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 to acceptable standards from ponds or waste impoundments for water conservation and environmental protection.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where:

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

CRITERIA – ALL PURPOSES

All structures to be lined with soil dispersant treatment must have been constructed to at least the minimum requirements as stated in NRCS Conservation Practice Standards, 378 - Pond, 313 - Waste Storage Facility, or 359 - Waste Treatment Lagoon, and all other applicable NRCS standards.

Dispersant treated soil liners shall comply with all federal, state, and local laws, rules, and regulations.

Filter. Dispersant treated soil liners shall be filter compatible with the natural foundation materials on which they are compacted according to National Engineering Handbook, Part 633, Chapter 26, Gradation Design of Sand and Gravel Filters.

Dispersant. The dispersant shall be tetrasodium pyrophosphate, (TSPP), sodium tripolyphosphate (STPP), or soda ash, unless laboratory tests determine that other dispersants are acceptable and are approved by the State Conservation Engineer.

When a laboratory permeability test is required to determine application rate of a dispersant, the test shall be performed using a dispersant of the same quality and fineness as that proposed for use.

Side Slope. The interior slopes of the structure shall not be steeper than three horizontal to one vertical (3:1).

Liner Protection. The liner shall be protected against desiccation cracking, the effects of water surface fluctuations, wave action, surface and pipe inlet erosion, and erosion from agitation equipment, animals, or items installed through the liner. At least 6 inches of protective compacted soil cover shall be placed over the finished compacted soil-dispersant liner.

Safety. All personnel on site during dispersant mixing and application, shall wear mask and goggles for protection against dispersant dust,

CRITERIA – WASTE IMPOUNDMENT

Design. Design of dispersant treated soil liners for waste impoundments shall be in accordance with National Engineering Handbook Series, Part 651, Agricultural Waste Management Field Handbook, Chapter 10, Appendix 10D and/or state regulatory requirements. The minimum thickness of the finished compacted liner shall be 6 inches.

CRITERIA – POND

Application Rate. Without laboratory tests or field performance data on soils similar to those to be treated, the minimum application of dispersant per 6-inch thickness of compacted liner shall be as shown in **Table 1**.

Liner Thickness. Without laboratory testing and analyses, the finished compacted liner thickness shall be according to **Table 2.**

Table 1

Dispersant Type	Application rate (lb./ 100 ft^2)
Polyphosphates	7.5
Soda Ash	15

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

Table 2

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

CONSIDERATIONS

To facilitate compaction during construction, consider flattening the embankment slopes of ponds or waste impoundments versus the stair-step method as outlined in Part 651, Agricultural Waste Management Field Handbook, Appendix 10D.

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

PLANS AND SPECIFICATIONS

Plans and specifications for dispersant treated soil liners for ponds and waste impoundments shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. Plans and specifications shall include such drawings, specifications, material requirements, quantities, construction requirements, equipment requirements, and other documents as are necessary to describe the work to be done.

OPERATION AND MAINTENANCE

Maintenance activities required for this practice consist of those operations necessary to prevent damaging the treated soil liner.

Protect the liner during filling or agitation operations.

Sediment coagulating materials, such as, gypsum or iron sulfate, shall not be used to clear reservoir water.

Maintain the soil covering at the construction depth.

Limit the use or travel of any equipment in the area that was sealed.

Prevent all livestock from entering the sealed area of the pond.

All exclusion fences must be maintained to prevent unwanted entry.

Investigate the cause of any settlement or cracks.

Eliminate all burrowing animals or rodents.

Repair any vandalism, vehicle, or livestock damage.