

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

POND SEALING OR LINING – SOIL DISPERSANT TREATMENT

(No.)
Code 521B



DEFINITION

A liner for a pond or waste impoundment consisting of a compacted soil-dispersant mixture.

PURPOSE

To reduce seepage losses from ponds or waste impoundments for water conservation and environmental protection.

CONDITION WHERE PRACTICE APPLIES

This practice applies where:

- Soils are suitable for treatment with dispersants.
- Ponds or waste impoundments require treatment to reduce seepage rates and to impede the migration of contaminants to within acceptable limits.

CRITERIA

General Criteria Applicable to All Purposes

Use dispersant treated soil liners that comply with all Federal, state, and local laws, rules, and regulations.

Impact to cultural resources, wetlands and Federal and state protected species shall be evaluated and avoided or minimized to the extent practicable during planning, design and implementation of this conservation practice in accordance with established National and Florida policy, General Manual (GM) Title 420-Part 401; Title 450-Part401, Title 190-Parts 410.22 and 410.26, National Planning Procedures Handbook (NPPH) Florida Supplements to Parts 600.1 and 600.6, National Cultural Resources Procedures Handbook (NCRPH), National Food Security Act Manual (NFSAM), and the National Environmental Compliance Handbook (NECH).

Design lined structures to meet all applicable NRCS standards.

Specify dispersant treated soil liners to be filter-compatible with the natural foundation materials on which they are compacted according to Chapter 26, Part 633 of the National Engineering Handbook (NEH).

Design the minimum thickness of the finished compacted liner to be 6 inches.

Specify the dispersant to be used to be tetrasodium pyrophosphate (TSPP), sodium tripolyphosphate (STPP), or soda ash unless laboratory tests using other dispersant types are used for design.

When laboratory permeability tests are required to determine application rates, perform the tests using dispersant of the same quality and fineness as that proposed for use.

For protection against dispersant dust, require personnel on site during dispersant application and mixing to wear mask and goggles.

Criteria to Waste Impoundments

Design. Design dispersant treated soil liners for waste impoundments to be in accordance with

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

NEH Series, Part 651, Agricultural Waste Management Field Handbook, Chapter 10, Appendix 10D and/or state regulatory requirements.

Liner Protection. Protect the liner against desiccation cracking, the effects of water surface fluctuations, wave action, surface erosion, erosion from pipe inlets, agitation equipment, animals, or items installed through the liner. Include protective measures in the system design to protect the liner for these cases. Place a minimum of 6 inches of soil cover over the soil-dispersant liner.

Criteria Applicable to Ponds

Application Rate. For ponds, in the absence of laboratory tests or field performance data on soils similar to those to be treated, follow Table 1 for the minimum application of dispersant per 6-inch thickness of constructed liner.

Table 1 - Minimum Application Rate

Dispersant Type	Application rate (lb./ 100 ft ²)
Polyphosphates	7.5
Soda Ash	15.0

Liner Thickness. In the absence of more detailed testing and analyses, specify liner thickness in accordance with Table 2.

Table 2 - Minimum Liner Thickness Criteria

Water Depth (feet)	Liner Thickness (inches)
8 or less	6
8.1 – 16	12
16.1 – 24	18
24.1 - 30	24

CONSIDERATIONS

Consider flattening the slopes of ponds or waste impoundments to facilitate compactive efforts during construction.

Consider the stair-step method of construction as outlined in Appendix 10D in lieu of slope flattening.

Consider a protective compacted soil cover for protecting the soil-dispersant liner for ponds.

Consider using a flexible membrane liner for sites that have water depths greater than 24 feet.

PLANS AND SPECIFICATIONS

Describe the requirements for applying the practice to achieve its intended purpose in the plans and specifications for dispersant treated soil liners for ponds and waste impoundments.

As a minimum, include the following in the plans and specifications:

- Plan view of system layout
- Foundation preparation
- Type and application rate of dispersant to be used
- Method of installation
- Method to protect liner
- Structural details
- Quantity of material

OPERATION AND MAINTENANCE

Maintenance activities required for this practice consist of those operations necessary to prevent damaging the treated soil liner. Include, but is not limited to, exclusion of animals and equipment from the treated area, protection of the liner during initial filling, agitation, or pumping operations, and reparation of disturbed or eroded areas in the operation and maintenance.

REFERENCES

General Manual
 Title 420-Part 401
 Title 450-Part401
 Title 190-Parts410.22 and 410.26
 National Engineering Handbook
 Part 633, Chapter 26
 Part 650, Agricultural Waste Management Field Handbook, Chapter 10, Appendix 10D
 National Cultural Resources Procedures Handbook
 National Environmental Compliance Handbook
 National Food Security Act Manual
 National Planning Procedures Handbook

Florida Supplements to Parts 600.1 and

600.6