

Chapter 10

LANDFILL DISPOSAL

This chapter describes the Clark County regional disposal system for municipal solid waste (MSW), including transportation to and landfill disposal at Finley Buttes and Wasco County Landfills in Eastern Oregon. The county's hierarchy of priorities for waste handling and disposal is discussed in Chapter 1. Construction and demolition waste disposal is discussed in Chapter 12, including a map of the facilities. Handling and disposal of special wastes is discussed in Chapter 14. Solid Waste Handling Facilities siting guidelines are described in the Appendix M; historical data on Clark County's landfills (Abandoned and Closed Landfills in Clark County) is in Appendix L; disposal tonnage is found in Appendix J: *The Solid Waste Data Report*, construction and demolition waste disposal is discussed in Chapter 12 Construction and Demolition Wastes.

The County and cities within the County (Cities) are committed to minimizing the amount of waste being disposed through the implementation and maintenance of aggressive waste reduction (Waste Prevention and Reduction Chapter) and waste recycling programs (Waste Recycling Chapter). After waste reduction, reuse, recycling, composting, and energy recovery, the remainder of Clark County's waste is landfilled.

Landfill disposal is an important element of the solid waste system. [WAC 173-304](#) and [WAC 173-350](#) define a landfill as "a disposal facility or part of a facility at which solid waste is permanently placed in or on land." A more descriptive definition of a landfill is "an engineered method of disposing of solid wastes on land in a manner that protects the environment, by spreading the waste in thin layers, compacting it to the smallest practical volume, and covering it with soil by the end of each working day."

The [Guidelines for the Development of Local Solid Waste Management Plans and Plan Revisions](#) (WDOE 10-07-005) defines "waste export" as the hauling of solid wastes generated within a planning area (Clark County) to processing and/or disposal sites outside of the planning area. As noted above, the landfill sites that receive Clark County wastes are both outside of Clark County at distances of between 90 and 180 miles from our community. Additionally, both of the sites are in the state of Oregon so there are unique factors related to differing landfill regulations between the two states.

State Legislation and Regulations

Revised Code of Washington 70.95 Solid Waste Management Reduction and Recycling Act

RCW 70.95 requires that solid waste management plans include a "review of potential areas that meet the siting criteria as outlined in RCW 70.95.165, WAC 173-304-130 and WAC 173-350-400(2)."

Washington Administrative Codes 173-304 and 173-350, Minimum Functional Standards for Solid Waste Handling

RCW 70.95 directs the Washington Department of Ecology to develop standards for solid waste handling facilities. These standards, found in [WAC 173-304](#) and [WAC 173-350](#), cover siting criteria, design and performance standards and closure and post-closure maintenance requirements for solid waste landfills and other handling facilities. For the most part, the standards meet Subtitle D of the *Resource Conservation and Recovery Act* (RCRA) and provide additional protection.

Oregon Revised Statute 459.055, Solid Waste Control

Chapter 459.055, *Landfills in Farm Use Area*; Waste Reduction Programs requires out-of-state local governments to implement waste reduction and recycling programs that are at least as effective as programs in similar Oregon jurisdictions, before exporting wastes into Oregon for landfill disposal.

Oregon Administrative Rule 340-93-97, Solid Waste Management in General

Oregon Administration Rule (OAR) 340-93-97 establishes permitting, closure, financial assurance and engineering requirements for landfills, incinerators, composting facilities, sludge land application sites and solid waste transfer stations. The standards are enforced by the Oregon DEQ.

Assessment of Conditions

This section describes Clark County’s current MSW landfill disposal system. This system includes the transporting of MSW from the County’s largest transfer stations [Central Transfer and Recycling Center (CTR) and West Vancouver Materials Recovery Center (West Van)] primarily through barging to the landfill at Finley Buttes, for disposal. The Washougal Transfer Station (WTS) is located in the Port of Camas/Washougal; MSW from WTS is transported by truck to the Wasco County Landfill. Since the MSW from all transfer stations is disposed in Oregon, ORS 459.055 (waste reduction and recycling) and OAR 340-93-97 (landfill standards) apply to the County. The State of Oregon, under ORS 459.055, requires local governments outside of Oregon who transport waste to Oregon landfills to implement waste reduction and recycling programs which must be at least as effective as Oregon programs in similar jurisdictions. The local governments must apply to the Oregon DEQ and be accepted before wastes can be exported to Oregon.

Waste Transport for Disposal

Clark County and the City of Vancouver have an ongoing contract with Columbia Resource Company (CRC) to receive and process MSW and to transport and dispose of non-recycled MSW generated in Clark County. The initial term of the contract was for 20 years ending on December 31, 2011. Clark County and the City of Vancouver had the option of extending the contract for up to two 5-year extensions. Waste Connections, Inc. purchased CRC and the Finley Buttes Landfill, as well as an additional landfill in Wasco County, Oregon, in 1999. Since then, CRC, Finley Buttes and Wasco County Landfill have been wholly owned subsidiaries of Waste Connections, Inc. Clark County and the City of Vancouver opted to exercise a five-year extension to the original contract, extending the term to December 31, 2016. The second 5-year extension takes the contract through December 31, 2021. The waste transfer and materials recovery elements of the CRC contracts are described in Chapter 8.

Some other MSW practices are known to exist in Clark County, including the following:

- Woodland area wastes are collected by Waste Control (the WUTC-certificated collection company for that area) and transported to the Cowlitz County Landfill.
- Some self-haul wastes generated in the eastern, northern and southern portions of the County are transported into Skamania County, Cowlitz Counties, and the Portland, Oregon area, respectively.
- Some amount of commercially generated waste and waste from franchised and/or WUTC certificated haulers in portions of Skamania County, Cowlitz County and the Portland metro area is transported to Clark County transfer facilities. This waste is a minor portion of the waste stream received at these facilities.

Transport System

CRC is responsible, by long-term contract, for the transportation of all “non-recycled” waste from Clark County to Finley Buttes Landfill in Morrow County, Oregon and Wasco County Landfill in Wasco County, Oregon.

Waste collected at the West Van Materials Recovery Center and Central Transfer and Recycling Center are transported consistent with the County’s current long-term contract, which requires transport to the Finley Buttes Landfill by barge or by rail, allowing truck transport only if specifically authorized by the County under unusual circumstances or certain economic conditions.

The current process for transporting non-recycled MSW to final disposal at Finley Buttes Landfill is as follows:

- after the MSW is processed at the CTR and the West Van facilities to recover recyclable materials, the remaining non-recyclable MSW is compacted and then sealed into shipping containers;
- the sealed containers are then hauled directly to the Tidewater M-5 barge loading facility where they are placed on barges;
- Tidewater Barge Lines transports the barges 180 miles upriver to the Port of Morrow in Morrow County, Oregon;
- at the port, the sealed containers are unloaded from the barges for later transport by trucks approximately 12 miles to the Finley Buttes Landfill;
- at the landfill, the containers are tipped and the MSW is emptied into the active cell of the landfill;
- empty containers are then returned to the Port of Morrow for barge transport back to Clark County.

Each shipping container has an internal volume of approximately 90 cubic yards, and holds about 30 tons of MSW. The staging yard behind the dock has a storage capacity of approximately 500 containers. Two sizes of barge systems are used for transport: the smaller barges carry up to 36 containers; the larger carry up to 80 containers. Based on the tonnage of non-recycled waste exported to Finley Buttes Landfill, the average number of loaded shipping containers transported upriver and through the Port of Morrow was about 800 containers per month in 2013.



Boardman Port (Tidewater Barge)

The loading and unloading capacity of the existing crane at the Port of Morrow is approximately 15 containers per hour, or 330 containers per day during a three-shift work day. An excess number of shipping containers are required by the CRC contract to temporarily hold up to six days of waste in the event that waste transport services are interrupted. In addition, during the two weeks each year when the navigation locks on the Columbia River are closed for routine maintenance, or in the event of unanticipated locks closures, containers can be shipped by truck or train.

The CRC contract was amended to include the Wasco County Landfill as the primary disposal facility for waste received at the Washougal Transfer Station. In order to eliminate double-handling, the waste at this site is top-loaded into trucks, tarped, and transported directly to the Wasco County Landfill for disposal, as follows:

- The routing of trucks from the WTS to the Wasco County Landfill goes by State Highway 14 east to the Dalles Bridge, over the bridge to Oregon, and then south on Highway 197 to the Wasco County Landfill.
- The alternate truck route from the WTS to the Wasco County Landfill is by State Highway 14 west to Interstate 205 south to Interstate 84 east to the Dalles and then south on State Highway 197 to the Wasco County Landfill
- At the Wasco County Landfill, the wastes are unloaded directly at the landfill face.

The barging system serves as the alternative transport system for waste from the Washougal Transfer Station to Finley Buttes Landfill. An updated *Contingency and Emergency Plan* included in this Plan's appendices describes designated alternative disposal sites if either Finley Buttes Landfill or Wasco County Landfill ceases operations, either temporarily or permanently.

Landfill Disposal Sites

Finley Buttes Landfill

Finley Buttes Landfill is located approximately 180 miles east of Clark County in Morrow County, Oregon, at 73221 Bombing Range Road, Boardman, Oregon. The facility is privately owned and operated by Waste Connections, Inc. It is the primary designated disposal site for MSW generated within Clark County. The landfill is designed, constructed and operated to be in compliance with all requirements of the Oregon DEQ and EPA Subtitle D MSW landfill requirements.

Finley Buttes Landfill occupies a permitted 510-acre site. The projected life of the current permitted landfill is 300 years, which exceeds the 20-year period covered by this Plan. The estimated available fill capacity at the site, as currently permitted by the Oregon DEQ, is 131,859,000 tons of MSW. Currently the site receives around 500,000 tons of MSW each year, more than half of which is from Clark County.

The design of the landfill incorporates features to protect groundwater and surface water, prevent soil erosion, provide fire protection, allow ease of access and manage and control landfill gas and leachate. The site is designed to be compatible with the surrounding land use, both during the active life of the landfill and after the landfill closes. Special operating procedures are used to prevent nuisances and threats to human health and the environment by controlling litter, odors, birds and vectors.

Since the end of 2007, the Finley Buttes site has benefited from the development and operation, under contract to Finley BioEnergy, of a combined heat and power (CHP) system that collects and utilizes landfill gas (methane) to power 3 generators that combined produce 4.8 MW of "renewable" electrical power for the grid (enough to power 3,500 homes). In addition, much of the waste heat from the electrical generating plant is utilized by Cascade Specialties (a nearby onion and garlic dehydration plant) reducing their need to purchase natural gas.

Together, this utilization of the landfill gas resulting from Clark County and other communities' wastes disposed at the site results in approximately a 75 percent efficient utilization of the methane's energy value. This compares favorably to systems at other landfills, which typically exhibit only 35% to 45% recovery efficiency when power alone is produced. The gas collection system (a network that includes roughly 3 or 4 total miles of piping) also aids in controlling and greatly reducing methane emissions from the landfill (as required by regulations and the site's permit).

Wastes defined and regulated as “hazardous” under Oregon and federal laws are prohibited from being disposed at Finley Buttes. Personnel are trained to recognize and manage hazardous and other prohibited materials. Surveillance by landfill personnel and regulatory agencies, record-keeping and reporting activities and shipping documentation requirements lower the potential for the disposal of hazardous wastes into the landfill. The contract with CRC indemnifies the County against any pollution-related liabilities associated with waste disposal at Finley Buttes Landfill. There is no evidence of significant legal exposure to Clark County from using this site.

Wasco County Landfill

Wasco County Landfill is a Subtitle D Regional Landfill located about five miles southeast of The Dalles, Oregon near the intersection of Interstate 84 and U.S. Route 197. The landfill site comprises 337 acres, with 213 acres of the site permitted by the Oregon DEQ for active landfilling. The landfill operator estimates that there is approximately 73 years before reaching capacity. The landfill is privately owned and operated by Waste Connections, Inc., is the designated disposal site for MSW from the Washougal Transfer Station, and is a backup facility to the Finley Buttes Landfill.

The entire active landfill area is lined with a five-foot-thick composite liner system. The liner lies on compacted native soils and consists of an HDPE liner, a geotextile wrapped perforated pipe, drainage sand, a geotextile fabric, two feet of highly impermeable re-compacted soil/bentonite, a 60-mil high-density polyethylene membrane, and another layer of geotextile fabric. A one-foot thick soil buffer serves to protect the entire liner system. This multi-layered liner system is designed to collect leachate so that it cannot enter the soil or contaminate groundwater. Leachate is pumped from the leachate collection and removal system and recirculated over the lined portions of the landfill. A network of groundwater monitoring wells surrounds the landfill. These wells are sampled semi-annually and the results are reported to Oregon DEQ.

The landfill has implemented waste screening procedures to exclude prohibited waste and manage acceptable wastes. Scale attendants visually inspect incoming loads to look for any hazardous or unacceptable materials. The field supervisor and equipment operators inspect each load as it is discharged and compacted into the landfill. Randomly selected waste loads are to be emptied in a separate area and thoroughly screened. Special wastes are subject to additional evaluation and approval, with periodic laboratory testing. The County long-term contract indemnifies the county against any pollution-related liabilities associated with the waste disposed at the Wasco County Landfill. There is no evidence of significant legal exposure to Clark County from using this site.

Disposal Sites in Clark County

Appendix L summarizes the known historic landfill/dumping sites in Clark County. The listing order of the sites in the table is not based on their relative liability or contamination.

Rufener Landfill (a.k.a. Boise Cascade Landfill, Portside Landfill, Fruit Valley Landfill)

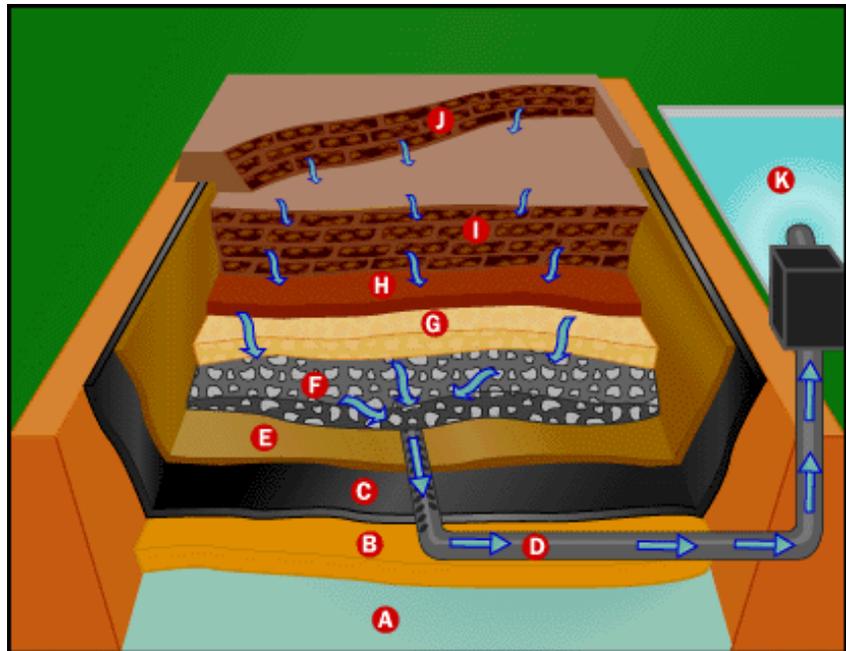
The limited-purpose Rufener Landfill on NW Lower River Road in Vancouver was owned by Boise Cascade, and received clarifier solids from the Boise Cascade paper-making plant until April of 1996. The site is decommissioned and will be put back to productive industrial use.

Leichner Landfill

The Leichner Landfill was the last MSW landfill that operated in Clark County; it accepted wastes from 1937 through 1991 at a site located in the south-central part of the County. Owned by Leichner Brothers Land Reclamation Company (LBLRC), it was permitted to operate as a sanitary landfill and to receive MSW and some CDL wastes. Under an order from the Washington Department of Ecology, the Leichner Landfill ceased operations on December 31, 1991.

Typical landfill construction system

- A** Ground Water
- B** Compacted Clay
- C** Plastic Liner
- D** Leachate Collection Pipe
- E** Geotextile Mat
- F** Gravel
- G** Drainage Layer
- H** Soil Layer
- I** Old Cells
- J** New Cells
- K** Leachate Pond



Recommendations

1. **Utilize the existing contract for garbage export to Finley Buttes Landfill** located near Boardman, Oregon and Wasco County Landfill located near The Dalles, Oregon as the primary disposal sites for Clark County waste for the duration of the current disposal contract, but consider alternative disposal options when planning begins for the next contract (2020). (10-2)
2. **No new MSW landfills are to be sited in Clark County.** This limitation is due to the Sole Source Aquifer designation of the underlying Troutdale Aquifer. (M-2)
3. **Evaluate a regional approach to managing the transfer, transportation and disposal of MSW** including the formation of a Disposal District. (17-1)

End of Chapter 10