

Ohio EPA Policy	<b>Design Criteria; Waste Pickle Liquor Disposal</b>	
DSW-0400.008  <b>Removed</b>	Statutory reference: Rule reference:	Ohio EPA, Division of Surface Water Revision 0, October 1, 1988 Removed, April 30, 2003
<p><b>THIS POLICY DOES NOT HAVE THE FORCE OF LAW</b> Pursuant to Section 3745.30 of the Revised Code, this policy was reviewed and removed.</p>		

This policy does not meet the definition of policy contained in Section 3745.30 of the Ohio Revised Code. Ohio EPA is removing this document from the Division of Surface Water Policy Manual and is considering addressing this topic in a future rulemaking.

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# THIS POLICY DOES NOT HAVE THE FORCE OF LAW

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## Design Criteria; Waste Pickle Liquor Disposal

### APPLICABLE

REGULATIONS: 40 CFR Parts 261, 270 403; OAC Chapter 3745; and ORC Section 6111

PURPOSE: To the extent of its authority and influence, Ohio EPA seeks to achieve environmentally satisfactory final disposition of all waste pickle liquors generated in Ohio.

BACKGROUND: Pickle liquors are concentrated solutions of inorganic acids used in steel production. Large amounts of spent liquor are neutralized each month, a practice which generates large quantities of highly soluble salts and residual sludge. Although simple neutralization is an inexpensive treatment method, economically feasible alternative procedures do exist for disposition of spent liquor without excessive production of dissolved solids. Many producers and secondary processors of waste pickle liquor could continue to neutralize, yet meet water quality standards of receiving streams. However, undiminished output of soluble by sources which have the potential to eliminate such discharges will preclude development or expansion of industries whose wastes are inherently high in dissolved solids.

Pickle liquors are highly acidic. They are classified as hazardous wastes under 40 CFR Section 261.22. There are several different means for waste pickle liquor disposal. These means and division policies regarding them are discussed below.

### POLICY: Recycle/Waste Reduction

This is the preferred means for waste pickle liquor disposal. This method utilizes the base concept of waste minimization/reduction. This method minimizes the cost and volume of effluent, stops waste and inefficiency, and eliminates discharges of noxious materials from pickling plants. This is the most favorable method from the environmental standpoint. Waste reduction should be promoted at the source. For sulfuric acid pickle liquor, crystallization process is the most common method of acid recovery through removal of ferrous sulfate. For hydrochloric acid pickle liquor, the existing commercially proven technology is thermal decomposition. These methods are described in U.S. EPA's Development Document for Iron and Steel Manufacturing. For operations generating over five hundred gallons of spent pickle liquor a day, this method has to be considered.

### Neutralization

This method can be: a) simple neutralization - raising Ph to about seven, b) modified neutralization - raising pH plus filtration for iron hydroxide sludge, c) controlled neutral/oxidation - raising pH then oxidizing the resultant ferrous hydroxide to magnetic iron oxide and water, or d) lime precipitation with sludge recycle - precipitating toxic metals, neutralizing acid wastes, and minimizing sludge generation by providing a considerably denser cake than conventional precipitation processes.

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Modified neutralization and controlled neutralization/oxidation and lime precipitation with sludge recycle and preferred methods. However, they require higher investment and operating costs than simple neutralization. However, these methods can only be used when the receiving stream water quality standards can be met.

Simple neutralization procedure for spent pickle liquor is unacceptable for operations generating over five hundred gallons per day. The figure five hundred was selected because a bi-weekly accumulation of 5,000 gallons constitutes a standard truckload. Smaller volumes are uneconomic for secondary processors to collect. Existing small operations (under five hundred gallons per day) should be allowed to continue neutralizing spent liquor only if this will not prevent them from meeting receiving stream water quality standards.

#### Hauling to Publicly Owned Treatment Works

Pickle liquors contain ferrous chloride or ferrous sulfate which can be used as phosphorus precipitants by publicly owned treatment works (POTWs) for phosphorus removal. Because of the low pH, pickle liquor is corrosive and classified as a hazardous waste. 40 CFR Section 403 generally prohibits the introduction of wastes to a POTW with a pH lower than 5.0. Therefore, at least neutralization is required before discharging to POTWs. Contaminated waste pickle liquor can cause plant upsets. Also, the potential does exist for the pickle liquor to contaminate the POTW sludge and subsequently reduces sludge disposal options. Careful consideration must be given to the trade-off between the economic benefits of using pickle liquor to facilitate phosphorus removal and the liabilities associated with the practice.

Hauling waste pickle liquor to POTWs should be considered as a secondary disposal option and used in conjunction with other disposal methods. Since only POTWs in the Lake Erie Basin with one million gallons per day or greater have a milligram per liter phosphorus effluent limit, this disposal method should only be considered for these POTWs. Since pickle liquor is a hazardous waste, the following rules in 40 CFR Section 260.60 (permit to rule) for POTWs must be followed.

The owner/operator of a POTW which accepts for treatment hazardous waste shall be deemed to have a Resource Conservation and Recovery Act permit, if the owner or operator:

- 1) has a NPDES permit;
- 2) complies with the conditions of that permit;
- 3) complies with the following regulations:
  - a) 40 CFR 264.11, identifying number;
  - b) 40 CFR 264.71, use of manifest system;
  - c) 40 CFR 264.72, manifest discrepancies;
  - d) 40 CFR 264.73(a) and (b)(1), operation record;
  - e) 40 CFR 264.75, biennial report;
  - f) 40 CFR 264.76, unmanifested waste report; and
  - g) For NPDES permits issued after November 8, 1984, 40 CFR 264.101; and

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- 4) if the waste meets all federal , state, and local pretreatment requirements which would be applicable to the waste if it were being discharged into the POTW through a sewer, pipe, or similar conveyance.

#### Deep Well Injection/Ocean Dumping

While existing deep-well disposal facilities should be allowed to continue operations, proposals to initiate subsurface disposal of pickle liquors should not be approved unless other suitable alternatives have been exhausted.

40 CFR Section 270.60 (permit by rule) allows deep well injection and ocean dumping of hazardous wastes with certain restrictions. However, the division discourages this disposal method.

In discussion with steel companies, other picklers, and contract processors, representatives of the agency should stress the eventual economic and environmental benefits of conversion to acceptable treatment technology. The division encourages all permits and plans to include consideration on all means of waste pickle liquor disposal with economic feasibilities. More than one disposal method can be used to produce satisfactory results.