



## Comparison of Municipal, Industrial, and Residual Solid Waste Programs

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### Applicable Rules

MSW: OAC 3745-27  
ISW: OAC 3745-29  
RSW: OAC 3745-30  
Tires: Not Applicable

### Introduction

The purpose of this document is to provide an educational guideline comparing the municipal (MSW), industrial (ISW), and residual (RSW) solid waste landfill programs.

With the June 1, 1994 introduction of two separate solid waste rule chapters for municipal (OAC 3745-27) and industrial (OAC 3745-29) sanitary landfill facilities, there have been numerous inquiries about the similarities and significant differences between the programs. Introduced in 1992, the residual solid waste program already provided a different option for some owners or operators of solid waste landfills.

Attached is a comparison of the MSW, ISW, and RSW rules, as of October 2014, in table format. The areas for comparison are general definitions and regulatory approach, siting, engineering requirements and operations. When there are similarities between the rules, rule references have been included.

### Contact

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### Disclaimer

This document is intended for guidance purposes only. Completion of the activities and procedures outlined in this document shall not release an owner or operator from any requirement or obligation for complying with Ohio Revised Code (ORC) Chapter 3734, the OAC rules adopted thereunder, or any authorizing documents or orders issued thereunder, nor shall it prevent Ohio EPA from pursuing enforcement actions to require compliance with ORC Chapter 3734, the OAC rules, or any authorizing documents or orders issued thereunder.

Comparison of Municipal, Industrial, and Residual Solid Waste Programs

Areas for Comparison	Municipal Solid Waste (MSW) Rules OAC <sup>1</sup> 3745-27	Industrial Solid Waste (ISW) Rules OAC <sup>1</sup> 3745-29	Residual Solid Waste (RSW) Rules OAC <sup>1</sup> 3745-30
<b>Definitions:</b>	Referred to as a licensed sanitary landfill (LF) facility which can accept any solid waste as long as there is no specific ban on a solid waste stream such as yard waste, tires, or batteries. Acceptable waste can be from industrial, commercial, agricultural and community operations but cannot be untreated large generator infectious waste, waste prohibited by the Toxic Substance Control Act (TSCA), or hazardous waste.	This is a type of sanitary landfill (LF) facility for the exclusive disposal of industrial solid waste. It may also accept municipal waste water treatment sludges, non-toxic fly ash, non-toxic bottom ash, non-toxic spent foundry sand, slag or construction and demolition debris materials. The facility must not have operated as an MSWLF and disposed of significant amounts of municipal solid waste during its operating life.	A residual solid waste landfill (LF) facility is designated exclusively for the disposal of one or any combination of residual solid wastes from seven defined categories of industrial generators (OAC 3745-30-01(B)). The wastes need to be characterized (OAC 3745-30-03) and approved for one of the four residual LF classes. Residual facilities can also accept non-toxic fly ash, non-toxic bottom ash and non-toxic spent foundry sand for disposal after they have been properly characterized.
<b>Regulatory Approach:</b>	The municipal LF rules have been developed to include US EPA's Subtitle D requirements. The previous 1990 rules governed both municipal and industrial landfills. On June 1, 1994, these rules were revised to address municipal LF's only.	Adopted on June 1, 1994, this chapter addresses both captive and non-captive industrial LF's. The purpose of issuing rules for industrial LF's is to allow these facilities to continue operating under the same requirements as found in the previous 1990 rules. Changes corresponding to municipal rules were made in the new industrial rules if they did not significantly change the engineering requirements.	Large volume, low toxicity wastes from seven major industrial producers can be disposed at authorized residual LF's. A class system with different design standards for four residual waste classes based on waste characterization allows acceptance of any residual wastes as long as it meets the leachate or extraction based standards (OAC 3745-30-04).
<b>Permits, LF Redesignation:</b>	Approved PTI <sup>2</sup> for new facilities.	Approved PTI <sup>2</sup> for new facilities. Transition via notification of the Director of Intent to comply with ISW Rules.	Approved PTI <sup>2</sup> for new facilities. Authorization of the Director after submittal of residual waste characterization

<sup>1</sup> OAC refers to Ohio Administrative Code

<sup>2</sup> PTI refers to Permit-to-Install

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<b>Annual License:</b>	Yes	Yes	Yes
<b>Background Check:</b>	Yes, except if "Captive" <sup>3</sup>	Yes, except if "Captive" <sup>3</sup>	Yes, except if "Captive" <sup>3</sup>
<b>Fees:</b>			
<b>PTI Fees</b>	ORC <sup>4</sup> 3734.11(F) - Yes, rate depends on type and volume of waste	ORC <sup>4</sup> 3734.11(F) - Yes, rate depends on type and volume of waste	ORC <sup>4</sup> 3734.11(F) - Yes, rate depends on type and volume of waste
<b>License Fees</b>	ORC 3734.06(A) - Yes, rate depends on Authorized Maximum Daily Waste Receipt (AMDWR) or if the site is "captive" <sup>3</sup>	ORC 3734.06(A) - Yes, rate depends on Authorized Maximum Daily Waste Receipt (AMDWR) or if the site is "captive" <sup>3</sup>	ORC 3734.06(A) - Yes, rate depends on Authorized Maximum Daily Waste Receipt (AMDWR) or if the site is "captive" <sup>3</sup>
<b>State Disposal Fees</b>	ORC 3745.57(A) - Yes, \$4.75/ton unless waste is "fee exempt" <sup>5</sup>	ORC 3745.57(A) - Yes, \$4.75/ton unless waste is "fee exempt" <sup>5</sup>	ORC 3745.57(A) - Yes, \$4.75/ton unless waste is "fee exempt" <sup>5</sup>
<b>Host Community Fee</b>	ORC 3734.57(C) - Yes, if levied by the municipal corporation or township where landfill is located. Rate cannot exceed \$0.25/ton. This fee does not apply to "fee exempt" <sup>6</sup> wastes.	ORC 3734.57(C) - Yes, if levied by the municipal corporation or township where landfill is located. Rate cannot exceed \$0.25/ton. This fee does not apply to "fee exempt" <sup>5</sup> wastes.	ORC 3734.57(C) - Yes, if levied by the municipal corporation or township where landfill is located. Rate cannot exceed \$0.25/ton. This fee does not apply to "fee exempt" <sup>5</sup> wastes.

<sup>3</sup> Captive refers to a landfill facility owned by a generator that exclusively disposes of wastes generated at one or more premises owned by the generator.

<sup>4</sup> ORC refers to Ohio Revised Code

<sup>5</sup> Fee exempt wastes are (1) solid waste disposed in a "captive" facility by the owner of that facility; (2) coal combustion ash or ash from the combustion of primarily coal in combination with scrap tires disposed of in a "captive" facility; (3) fly and bottom ash from solid wastes, other than those which consist of scrap tires, burned in an incinerator or energy recovery facility; (4) sewage sludge generated by a wastewater treatment facility with a NPDES permit which is disposed of through incineration, land application, or composting; and (5) fly and bottom ash from scrap tires taken to a scrap tire recovery facility.

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<b>Fees: (continued)</b>  <b>Planning District Fees</b> <b>District Disposal Fee</b>	<p>ORC 3734.57(B) - Yes, if levied by the SWMD<sup>8</sup>. Rate is \$1.00-2.00/ton for "indistrict" and "out of state" wastes and \$2.00-\$4.00/ton for "out of district" wastes. This fee does not apply to "fee exempt"<sup>5</sup> wastes.</p>	<p>ORC 3734.57(B) - Yes, if levied by the SWMD<sup>8</sup>. Rate is \$1.00-2.00/ton for "indistrict" and "out of state" wastes and \$2.00-\$4.00/ton for "out of district" wastes. This fee does not apply to "fee exempt"<sup>5</sup> wastes.</p>	<p>ORC 3734.57(B) - Yes, if levied by the SWMD<sup>8</sup>. Rate is \$1.00-2.00/ton for "indistrict" and "out of state" wastes and \$2.00-\$4.00/ton for "out of district" wastes. This fee does not apply to "fee exempt"<sup>5</sup> wastes.</p>
<b>Joint Use Agreements</b>	<p>ORC 3734.571 - Is an agreement between two or more SWMDs<sup>8</sup> to share district disposal fees. No additional fee beyond the district disposal fee is collected for this agreement.<sup>9</sup></p>	<p>ORC 3734.571 - Is an agreement between two or more SWMDs<sup>8</sup> to share district disposal fees. No additional fee beyond the district disposal fee is collected for this agreement.<sup>9</sup></p>	<p>ORC 3734.571 - Is an agreement between two or more SWMDs<sup>8</sup> to share district disposal fees. No additional fee beyond the district disposal fee is collected for this agreement.<sup>9</sup></p>
<b>Export Fee<sup>6</sup></b>	<p>ORC 3734.572 - Yes, if levied by SWMD<sup>8</sup>. Rate is \$0.50/ton in SWMDs without landfills within their borders. This fee does not apply to "fee exempt"<sup>5</sup> wastes.</p>	<p>ORC 3734.572 - Yes, if levied by SWMD. Rate is \$0.50/ton in SWMDs<sup>8</sup> without landfills within their borders. This fee does not apply to "fee exempt"<sup>5</sup> wastes.</p>	<p>ORC 3734.572 - Yes, if levied by SWMD. Rate is \$0.50/ton in SWMDs<sup>8</sup> without landfills within their borders. This fee does not apply to "fee exempt"<sup>5</sup> wastes.</p>
<b>Generation Fee<sup>7</sup></b>	<p>ORC 3734.573 - Yes, on a per ton basis for a rate determined by SWMD<sup>8</sup>. This fee does not apply to "fee exempt"<sup>5</sup> wastes.</p>	<p>ORC 3734.573 - Yes, on a per ton basis for a rate determined by SWMD<sup>8</sup>. This fee does not apply to "fee exempt"<sup>5</sup> wastes.</p>	<p>ORC 3734.573 - Yes, on a per ton basis for a rate determined by SWMD<sup>8</sup>. This fee does not apply to "fee exempt"<sup>5</sup> wastes.</p>

<sup>6</sup> This fee cannot be levied by a Solid Waste Management District if a generation fee is being levied.

<sup>7</sup> This fee cannot be levied by a Solid Waste Management District if an export fee is being levied. The fee is collected at the first facility which receives the waste and not at any of the subsequent facilities that the waste may be taken to.

<sup>8</sup> SWMD refers to Solid Waste Management District

<sup>9</sup> The owner or operator of a landfill located in a SWMD that is involved in a joint use agreement does not have any further financial responsibility under the agreement once the district disposal fee is collected and remitted to the SWMD.

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<p><b>Siting Restrictions:</b></p> <p>Construction of a landfill is prohibited in the following situations:</p> <ul style="list-style-type: none"> <li>• 1000' to park and recreation areas</li> </ul> <p><b>Ground Water System Protection:</b></p> <ul style="list-style-type: none"> <li>• Sand and gravel pit</li> <li>• Limestone/sandstone quarry</li> <li>• Sole source aquifer</li> <li>• 100 GPM auifer</li> <li>• Minimum isolation distance</li> </ul> <p><b>Ground Water Setbacks:</b></p> <ul style="list-style-type: none"> <li>• 5 year time of travel to well</li> <li>• Underground mine</li> <li>• 1000' to water supply well</li> </ul> <p><b>General Setbacks:</b></p> <ul style="list-style-type: none"> <li>• 1000' from natural area</li> <li>• 300' from property line</li> <li>• 1000' from domicile</li> <li>• 200' from surface water</li> <li>• Floodway, floodplain</li> </ul>	<p>yes, OAC 3745-27-07(H)(1)</p> <p>yes, OAC 3745-27-07(H)(2)(a) yes, OAC 3745-27-07(H)(2)(b) yes, OAC 3745-27-07(H)(2)(c) yes, OAC 3745-27-07(H)(2)(d) 15', OAC 3745-27-07(H)(2)(e)</p> <p>yes, OAC 3745-27-07(H)(3)(a) yes, OAC 3745-27-07(H)(3)(b) yes, OAC 3745-27-07(H)(3)(c)</p> <p>yes, OAC 3745-27-07(H)(4)(a) yes, OAC 3745-27-07(H)(4)(b) yes, OAC 3745-27-07(H)(4)(c)</p> <p>yes, OAC 3745-27-07(H)(4)(d) No, see Location Restriction Demonstration</p>	<p>yes, OAC 3745-29-07(H)(1)</p> <p>yes, OAC 3745-29-07(H)(2)(a) yes, OAC 3745-29-07(H)(2)(b) yes, OAC 3745-29-07(H)(2)(c) yes, OAC 3745-29-07(H)(2)(d) 15', OAC 3745-29-07(H)(2)(e)</p> <p>yes, OAC 3745-29-07(H)(3)(a) yes, OAC 3745-29-07(H)(3)(b) yes, OAC 3745-29-07(H)(3)(c)</p> <p>yes, OAC 3745-29-07(H)(4)(a) yes, OAC 3745-29-07(H)(4)(b) yes, OAC 3745-29-07(H)(4)(c)</p> <p>yes, OAC 3745-29-07(H)(4)(d) yes, OAC 3745-29-07(H)(5)</p>	<p>yes, OAC 3745-30-06(H)(1)</p> <p>yes, OAC 3745-30-06(H)(2)(a) yes, OAC 3745-30-06(H)(2)(b) yes, OAC 3745-30-06(H)(2)(c) yes, OAC 3745-30-06(H)(2)(d) 5' for Class IV, OAC 3745-30-04(C) 5' for Class III, OAC 3745-30-06(H)(2)(e)(i) 10' for Class II, OAC 3745-30-06(H)(2)(e)(ii) 15' for Class I, OAC 3745-30-06(H)(2)(e)(iii)</p> <p>yes, OAC 3745-30-06(H)(3)(a) yes, OAC 3745-30-06(H)(3)(b) yes, OAC 3745-30-06(H)(3)(c)</p> <p>yes, OAC 3745-30-06(H)(4)(a) yes, OAC 3745-30-06(H)(4)(b) yes, but only applies to paper mill wastes, OAC 3745-30-06(H)(4)(c) yes, OAC 3745-30-06(H)(4)(d) yes, OAC 3745-30-06(H)(5)</p>

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<b>Locations Restriction Demonstrations:</b> <ul style="list-style-type: none"> <li>Bird hazard for aircraft</li> <li>Floodplain</li> <li>Holocene fault</li> <li>Seismic impact zone</li> <li>Unstable area</li> </ul>	yes, OAC 3745-27-20(C)(1) yes, OAC 3745-27-20(C)(2) yes, OAC 3745-27-20(C)(3) yes, OAC 3745-27-20(C)(4) yes, OAC 3745-27-20(C)(5)	No	No			
<b>Liner System:</b>  Flexible Membrane Liner (FML)  Recompacted Soil Liner (RSL)  Geosynthetic Clay Liner (GCL)	Yes, minimum 60 mil if HDPE, 40 mil if other, OAC 3745-27-08(D)(10)  5' (or thickness between 3' and 5' based on specified calculations in Appendix I of OAC 3745-27-08), OAC 3745-27-08(D)(8)  Yes (RSL reduced to 3'), OAC 3745-27-08(D)(9)	Same as MSW rules, OAC 3745-29-08(D)(10)  Same as MSW rules, OAC 3745-29-08(D)(8)  Same as MSW rules, OAC 3745-29-08(D)(9)	Class I  Yes <small>No min thickness 30-07(C)(2)</small>	Class II  Yes <small>No min thickness 30-07(C)(2)</small>	Class III  Yes   No  18"   3'  Alternative design	Class IV  No <small>30-04(C)(3)(e)</small>  No <small>30-04(C)(3)(b)</small>  -----
<b>Leachate Management System:</b>	Yes, OAC 3745-27-08(D)(12) - (17)	Yes, OAC 3745-29-08(D)(12) - (17)	Yes <small>(no pipes<sup>10</sup>) 30-07(C)(3)</small>	Yes <small>(no Pipes<sup>10</sup>) 30-07(C)(3)</small>	Yes <small>(no pipes<sup>10</sup>) 30-07(C)(3)</small>	No <small>30-04(C)(3)(d)</small>
<b>Explosive Gas Monitoring System:</b>	Yes, OAC 3745-27-12	Yes, if occupied structure < 1000', OAC 3745-27-12	Yes, if pulp and papermaking wastes, OAC 3745-27-12			
<b>Groundwater Monitoring:</b>	Yes, OAC 3745-27-10	Yes, OAC 3745-30-08	Class I  Yes <small>3745-30-08</small>	Class II  Yes <small>3745-30-08</small>	Class III  Yes <small>3745-30-08</small>	Class IV  No <small>30-04(C)(3)(a)</small>

<sup>10</sup> Although the RSW rules do not require the leachate management to use pipes, pipes are commonly used to limit the level of leachate to a maximum of one foot.

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<b>Cap System:</b>						
Barrier Layer	18" Recompacted soil barrier layer (1 x 10 <sup>-6</sup> cm/sec) with FML or GCL on subgrade with FML OAC 3745-27-08(D)(21) - (24)	18" Recompacted soil barrier layer (1 x 10 <sup>-6</sup> cm/sec) with FML or GCL on subgrade with FML OAC 3745-29-08(D)(21) - (24)	Classes I, II, and III: 24" recompact soil barrier layer (1 x 10 <sup>-7</sup> cm/sec), no FML, OAC 3745-30-09(F)(3). Compaction allowances made for steelmaking wastes, OAC 3745-30-07(F)(3).  Class IV: material specs only, OAC 3745-30-04(C)(3)(e)(i)			
Drainage Layer	Yes, OAC 3745-27-08(C)(15)(c)	Yes, OAC 3745-29-08(C)(15)(c)	No			
Protection Layer	30" - 36", depending on county, OAC 3745-27-08(D)(26)	30" - 36", depending on county, OAC 3745-29-08(D)(26)	Depth of frost protection depends on permeability of the waste. (Only need frost protection for waste with k > 1 x 10 <sup>-5</sup> cm/sec.), OAC 3745-30-09(F)(3)(b)  Frost Protection not needed for Class IV, OAC 3745-30-04(C)(3)(e)(ii)			
<b>Financial Assurance (FA):</b>						
FA for Final Closure	Yes, OAC 3745-27-15	Yes, OAC 3745-27-15	Yes, OAC 3745-27-15			
FA for Post-closure	Yes, OAC 3745-27-16	Yes, OAC 3745-27-16	Yes, OAC 3745-27-16			
Wording of FA Instruments	Yes, OAC 3745-27-17	Yes, OAC 3745-27-17	Yes, OAC 3745-27-17			
FA for Corrective Actions	Yes, OAC 3745-27-18	No	No			
Beginning of funding	Prior to waste placement.	Prior to waste placement.	Prior to waste placement.			
<b>Post-Closure:</b>			Class I 30 yrs <sup>11</sup> 3745-30-10	Class II 20 yrs <sup>11</sup> 3745-30-10	Class III 15 yrs <sup>11</sup> 3745-30-10	Class IV 5 yrs <sup>11</sup> 30-04(C)(3)(f)
>30 years, OAC 3745-27-14	>30 years, OAC 3745-29-14					
<b>Variance Procedures</b>	OAC 3745-27-03	OAC 3745-27-03	OAC 3745-27-03 and OAC 3745-30-15			

<sup>11</sup> The post-closure care period may be shortened or extended. See OAC 3745-30-10(B).

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<b>Operating Record</b>	Yes, OAC 3745-27-09	No	No
<b>Ten Year Design Demonstration</b> - failure to demonstrate design is current may require a revision under which siting criteria would not apply.	Yes, OAC 3745-27-19(N)	Yes, OAC 3745-29-19(N)	Yes, OAC 3745-30-14(N)

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<b>Operations:</b>			
Select waste layer	Yes, OAC 3745-27-19(D)	Yes, OAC 3745-29-19(D)	No
Waste to be structurally stable	Yes, OAC 3745-27-08(C)(7)	Yes, OAC 3745-29-08(C)(7)	Yes, OAC 3745-30-14(E)(1)(e) and (f)
Litter control	Yes, OAC 3745-27-19(E)(9)	Yes, OAC 3745-29-19(E)(9)	No
Daily Log	Yes, on forms OAC 3745-27-19(E)(10)	Yes, on forms, OAC 3745-29-19(E)(10)	Yes, OAC 3745-30-14(E)(9)
Daily cover (6" of soil)	Yes, OAC 3745-27-19(F), Alternative Daily Cover is allowed.	Yes, OAC 3745-29-19(F), Alternative Daily Cover is allowed.	Yes, OAC 3745-30-14(F), Daily cover only needed for Pulp & Paper residual wastes. Alternative daily cover is allowed.
Intermediate cover (12" of soil)	Yes, OAC 3745-27-19(G), 12" soil if inactive > 30 days, Alternatives acceptable to Director are allowed.	Yes, OAC 3745-29-19(G), 12" soil if inactive > 30 days, Alternatives acceptable to Director are allowed.	Yes, OAC 3745-30-14(V)(2), 12" of soil if inactive > 180 days, Alternatives acceptable to director allowed.
Final cover Cap system or Transitional Cover	Yes, OAC 3745-27-19(H) within 7 days of reaching approved final elevations in a phase, or an alternative schedule, or use transitional cover	Yes, OAC 3745-29-19(H) within 7 days of reaching approved final elevations in a phase, or an alternative schedule, or use transitional cover	Yes, OAC 3745-30-14(H) within 7 days of reaching approved final elevations in a phase, No transitional cover.
Scales	Yes, OAC 3745-27-19(I), required if > 200 tons/day, but not required for captive facilities.	Yes, OAC 3745-29-19(I), same as MSW	Yes, OAC 3745-30-14(I), same as MSW
PCB and Hazardous Waste Detection Program	Yes, OAC 3745-27-19(L), implemented via the operating record.	No	No
Yard waste management	Yes, OAC 3745-27-19(O)	No	No