

## Memorandum

To: Interested Parties

From: Carl Anderson, P.G. CA  
Administrator, Solid and Hazardous Waste Division  
Wyoming Department of Environmental Quality

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Reference: Screening criteria for operation of unlined construction/demolition disposal facilities

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### Introduction

The Wyoming Department of Environmental Quality, Solid and Hazardous Waste Division (Department) has received several inquiries regarding siting and operation of unlined construction/demolition (C/D) disposal facilities. The purpose of this memorandum is to clarify the location standard in Solid Waste Rules and Regulations (SWRR), Chapter 4, Section 3(m) Hydrogeologic Conditions, which states:

*Facilities shall not be located in an area where the department, after investigation by the applicant, finds that there is reasonable probability that solid waste disposal will have a detrimental affect on surface water or groundwater quality.*

Available data indicate that C/D wastes and leachate from C/D landfills are not environmentally benign (Ohio EPA, 2009; U.S. EPA, 1995; Maine DEP, 2005; Martin, Jeff, 2005; Townsend, 2000). However, available data indicate C/D leachate has less capacity to cause environmental impacts, when improperly managed, than municipal solid waste (MSW) leachate. Because of this, a relatively limited site evaluation may provide adequate site specific data for purposes of determining a site's suitability for use as an unlined C/D landfill.

### Evaluation of Site Conditions

With the site-specific information listed below, the department can make a determination as to the potential for an unlined C/D landfill to impact groundwater at a given site. If the site-specific conditions are met, the facility will not need to be lined, and no additional site-characterization data will need to be provided (assuming an adequate groundwater monitoring network exists). If the site criteria are not met, or if the applicant wishes to vary the site criteria, the applicant will need to perform a site specific

analysis using appropriate computer modeling, and provide the results for Department review and approval. In order to minimize review time applicants are strongly encouraged to discuss and reach agreement on the modeling approach and inputs with Department personnel before submittal of a request to the Department. If site specific modeling is conducted, the Department reserves the right to restrict some waste types that may be disposed in the proposed unlined landfill, relative to the lists provided in Table 1 below. This includes but may not be limited to treated wood and green waste.

Please note that obtaining and providing the site specific information below may adequately address the location standard for hydrogeologic conditions cited previously, but does not address the other location standards or criteria that must be met in order to acquire and maintain an operating permit for a C/D landfill, as described in SWRR Chapters 1 and 4. The site specific conditions that must be demonstrated are the shallowest depth to high groundwater beneath the CD disposal area and lithologic materials present in the unsaturated zone.

Under the following conditions, the Department does not believe that a properly operated unlined C/D landfill will have a detrimental affect on groundwater quality.

1. The high groundwater level is at least 20 feet below the base of waste.
2. Unsaturated subsurface materials are at least 20 feet thick and composed predominantly (greater than 80%) of sand, silt, and clay, or combinations thereof.

**Be advised that while the Department may agree that operation of an unlined C/D landfill is appropriate in a given location, if contaminants are detected in groundwater, appropriate action will need to be taken. This may include a change or cessation of operations and corrective action to address groundwater impacts.**

### **Groundwater Monitoring**

As previously stated, C/D waste is not environmentally benign. While the Department believes that groundwater will not be impacted under the above conditions, groundwater monitoring will likely be required at C/D landfills, as provided for in SW Chapter 4 Section 6 (b).

### **Acceptable and Unacceptable Wastes for Disposal in Unlined C/D Landfills**

A C/D landfill is defined in SWRR Chapter 1 Section 1 (e) as:

*a solid waste management facility that accepts only **inert** construction waste, demolition waste, street sweepings and/or brush. This does not include garbage, liquids, sludges, paints, solvents, putrescibles, dead animals, friable asbestos, and hazardous or toxic wastes.*

SWRR Chapter 1, Section 1(e), also defines construction/demolition waste:

*includes, but is not limited to stone, wood, concrete, asphaltic concrete, cinder blocks, brick, plaster and metal.*

Because the definition for C/D waste is non-specific, the following additional information regarding items that may be included in the definition of C/D waste, and of wastes that are, and are not, acceptable in unlined C/D landfills is being provided. Table 1 provides a list of C/D wastes **acceptable** for disposal in unlined C/D landfills. Table 2 provides a list of C/D wastes **unacceptable** for disposal in unlined C/D landfills. With respect to certain waste types in Tables 1 and 2, wastes not acceptable for disposal include partially unused containers of materials. For example, empty or dry paint containers may be disposed, containers partially full of liquid paint may not be disposed.

Note that the following tables are for illustration purposes only, and they are not intended to be all inclusive. If an operator has any question regarding the acceptability of a particular waste type, please contact Department staff listed at the end of this memorandum.

***Waste types that may be disposed in an unlined C/D landfill are limited. Rigorous, routine waste screening will be required so that disposal of any prohibited wastes is prevented. Permittees' failure to strictly comply with waste screening requirements, including failure to refuse prohibited wastes, may result in enforcement action by the Department, including potential revocation of the operating permit as set forth in SWRR Chapter 1, Section 4(b).***

### **Table 1. Wastes Acceptable for Disposal in an Un-lined C/D Landfill.**

All wastes must pass the paint filter liquid test prior to acceptance.

- Asphalt (hardened paving and shingles)
- Brick
- Cabinets
- Cardboard
- Carpet and carpet pads
- Caulking tubes (dry)
- Ceiling tile
- Ceramics
- Cinder block
- Clean wood
- Concrete with or without rebar/wire mesh, asphaltic concrete
- Containers (empty, clean, and rinsed)
- Corrugated shipping containers
- Dirt (uncontaminated)
- Creosote treated wood (such as railroad ties and telephone poles)
- Drums (empty, clean, and rinsed)
- Drywall

Electrical fixtures  
Electrical wiring  
Fiberboard  
Fiberglass  
Flashing  
Flooring tiles  
Furniture  
Glass  
Green wastes (grass, shrubs, tree limbs, etc.)  
Gypsum wallboard  
Hardened asphalt  
Insulation (fiberglass, foam/treated cellulose/sheathing)  
Lumber (painted or unpainted and untreated)  
Masonite/slate  
Metal (ferrous and non-ferrous, if not recycled)  
Metal studs  
Masonry and plaster  
Mortar  
Nails  
Non-friable asbestos  
Paper products  
Packaging foam  
Paint containers (dry)  
Pallets/spools/reels  
Paperboard  
Particleboard  
Pesticide and herbicide containers if triple rinsed  
Plaster  
Plastic pipe  
Plastic sheeting  
Plumbing fixtures  
Porcelain/bathroom fixtures  
Pressboard/chipboard  
Roofing materials/roofing felt  
Sheathing  
Siding (does not contain friable asbestos)  
Sod  
Steel  
Stone/rock  
Street sweepings  
Styrofoam  
Sump waste from car wash sumps (must pass the paint filter liquids test and concentrations of metals, VOCs, and other compounds must be sampled and found to be below regulatory limits)  
Textiles  
Tile (ceiling and ceramic)  
Tires (may include wheels)  
Vinyl (doors, siding, windows, flooring)

White goods/appliances (if refrigerants have been properly removed)  
Wire  
Wood (clean, untreated, painted or unpainted)  
Wood pallets

**Table 2. Wastes Not Acceptable for Disposal in an Un-lined C/D Landfill.**

Aerosol cans containing any product  
Adhesives  
Automobiles  
Automotive cleaners, solvents, waxes  
Batteries (alkaline or rechargeable, Ni-Cd, lithium, metal hydride, etc.)  
Caulk  
Containers with liquids  
Dead animals  
Driveway sealants  
Drums and containers containing any waste  
Epoxies  
Electronic wastes  
Exit signs (lighted, from building interiors)  
Friable asbestos  
Fuel tanks  
Garbage  
Glues  
Hazardous wastes (listed or characteristic)  
Industrial wastes  
Lacquer thinners  
Lead containing materials (lead acid batteries, lead based paint, flashing, solder, etc.)  
Liquids of any type or quantity  
Medical/infectious wastes  
Mercury containing devices (switches, bulbs, thermostats, etc.)  
Mercury based paints  
Metallic pigments in unused paint containing: lead, arsenic, barium, cadmium, zinc, mercury, or chromium  
Municipal solid waste  
Oils, greases, and any petroleum contaminated  
Paints  
PCBs in ballasts, transformers, and capacitors  
Petroleum contaminated soil  
Pentachlorophenol  
Pesticides  
Petroleum constituents, leachable from roofing tars  
Petroleum storage tanks (unless properly decommissioned and certified clean)  
Polyurethane  
Putrescible wastes  
Rechargeable and/or alkaline batteries

Resins  
Roofing cement/sealers  
Sealers  
Septage  
Sludges  
Smoke detectors  
Solvents  
Stains  
Thermostats and thermometers (mercury containing)  
Transformers  
Treated wood (e.g., pressure treated, chromated copper arsenate (green treated wood); pentachlorophenol (brown treated wood), copper naphthenate, ammoniacal copper zinc arsenate (ACZA), ammoniacal copper quarternary compound (ACQ), etc.)  
Used oil and/or grease filters  
Varnishes

**For More Information**

If you have questions regarding construction demolition landfills, please contact staff in the DEQ offices listed below.

Cheyenne Office (Rebecca Dietrich)	(307) 777-7752
Casper Office (Dale Anderson)	(307) 473-3450
Lander Office (Patrick Troxel)	(307) 332-6924

**References**

- U. S. Environmental Protection Agency, 1995, Construction and Demolition landfills, prepared by ICF Kaiser Incorporated, prepared for ESEPA Office of Solid Waste, Contract No. 68-W3-0008, 39 p.
- Maine Department of Environmental Protection, 2005, Report to the Joint Standing Committee on Natural Resources Concerning the Safe Management of Arsenic-Treated Wood Wastes.
- Martin, Jeff, 2005, Preliminary Evaluation of Leachate Analytical Results from Ohio C&D landfills, Interoffice Memorandum to Dan Harris, Chief, DSIWM.
- Ohio EPA, 2009, An Evaluation of Leachate from Ohio's construction and Demolition Debris Landfills, 104 p.
- Townsend, Timothy, et.al., 2000, Continued research into the characteristics of leachate from construction/demolition Waste landfills, Florida Center for Solid and Hazardous Waste Management Report # 00-04, 71p.