

	<b>OFFICE OF WASTE MANAGEMENT AND RADIOLOGICAL PROTECTION POLICY AND PROCEDURE</b>		DEPARTMENT OF ENVIRONMENTAL QUALITY
<b>Original Effective Date:</b> March 4, 2002  <b>Revised Date:</b>  <b>Reformatted Date:</b> November 30, 2012	<b>Subject:</b> Lagoon Closure		<b>Category:</b> <input type="checkbox"/> Internal/Administrative <input type="checkbox"/> External/Non-Interpretive <input checked="" type="checkbox"/> External/Interpretive
	<b>Division/Office and Program Names:</b> OWMRP-Solid Waste Section		
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**INTRODUCTION, PURPOSE, OR ISSUE:**

This policy and procedure is intended to clarify the closure process for certain lagoons that are required to close under Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). If all wastewater was discharged to the lagoon prior to 1979, then closure is regulated under Part 201, Environmental Remediation, of the NREPA, is not subject to this policy and procedure and should proceed under Remediation and Redevelopment Division (RRD) staff guidance.

To close a lagoon under Part 115 that had been or is used as part of a facility's treatment or storage system for non-hazardous wastewater either under a groundwater permitted discharge, a National Pollutant Discharge Elimination System (NPDES) permitted discharge, or from a facility that never received a discharge permit, the facility shall complete the closure process outlined below.

**AUTHORITY:**

Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 115).

**POLICY:**

FACILITY CLASSIFICATION

In order to determine the appropriate DEQ division/office responsible for a specific lagoon closure, it is necessary to know when the wastewater was added to the lagoon. If any wastewater was discharged to the lagoon after 1978, then Part 115 regulates the lagoon closure. These closures will proceed per this Policy and Procedure.

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CLOSURE PROCESS

1. CHARACTERIZATION OF THE SLUDGE

a. Sludges intended for removal from the lagoon:

If sludges will be removed and disposed/land applied before the lagoon is closed, they must be tested according to the appropriate regulations. This would be the Part 24 rules (Land Application of Biosolids) under Part 31, Water Resources Protection, of the NREPA, for municipal biosolids; Part 111, Hazardous Waste Management, of the NREPA for hazardous wastes; or Part 115 for everything else. Reuse or disposal of these sludges must be done in compliance with the appropriate regulations.

b. Sludges intended to remain in the lagoon:

If sludges will be left in the lagoon after closure, then Rule 118 of Part 115 requires that the waste be representatively sampled in accordance with the United States Environmental Protection Agency (U.S. EPA) publication entitled "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," SW-846, 3rd edition (SW-846). The SW-846 states that a minimum of four samples would be representative of a waste. Therefore, a minimum of four samples would need to be analyzed from each lagoon as the starting point. However, based on variability, additional samples may be required. In order to account for spatial variability, the lagoon should be sampled at appropriate horizontal and vertical locations, depending on the depth of sludge in each lagoon. The appropriate sample population needed may be determined by using the Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria (S<sup>3</sup>TM). The samples should be analyzed for Part 115, Rule 450-454 parameters and other contaminants potentially present. Acceptable detection limits for analysis are found in the Office of Waste Management and Radiological Protection (OWMRP) Policy and Guidance OWMRP-115-14. Other testing protocols may be acceptable to the OWMRP but would require additional review and approvals by the OWMRP.

2. REGULATION OF SLUDGES THAT REMAIN IN THE LAGOON

The DEQ promotes the beneficial use of waste materials; however, lagoon closure requirements did not become effective in the Part 115 rules until October 7, 1993. Therefore, sludges from lagoons used before this date may be regulated differently than sludges placed in lagoons after this date. To determine the requirements for the management of sludge in a specific lagoon, follow the appropriate requirements below:

- a. If the lagoon first received wastewater before October 7, 1993, follow the requirements contained in Table 1.

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- b. If the lagoon first received wastewater on or after October 7, 1993, follow the requirements contained in Table 2.

Any groundwater contamination associated with the operation of the lagoon would need to be remediated in accordance with Part 201 before the lagoon could obtain "clean closure" status.

3. CLEAN CLOSURE FOR LAGOONS WITH SLUDGE REMOVED AND NO RESIDUAL IMPACTS

If the sludge is removed, then the underlying soils must be tested to show that no contaminants remain and that the groundwater has not been impacted. If the underlying soils are to remain in place, they will be considered to be uncontaminated if they meet the Part 201 criteria. If the underlying soils were to be removed, they would be considered to be uncontaminated (inert) by meeting the requirements of Rules 115 or 116 of Part 115 and no further action would be required. If contaminated, the lagoon soils must be removed and properly disposed. The characterization of the soils should be conducted as per section No. 1 above.

Any groundwater contamination associated with the operation of the lagoon would need to be remediated in accordance with Part 201 before the lagoon could obtain "clean closure" status.

4. CONSISTENCY OF WORK PLANS

All work plans for lagoon closures must be provided to the district supervisor of the appropriate division (Water Resources Division [WRD] or the OWMRP) and to the chair of the OWMRP Remedial Action Team (RAT). The division responsible for the discharge shall ensure that work plans contain all the information required to make a determination that the closure is appropriate. The RAT will determine if the number of samples taken and analyzed is appropriate, or if other issues are present. This will ensure consistency of review with established policies and procedures related to sampling.

5. U.S. ENVIRONMENTAL PROTECTION AGENCY(U.S. EPA) INVOLVEMENT

In addition to the requirements listed above, sewage sludge lagoons may be subject to closure requirements under the 40 CFR 503 program, Subpart C, and facilities should contact the U.S. EPA staff for direction prior to closing any sewage sludge lagoon.

6. WRD INVOLVEMENT

The OWMRP will assist the WRD by providing technical guidance relating to the closure of lagoons under their jurisdiction. The WRD will be responsible to ensure that all lagoon closures under their jurisdiction submit an adequate lagoon closure plan and are properly closed. The OWMRP will be responsible for the review and approval of all closure plans

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and will perform all technical evaluations under the terms of this policy and procedure of analytical data associated with sampling and testing of the involved materials (e.g., sludges or soils).

7. OTHER CONSIDERATIONS

All solid waste associated with the construction, operation, or closure of the lagoon must be properly disposed/recycled. This would include all piping, aerators, plastic liners, buildings, etc. The removal of liquids from a lagoon may require authorization either through a groundwater or surface water discharge permit issued under Part 31. In addition, a Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or a Part 31 storm water permit may be required at these sites.

APPENDICES:

Table 1 – Lagoons constructed before October 7, 1993

Table 2 – Lagoon constructed on or after October 7, 1993

OFFICE CHIEF APPROVAL:



Elizabeth M. Browne, Chief

Office of Waste Management and Radiological Protection

November 1, 2012

Date

DEPUTY DIRECTOR APPROVAL:



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November 30, 2012

Date

**TABLE 1**

**Requirements for Management of Sludges from Lagoons Constructed BEFORE October 7, 1993**

		GROUNDWATER INFORMATION	
		No Impact – as demonstrated by hydrogeological information	Impact
WASTE INFORMATION			Unknown
Sludge Meets Inert Criteria	<ul style="list-style-type: none"> <li>• Deed Notice</li> <li>• Clean cover if the waste cannot support vegetation</li> <li>• Must consider gas management</li> <li>• Approved under site-specific designation per Part 115</li> </ul>	<ul style="list-style-type: none"> <li>• Develop/implement RAP that may require:</li> <li>• Clean cover</li> <li>• Financial assurance</li> <li>• Gas management</li> <li>• Groundwater monitoring</li> <li>• Consent order</li> <li>• Deed Restriction</li> </ul>	Perform hydrogeological investigation and follow criteria from appropriate column to the left.
Sludge Exceeds Inert Criteria	<ul style="list-style-type: none"> <li>• Deed Restriction</li> <li>• Clean cover if the waste cannot support vegetation</li> <li>• Must consider gas management</li> <li>• Impervious cap or long term monitoring</li> <li>• Approved under site-specific designation per Part 115</li> </ul>	<ul style="list-style-type: none"> <li>• Develop/implement RAP that may require:</li> <li>• Clean cover</li> <li>• Financial assurance</li> <li>• Gas management</li> <li>• Groundwater monitoring</li> <li>• Consent order</li> <li>• Deed Restriction</li> </ul>	Perform hydrogeological investigation and follow criteria from appropriate column to the left.

<sup>1</sup> – RAP – Response Activity Plan

<sup>2</sup> – TSCA – Toxic Substances Control Act

**TABLE 2**

**Requirements for Management of Sludges from Lagoons Constructed on or AFTER October 7, 1993**

		<b>GROUNDWATER INFORMATION</b>	
	No Impact – as demonstrated by hydrogeological information	Impact	Unknown
<b>WASTE INFORMATION</b>			
Sludge Meets Inert Criteria	<ul style="list-style-type: none"> <li>• Must remove if not being beneficially used</li> <li>• Allow closure in place if sludge is being beneficially used as fill material or helpful in promoting plant growth</li> <li>• Must consider gas management</li> <li>• Clean cover if the waste cannot support vegetation</li> <li>• Approved under site-specific designation per Part 115</li> <li>• Deed restriction</li> <li>• Must actually propose a legitimate use to be implemented within reasonable timeframe</li> </ul>	<ul style="list-style-type: none"> <li>• Must remove if not being beneficially used</li> <li>• Allow closure in place if sludge is being beneficially used as fill material or helpful in promoting plant growth</li> <li>• Must consider gas management</li> <li>• Clean cover if the waste cannot support vegetation or impervious cover if RAP requires</li> <li>• Develop/implement RAP</li> <li>• Groundwater monitoring</li> <li>• Financial assurance may be required</li> <li>• Possibly approved under consent order and/or Part 115</li> <li>• Deed restriction</li> </ul>	<ul style="list-style-type: none"> <li>• Perform hydrogeological investigation and follow requirements under appropriate column to the left</li> </ul>
Sludge Meets Low Hazard Industrial Waste Criteria (see R299.4122)	<ul style="list-style-type: none"> <li>• Close lagoon under Rule 309, which requires bonding, capping, gas collection, monitoring, deed restriction, etc.</li> <li>• Possibly approved under consent order</li> </ul>	<ul style="list-style-type: none"> <li>• Close lagoon under Rule 309, which requires bonding, capping, gas collection, monitoring, deed restriction, etc.</li> <li>• Develop/implement RAP</li> <li>• Possibly approved under consent order and/or Part 115</li> </ul>	<ul style="list-style-type: none"> <li>• Perform hydrogeological investigation and follow requirements under appropriate column to the left</li> </ul>
Sludge Exceeds Low Hazard Industrial Waste Criteria	<ul style="list-style-type: none"> <li>• Remove sludge</li> <li>• Verify clean closure</li> </ul>	<ul style="list-style-type: none"> <li>• Remove sludge</li> <li>• Develop/implement RAP</li> </ul>	<ul style="list-style-type: none"> <li>• Remove sludge</li> <li>• Perform hydrogeological investigation and follow requirements under appropriate column to the left</li> </ul>