



GUIDELINE 15 – RECYCLING METAL APPLIANCES AND OTHER SCRAP METAL

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I. Introduction

North Dakota citizens and communities are increasingly interested in waste reduction and recycling solid wastes due to the concern for preserving and protecting environmental resources and to help limit the growing problems and cost of solid waste disposal. Recycling scrap iron and metal conserves resources while conserving valuable landfill space.

North Dakota Century Code (NDCC) Chapter 23.1-08 places a ban on the disposal of major appliances and lead-acid batteries and used oil in North Dakota landfills. This ban, which became effective January 1, 1992, is intended to encourage recycling of these materials. It does not prohibit careful stockpiling, accumulations, or storage for later recycling of these materials at a municipal or inert waste landfill, yard waste compost site, or other appropriate sites.

To assist in the recycling of metal appliances and metal scrap, the local community, private landfill operator, or recycler can provide controlled locations to stockpile and store such materials for eventual crushing. Individual citizens and businesses within the community can participate in a recycling program for metals.

Metal appliances include clothes washers and dryers, refrigerators, stoves, water heaters, large printers or copiers (toner cartridges must be removed prior to acceptance or stockpiling), and other metal appliances. Other scrap metal materials might include automotive scrap, scrap iron, steel, and various nonferrous materials (aluminum, copper, tin, brass, etc.). Many communities and private landfill operators around the state have been cleaning up landfill sites by stockpiling these materials into easily accessible piles for later reclamation. A local scrap iron recycling company or a mobile scrap iron processor may reclaim these materials, which involves crushing, baling, and transporting them to a market.

The savings in raw materials and landfill space realized by not burying these bulky materials is considerable. The market prices for these materials vary; there may occasionally be a need to subsidize recycling by adjusting the tipping fee. The North Dakota Department of Environmental Quality's (Department) recommended practices for management of metal appliances and metal scrap follow.

II. Venting of Refrigerants Prohibited

The United States Environmental Protection Agency (USEPA) has regulations addressing the venting of chlorofluorocarbons (CFCs), Freon, or other refrigerants from scrap refrigerators, freezers, and air conditioning units. No person may vent CFCs into the atmosphere. Persons who work on these appliances must be certified and use equipment which captures or recycles the refrigerant. Before recycling or disposal of appliances that contain a refrigerant, a certified person must remove the refrigerant using the capture or recycling equipment.

NDCC Subsection 23.1-08-07(1) provides that major appliances cannot be placed in municipal waste or discarded or disposed in a landfill after January 1, 1992. The reasons for excluding major appliances from North Dakota landfills are to encourage recycling of metals found in these items.

The Department recommends recycling of appliances through one or more of the following measures:

1. Removal of CFCs before the appliance is brought to the recycling facility or landfill for eventual recycling. Appliances can be marked or labeled to indicate if CFCs have or have not been removed;
2. Stockpile appliances that have not had CFCs removed in a separate area. Some scrap iron recycling companies will remove CFCs for a fee before crushing, baling, and transporting materials to a market;
3. Subsidize the removal and recycling of CFCs from appliances by adjusting the tipping fee at the landfill; and
4. Recyclers or large processors could consider the purchase of approved refrigerant recycling equipment for removal and recycling of CFCs at the landfill (federal certification is required to use this equipment).

III. PCB Capacitors in Appliances

Use of PCBs continues under federal regulations that regulate the management of PCBs. These rules determined that small capacitors@ such as those on electronic appliances, lamp ballasts and electric motors are not regulated unless they leak.

Shredding appliances without removing small PCB capacitors makes compliance with disposal rules impossible. Smelters and salvage businesses continue to face concerns of leaking PCB capacitors. The nature of the business requires the identification of appliances with PCB capacitors and their removal prior to crushing, baling, and transporting materials to a market.

The SUPERFUND rules do regulate and prohibit disposal (in any 24-hour period) of one pound or more of PCBs in several nonleaking "small PCB capacitors" in municipal landfills. However, the Department encourages managing unregulated PCB wastes and small capacitors of unknown contents in a manner that precludes landfill disposal. Storage in a closed container and disposal at an approved PCB disposal site is encouraged.

Permitted municipal and industrial waste landfills may refuse any waste, including unregulated quantities of PCBs. Acceptance of unregulated capacitors and nonleaking PCB ballasts numbering ten or less (under one pound of PCB) is allowed at a permitted municipal or industrial waste landfill contingent upon landfill approval.

IV. Electronics

Unprocessed electronics normally may not be included in the metal stockpile as these typically contain elevated levels of lead and/or other hazardous metals. Computers, monitors, televisions, small printers, stereos, large circuit boards, etc. must not be mixed with scrap metal as the contaminants can be released during handling, crushing, transport or metal processing. Electronics

may be stockpiled separately for electronics recycling so long as arrangements are made to properly manage them with an electronics recycler. The costs are often significant and should be assessed up-front. Separated metal, such as computer cases, etc., may be recycled if electronic components have been removed.

Electronic waste is not an inert waste and currently is not allowed in MSW landfills other than in normal household amounts. Electronics from businesses, industries, repair shops, transfer stations or MSW incinerators that separate electronics are not considered household amounts. They may be considered hazardous waste, dependent on the amount, the concentration of metals and/or the generator's status.

V. Site Selection and Preparation

A community scrap metal storage/stockpiling site should be fenced with a lockable gate to prevent unauthorized dumping or scavenging. Access control with a proper fence and lockable gate is essential.

The area should be nearly level to gently rolling, well drained and dry (ravines, potholes and sloughs are not well suited). Placing metal wastes in a ravine, a pit, a wetland, or over steep areas is not advised because retrieving the material will be more difficult and expensive, if not impossible. The site can be prepared by removing topsoil and subsoil for later site reclamation. Drainage should be considered so that surface water does not flow into the storage/stockpile area.

The storage/stockpile site must be acceptable to local zoning authorities and the area must be maintained so as not to become a public nuisance or a dump. The site should have appropriate signs at the entrance and within the site, including a sign indicating the area is to be used for stockpiling clean metal materials.

Roads leading to the site should be established so that they are adequate for all weather conditions.

1. Materials Appropriate for Metal Recycling Stockpiles

Stockpiling at the facility should be screened to limit the stockpile to metal materials only. Any scrap fencing or other wire materials should be stockpiled separately from the appliance pile to avoid entanglement during processing. Any nonferrous materials should also be stockpiled separately by metal type.

The site owner or operator should monitor the recyclable metal materials to control and avoid oil, grease, pesticides, or other problematic liquids or chemicals. Any transformers brought to the site should be examined to ensure that they are well drained and are not contaminated with PCBs. Similarly, any drums, rinsed pesticide cans, etc. should be monitored. Some recyclers may not accept chemical containers. Electronics, mercury containing thermostats or switches, fluorescent light bulbs and similar materials containing heavy metals normally may not be included in the metal stockpile. Many scrap processors or mills may place restrictions on acceptance of mercury switches in appliances, etc.

If there are significant or persistent problems of inappropriate wastes arriving at the site, the site owner or operator should contact local law enforcement officials or the Department for further guidance. It can be beneficial to provide a separate roll off container for unrecyclable wastes

brought to the site so these wastes can be routinely transported to a permitted solid waste management facility.

2. Site Operation, Maintenance and Closure

To help avoid problems and to prevent the need for expensive site cleanup, the storage/stockpile area must be well planned and operated. Appropriate equipment for routine consolidation and piling of metal wastes is necessary.

These facilities should only be open during specific days and times of the week. When the facility is open, a trained site supervisor or operator can supervise and screen metal stockpiling activities to ensure that any spilled debris or windblown debris is promptly cleaned up. Periodic maintenance measures should be undertaken to remove unacceptable waste materials such as plastic, rubber, glass, electronics and other nonmetallic materials or difficult wastes for appropriate disposal.

After metal materials are removed for recycling, some debris may be left behind which can be disposed in an appropriate permitted landfill. If a site is to be closed, all materials should be removed, the area cleaned, the topsoil and subsoil replaced and the site planted to grass. Continued site control may be necessary to avoid unauthorized disposal.

3. Public Education

Public education and cooperation are essential. A notice in the local newspaper should be published at regular intervals stating the times the facility is open, the types of metal wastes accepted and other appropriate criteria for the site. A similar notice can be posted in public places.

Loads transported to the site should be contained and covered so as to prevent spillage. The community, township, or county in which the metal storage/stockpile site is located may choose to enact appropriate ordinances and fines for nonconforming disposal, unauthorized disposal, or littering at the site. Such information should be posted on a sign at the entrance to the facility.

4. Department Notification

Owners of metal stockpile sites are requested to provide the Department a basic description of the facility site and its operation. The Department has information available on recyclers for metal materials. If a local recycler is not available, owners are asked to inform the Department on a regular basis of the amount and condition of stockpiled recyclable metals so that a statewide inventory can be maintained for interested recyclers.

These guidelines are for informational purposes only and are not intended to be an endorsement of a specific recycler or recycling process. Adherence to these recommendations does not authorize any injury to persons or property, any invasion of other prior rights, or any infringement of federal, state, or local laws or regulations. Responsibility for all recyclable materials and waste materials shall remain with the owner/operator of the site and with the generator of the waste.

VI. Management of Appliances Made Chiefly of Plastic

Some smaller appliances are now constructed of only small amounts of metal. Examples include humidifiers which contain no metal except for the fan motor, water heaters constructed of fiberglass and microwave ovens constructed principally of plastic and glass components. Some appliances, such as dishwashers might be considered for disposal **if the major metal components are removed.**

In recognition of this change, we will allow landfill disposal of **household quantities** of humidifiers, water heaters and microwave ovens that are constructed predominantly of plastic, fiberglass, or glass. We encourage the separation of metal components from these materials. Plastic, fiberglass, and glass may be recycled or disposed as an industrial waste. The Department's Solid Waste Program should be contacted for guidance on disposal of greater than household quantities. Major appliances that are constructed primarily of metal must not be landfilled and should be stockpiled for recycling. Microwave ovens, including those constructed principally of nonmetal components, may have capacitors that contain polychlorinated biphenyls (PCBs). Accordingly, disposal of microwave ovens containing PCBs in municipal waste landfills must conform with the Department's Solid Waste Program's guidelines for management of PCB waste. Disposal of microwave ovens in inert waste landfills is prohibited.

This does not change the existing ban on the landfill disposal of lead acid batteries, used motor oil or appliances with significant amounts of metal. We believe this information is consistent with the intent of state law and reserve the right to add or delete to the list of major appliances that may be disposed in landfills.