solid waste or putrescible waste includes food waste, household garbage, small pet carcasses and other waste which may undergo microbiological decomposition. Physical damage to food stocks and disruption of power to refrigeration equipment could result in large amounts of putrescible waste which should be promptly removed for burial at a Municipal Solid Waste (MSW) landfill. The community could probably contract with its municipal waste hauler to remove the putrescible waste. If the hauler does not have adequate equipment or is otherwise unable to handle the waste. Reference is suggested to list of waste haulers to find a company with adequate resources to handle the putrescible waste.

Collection efficiency of putrescible waste is maximized by keeping putrescible waste separate from other waste. The public should be advised to avoid mixing hazardous waste and hazardous materials with putrescible waste. Similarly, if faced with a large amount of putrescible waste for cleanup, the public could be directed not to mix demolition materials, clothing, furniture and other bulky materials with the putrescible waste, as these materials could be later disposed with inert waste. Putrescible waste should be contained in plastic bags and/or secure garbage cans for ease of handling. Containment prevents release of putrescible waste to the environment and exposure to vectors (insects, rodents, etc.).

Putrescible waste should be hauled to an approved MSW landfill. In cases of emergencies, putrescible waste may be hauled, with Departmental coordination, to a secured emergency waste disposal site **if the waste does not contain hazardous materials**. Putrescible waste should be promptly covered with soil at the site. An existing inert waste landfill may function as an emergency putrescible waste site. It is usually easier to expand existing inert waste landfill sites for emergency purposes than to develop a new disposal site. If a site does

not exist, however, an emergency site may be developed with Departmental coordination. Emergency coordinators should refer to Part **IV.B.** of this document for guidance on selecting an emergency disposal site. The Department's emergency response coordinator will forward technical assistance requests for site selection to the Division of Waste Management. An emergency putrescible waste site should be operated and closed in accordance with procedures described in **Part IV. C, D, and E.**

If streets or roads are blocked in the emergency area or if adequate collection equipment is not available, community drop-off points may be developed for handling putrescible waste. Roll-off containers placed in strategic locations can accept putrescible waste if they are covered and promptly serviced to avoid nuisances of flies and odors. Emergency coordinators should contact municipal waste landfills in the emergency area for names of waste hauling companies that may provide roll-off containers.

#### C. Livestock and Large Animals

Dead or diseased livestock and large animals should be managed with direction from the North Dakota Board of Animal Health. If possible, accumulations of livestock can be rendered by a rendering company or they can be stockpiled at an emergency disposal area to be burned or buried (refer to Grease Renderers List).

#### D. Agricultural Commodities

Damaged and potentially-rotting grain, potatoes and other agricultural commodities or food stuffs should be managed to minimize extreme odors, airborne spores, gasses and harborage of vectors. Vector harborage may lead to secondary health concerns such as spread of the Hantavirus. Damaged grain, if handled promptly, can often be salvaged by various salvage companies. If beyond salvage, however, the grain can be disposed at a MSW landfill or if necessary, at an approved emergency waste disposal site. Molding grain can generate nitrogen dioxide which can have adverse health effects in closed environments. Molding grain can also release spores which may result in an allergic reaction (coughing, mucous secretions, fever, chills, heavy breathing, etc.) to persons in the area.

Agricultural commodity waste should be handled in a manner that prevents its introduction into the environment. Avoid spillage when loading trucks and contain the load to prevent wind dispersal. If the material is to be buried at a landfill or emergency waste disposal site, it should be placed in a trench and covered with soil as soon as possible.

#### E. Inert Waste

Emergencies may result in widespread damage to a community's physical structure, including buildings, utilities and trees. The waste or debris, resulting from damaged structures or utilities is usually considered inert waste. **By definition, inert waste** does not form contaminated leachate which can pollute surface or groundwater or serve as food for vectors. **Inert waste examples include metal, wood (from structures, utilities or trees), bricks, asphalt or cement concrete, plaster, drywall, siding, asphalt or wood shingles, insulation, ceramics, plastic and glass.** A natural disaster, however, may also result in generation of large quantities of household inert waste, including carpet, draperies, upholstered and wooden furniture, mattresses, clothing, bedding, paper, plastic and

cardboard. Demolition waste refers to waste generated from building or structure demolition. Demolition waste includes materials used in building or structure construction described as inert waste.

Inert waste is usually the most visible waste resulting from an emergency. It is also usually the largest volume of waste that public officials and private property owners will have to manage. Buildings, structures or trees damaged in a severe storm or accident may present a personal safety concern. Inert waste from buildings, structures or trees, however, is the lowest priority waste in an emergency in terms of public health or environmental concerns. Nevertheless, inert waste must be quickly removed from an impacted area to make streets and roads negotiable and to restore utility service. Emergency coordinators, therefore, should instruct community residents in techniques that will allow them to quickly cleanup their property, yet also simplify inert waste management.

### III. Inert Waste Management

Although inert waste can be landfilled, communities can control emergency waste disposal costs by recycling, reusing or possibly burning some of the inert waste. Emergency coordinators should therefore manage inert waste with one goal in mind: *volume reduction*. Reducing inert waste volume by recycling, reusing, shredding, compacting or burning will likely reduce inert waste disposal cost for the affected community.

#### A. Segregation

The first and most important step in an inert waste cleanup involves waste segregation. Owners of damaged property should segregate their inert waste into three piles placed near the street for collection: wood, metal (including major appliances) and nonburnables. Nonburnables include: plastic, vinyl and rubber waste, asphalt shingles, carpet, draperies, upholstered furniture, mattresses, clothing and bedding, paper and cardboard and other nonburnable construction materials (see **Part IV. Inert Waste Disposal**).

#### B. Collection and Storage

As time permits, inert waste can be collected and transported to storage or disposal facilities. Although inert waste piles are unsightly, the inert waste usually poses little threat to public health or the environment. Provided the inert waste is not impeding traffic flow or hindering utility restoration, inert waste collection is usually a lower priority during the emergency.

Woodpiles should be transported to the community landfill or other location suitable for shredding or burning wood. No approval from the Division is required for a wood storage location. The wood storage location, however, should be carefully selected so that shredding or burning the wood will not create a nuisance for residential areas.

Metal piles should be transported to the community landfill or other location suitable for stockpiling and recycling metal. No approval from the Division is required for a metal storage location. The metal storage location, however, should be carefully selected so that noise from crushing and baling the metal will not create a nuisance for residential areas. Major appliances (refrigerators, freezers, washers, dryers, etc.) should be stockpiled

separately from other scrap metal. In addition, refrigerant-containing appliances should be stockpiled separately from other appliances so Freon may be captured.

Nonburnable inert waste should be transported to the community landfill or other approved emergency disposal site. Refer to Part **IV.** for inert waste disposal information.

#### C. Recycling and Reuse

Scrap metal, including major appliances and automobiles, are routinely recycled in North Dakota by scrap metal recyclers. Metal and appliances generated as a result of the emergency should therefore be recycled. A list of scrap iron processors who may recycle the metal is available from this Division.

Buildings or structures sustaining severe damage in a storm or accident may be condemned for demolition. A portion of the materials in these structures or buildings, however, may be recoverable and recyclable. For example, road construction contractors may be interested in crushing a large concrete or brick structure into road base material. Metal recyclers may be interested in recovering steel structural members or special metals such as copper from structures. Dimension lumber may be reused as construction material. Hardwood flooring or woodwork in some structures may be of use to commercial or hobby woodworkers.

Wood chipping is another effective waste volume reduction technique. Wood waste from trees and branches may be processed into wood chips usable for mulching material in community tree replanting programs. Emergency coordinators should contact local tree service firms, rental companies or implement dealers for information on tree chipping services or chipping equipment rental. Chipping wood during cleanup greatly reduces the volume of materials and thus, the hauling requirements.

#### D. Open Burning

Open burning, as opposed to recycling, reuse or burial, may be a management option for trees or nonsalvageable wood resulting from the emergency. Open burning trees and wood is an option under the following conditions:

1. The wood must be clean burning, for example, it must be free of materials that will produce unreasonable smoke (asphalt shingles, rubber, etc.) or will smolder for extended periods; and
2. A *burn variance* form must be received from the Division of Air Quality (refer to SFN-8509). All portions of the application must be completed, including the local fire department coordination approval and district health unit coordination approval if the county belongs to a district health unit (refer to District Health Unit List). Upon receipt of a burn variance, open burning may proceed after notifying the local fire department. Please contact the Division of Air Quality at 701.328.5188 with questions about open burning.

### **IV. Inert Waste Disposal**

Regardless of waste volume reduction efforts, some inert waste generated during the emergency will require landfill disposal. Some inert waste can be managed in no other manner, especially if waste normally considered recyclable (paper and cardboard) has been damaged by water. Inert waste requiring landfill disposal usually involves waste from buildings or households that is not recyclable, reusable or burnable, including: plastic, vinyl and rubber waste, asphalt shingles, carpet, draperies, upholstered furniture, mattresses, clothing and bedding, paper and cardboard and other nonburnable construction materials.

Existing inert waste disposal sites in the emergency area are acceptable for inert waste disposal (refer to lists of Inert Waste Landfills including Permit-By-Rule Landfills). These sites, however, may require expansion of the disposal area to accommodate large amounts of waste. Access roads and entrance gates of existing sites may require widening or improvement to accommodate increased vehicular traffic.

It is generally easier to expand existing inert waste disposal sites than to develop a new disposal site. Some communities impacted by an emergency, however, may not have an existing inert waste landfill. In response to an emergency, a community may need to develop an inert waste disposal area. See Part **IV.B.** of this guideline for information on selecting an inert waste disposal site.

#### A. Prohibited Waste Disposal

Inert waste to be disposed should be carefully inspected to ensure it contains no wastes which may form contaminated leachate, pollute surface water or groundwater, or attract vectors. Buildings or structures condemned and scheduled for demolition should be inspected if the structure is safe for entry. Prohibited waste identified during the inspection should be removed from the structure prior to demolition.

The following wastes are prohibited from disposal at inert waste disposal sites:

1. Household garbage, food, animal carcasses and other putrescible wastes, unless the site has been designated an emergency putrescible waste disposal site;
2. Liquids, solvents, paint;
3. Maintenance and cleaning chemicals or products;
4. Pesticides, fertilizers and other yard, garden or agricultural chemicals;
5. Oil and oil containers, lead-acid batteries and all appliances;
6. Fluorescent light fixtures and bulbs, mercury-containing electrical switches and thermostats and electrical transformers;
7. Regulated asbestos-containing materials in buildings; and
8. Other waste which may form contaminated leachate, pollute surface water or groundwater, pollute the air or attract vectors, unless specific approval has been granted.

- a. **Liquids, used oil, lead-acid batteries and major appliances** (white goods) are prohibited from landfill disposal. Established recycling markets exist for used oil, lead-acid batteries and major appliances. See Division management outlines, pamphlets and guidelines on used oil and major appliances documents/lists.
- b. **Solvents, paints, chemicals or pesticides** should be removed from structures scheduled for demolition (if safe for entry) or segregated from inert waste. If not usable, very small quantities (household quantities) of these wastes may be disposed with municipal waste. Large quantities of these wastes may require handling by a hazardous waste management firm. See the Division's management outlines on disposal of pesticides and their containers and paint wastes.
- c. **Mercury-containing fluorescent light bulbs, thermostats and electrical switches and fluorescent light bulb fixtures and electrical transformers which may contain Polychlorinated Biphenyls (PCBs)** should be removed from structures scheduled for demolition (if safe for entry). Depending on the quantities of these items and the concentration of mercury or PCBs, disposal may be allowed in permitted municipal waste landfills. See Division's management outlines on universal waste or PCB-containing waste.
- d. **Regulated asbestos-containing material** should be properly removed from structures scheduled for demolition (if safe for entry). Asbestos is a known carcinogen and proper handling is critical to protect public health and safety. Depending on what type of structure is being demolished, an inspection for regulated asbestos-containing material may be required. The Division of Air Quality regulates asbestos inspection, removal and transportation to a disposal facility. An "Asbestos Notification of Demolition and Renovation" SFN-17987 is often required for structure demolition projects and must be submitted to the Division of Air Quality at least ten (10) days before beginning demolition. Regulated asbestos-containing material must be disposed at permitted landfills approved for asbestos disposal (see the Division of Air Quality's SFN-17987 Asbestos Notification of Demolition/Renovation form and summary for asbestos handling). Depending on the extent of the emergency, however, the Department may waive established asbestos handling requirements. For example, wetting suspected asbestos material prior to structure demolition may be sufficient if the structure is unsafe for entry and poses a safety concern in its present condition. In addition, the ten-day advance notification period may be waived if notification is made by telephone and a ten-day delay would pose an undue hardship.

#### B. Disposal Site Selection

The inert waste disposal site must be carefully selected. Avoid environmentally sensitive or unstable areas that will not provide safe, long-term waste disposal. For example, wetlands, gravel pits, floodplains and shallow water table areas are environmentally sensitive because of surface and groundwater pollution concerns. Ravines, woody draws and steeply sloping terrains are unstable areas subject to accelerated erosion which may expose the waste.

To assure safe, long-term inert waste disposal, the site should be nearly level to moderately sloping, well drained and meet the following criteria:

1. Maximum site slope of nine (9) percent;
2. Minimum distance of two hundred (200) feet to nearest surface water;
3. Minimum depth of three (3) feet to seasonal high water table (waste disposal in the water table is prohibited); and
4. Underlain by loamy, silty or clayey soils (sandy or gravelly soils are unacceptable).

Soil survey maps, available through local Natural Resources Conservation Service (NRCS) offices (formerly the Soil Conservation Service), provide the necessary information for disposal site selection. Soil survey maps depict soil types on an aerial photobase. The maps are very useful because they show not only soil types, but also drainage and cultural features, such as streams, wetlands, roads, field boundaries and building sites. Soil types depicted on published soil survey maps are described in the survey report. The survey report includes soil descriptions and tables which describe soil slope, texture, depth to seasonal high water table and other soil properties.

Most North Dakota counties have a published soil survey. Contact the local NRCS office to ask if published soil survey information is available and to receive assistance for soil map interpretation. Some North Dakota counties, however, do not have published soil survey information. In these counties, the survey may be completed but not published, or the survey is in progress. To obtain soil survey information in these counties, you must request a preliminary soil survey of a specific area from the county NRCS office. Preliminary soil survey maps usually produce poor quality photocopies. Request the NRCS staff to produce the best possible photocopy of the specific area. In very few cases, soil survey information may not be available for a specific area. If soil survey information is not available, the Department may have other information sources to assess site suitability or an onsite Departmental inspection may be necessary.

The site proposed for inert waste disposal must be accurately depicted on a legible map. Legible photocopies of published soil survey maps are acceptable for this purpose; however, photocopies of unpublished soil survey maps are unacceptable because of poor reproduction. Where published soil survey information is unavailable, an aerial photograph photocopy from the Consolidated Farm Services Agency (CFSA) can be used to depict the proposed disposal area. These photocopies cover one section of land and are available for a nominal fee for all areas of the state. Contact the county CFSA to request a photocopy for a particular section of interest.

#### C. Disposal Site Operation

1. Disposal Site Control and Access

Disposal operations must be tightly controlled and completed as soon as possible to avoid potential problems. Access control through fencing, barriers, gates or supervision as necessary will help avoid open dumping, prohibited waste disposal, scavenging, vandalism and possible injury. Site access should be available through an improved two-lane access road. A narrow entrance gate and narrow or muddy access road will hinder disposal site access and slow the waste cleanup process. Discrete areas may be



designated for stockpiling recyclables (metal, appliances, etc.), burnable wood materials and compostable materials (grass and leaves).

## 2. Stormwater Control

Stormwater control measures should be implemented at the inert waste disposal site. Stormwater is simply precipitation or snowmelt. The concern with stormwater is not the water itself. Rather, the concern is the soil or other pollutants which may be carried in stormwater off the disposal site and deposited in drainage ways, stormwater sewers or surface water.

Effective stormwater control involves methods or materials to prevent pollutants, mainly soil, from leaving the disposal site. Methods and materials for stormwater control include:

- a. Careful site selection and development, and diversion of upslope surface water run-on;
- b. Minimizing the area disturbed for waste disposal, especially if the disposal area has existing vegetative cover;
- c. Maintaining a "buffer" of undisturbed vegetative cover around the disposal area to trap soil before it leaves the site; and
- d. Placing straw bales, silt fences or similar material where concentrated surface water runs off the disposal site. Straw bales or silt fences must be anchored in the ground to be effective in trapping soil before it leaves the site.

If the inert waste disposal area exceeds five (5) acres, a permit for stormwater discharge may be required by the Division of Water Quality. Please contact the Division of Water Quality's Wastewater Facility/Permits Program at 701.328.5210 with questions about stormwater discharge permits.

## 3. Stripping Topsoil

Topsoil is the dark colored surface layer of soil that is rich in organic matter and nutrients. Topsoil is critically important to establishing vegetation for reclamation of disturbed areas. It is important, therefore, to strip topsoil from the inert waste disposal area before excavating the disposal trench. Depending on the disposal site's geographic location and landscape position, topsoil may be as little as three inches or more than 15 inches thick. Topsoil must be stripped from the excavation area and saved at the site for reclaiming the disposal area.

## 4. Trench Excavation and Debris Compaction

The disposal trench may be excavated after stripping and stockpiling disposal site topsoil. Depending on the site selected, disposal trench depth may be limited by soil conditions or by the seasonal high water table depth. Remember, inert waste disposal in the water table is prohibited. Depth of the seasonal high water table in glaciated

portions of North Dakota is usually indicated by a change in subsoil color from brown or tan to gray with increasing depth.

Inert waste disposal should be restricted to as small an area as possible and waste should be compacted with heavy equipment as it is placed in the disposal trench. Waste compaction serves two purposes: (1) it reduces the size of excavation required for waste disposal by maximizing use of disposal trenches; and (2) it reduces potential problems of soil settling (subsidence) after the disposal area is reclaimed. Other forms of waste volume reduction, besides compaction, may serve to reduce required size of the disposal excavation. For example, wood or trees can be shredded to reduce disposal volume.

#### D. Disposal Site Closure

Disposal trenches should not be filled to excavation capacity. Instead, maintain at least two (2) feet between the inert waste and original ground elevation (before stripping topsoil). The entire site should be cleaned and all waste, including burned debris ash, must be consolidated in the trench. Stockpiles of recyclable materials should be removed. The disposal area must receive at least two and one-half (2½) feet of soil cover, including reapplied topsoil. The soil cover should be carefully graded to form a slightly convex or domed surface that will promote surface water runoff. If the disposal area will be used for pastureland, hayland or wildlife habitat, the disturbed area should be seeded to climatically adapted grasses or legumes. Erosion control measures, such as incorporating straw or planting a cover crop, may be necessary if permanent cover planting is delayed. Maintain stormwater control measures for at least one (1) year after the site is closed.

#### E. Notification of Waste Disposal Activity

The Department requires that a “Notice of Waste Disposal” activity be filed with the County Register of Deeds office for permitted landfills or emergency disposal sites. The notice informs anyone conducting a title search of the disposal site property that a specific area of land was used for waste disposal. Maintaining an orderly operation and careful site closure will help minimize future landowner concerns on the site and may help ensure future saleability of the property.

A Notice of Waste Disposal form/affidavit which may be used for filing. Describe the disposal location and type of waste. The affidavit must be signed by the property owner and notarized. Use the partial section notation, for example: NE ¼ of the NW ¼ of Section 14, to describe the disposal area as accurately as possible. In the example given, the disposal area is described as ten (10) acres. The partial section notation can describe very small disposal areas, provided they are in corners of quarter sections where landmarks (fence lines, tree rows) can be used to identify the area on a map.

To print out form see our Division’s website at: [www.ndhealth.gov/wm](http://www.ndhealth.gov/wm)

The original Notice of Waste Disposal form should be filed with the County Register of Deeds office. A nominal fee is usually required for filing. When filing the notice, the property owner should ask the Register to forward a certified copy of the notice to the Department.