

NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD

**POND SEALING OR LINING**

**SOIL DISPERSANT**

(No.)  
CODE 521B

**DEFINITION**

Installing a fixed lining of impervious material or treating the soil in a pond mechanically or chemically to impede or prevent excessive water loss.

**PURPOSE**

To reduce seepage losses in ponds to an acceptable level.

**CONDITIONS WHERE PRACTICE APPLIES**

This practice applies where water loss from a pond through leakage is, or will be, of such proportion as to prevent the pond from fulfilling its planned purpose or where leakage will damage land and crops or cause waste of water or environmental problems.

**CRITERIA**

Ponds to be lined shall be constructed to meet the SCS standard for Irrigation Pits or Regulating Reservoirs (552), Irrigation Storage Reservoirs (436), Ponds (378), Waste Treatment Lagoons (359), Waste Storage Ponds (425), or Wildlife Watering Facilities (648) as appropriate.

**Soil Properties.** For chemical sealing, soils shall have properties approximating the following:

1. At least 50 percent finer than 0.074 mm diameter (No. 200 sieve)
2. At least 15 percent finer than 0.002 mm diameter.
3. Less than 0.50 percent soluble salts (based on dry soil weight).

**Dispersants.** Tetrasodium pyrophosphate (TSPP) and sodium tripolyphosphate (STPP) shall be used in preference to other polyphosphate salts. Commercial phosphatic fertilizer is not acceptable. Soda ash, technical grade, 99-100 percent sodium carbonate may be used.

These dispersants shall be finely granular; 95 percent of the material shall pass a number 30 sieve and less than 5 percent a number 100 sieve.

Standard commercial sodium chloride is satisfactory in the granulated form normally available.

Other dispersants may be used in the form found to be satisfactory by local experience.

**Rate of application.** The rate of application and the kind of dispersant to use shall be based on laboratory tests unless sufficient data are available on the field performance of previously tested soils

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

that are similar to the soil to be sealed in texture and chemical characteristics.

In the absence of laboratory tests for the soils to be sealed, the minimum application shall be:

Sodium polyphosphate	5 to 10lb/100 ft <sup>2</sup>
Sodium chloride	20 to 33 lb/100 ft <sup>2</sup>
Soda ash	10 to 20 lb/100 ft <sup>2</sup>
Other	As found to be adequate by local experience.

**Thickness of treated blanket.** The finished treated blanket shall be at least 6 in. thick for water depths 8 ft. or less. For greater depths of water, the blanket thickness shall be 12 in., and treated in two 6 in. lifts. A minimum thickness of 12 in. is recommended for all areas in the vertical range of water surface fluctuation.

In addition to the treated blanket, at least 2 ft. of fine-grained soil shall be placed over fractured rock outcrop or other highly permeable material.

## PLANNING CONSIDERATIONS FOR WATER QUANTITY AND QUALITY

### *Quantity*

1. Effects upon components of the water budget, especially effects on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation, and ground water recharge.
2. Variability of the practice's effects caused by seasonal or climatic changes.

3. Effects on downstream flows or aquifers that would affect other water uses or users.
4. Effects on the volume of downstream flow to prohibit undesirable environmental, social, or economic effects.
5. Potential use for water management to conserve water.

### *Quality*

1. Effects on the movement of sediment, pathogens, and soluble substances carried by seepage toward the ground water.
2. Effects on the visual quality of the downstream water resources.
3. Short-term and construction-related effects of this practice on quality of the local downstream water resources.
4. Effects on the movement of dissolved substances below the pool area and toward ground water.
5. Effects on wetlands or water-related wildlife habitats.

## PLANS AND SPECIFICATIONS

Plans and specifications for sealing ponds with soil dispersants shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

## **POND SEALING OR LINING SOIL DISPERSING SPECIFICATIONS**

The area to be treated shall be cleared of all vegetation and trash and all stones or other objects large enough to interfere with operation of the compacting equipment.

The moisture content of the soil must be near optimum for compacting.

Sealing chemicals shall be distributed evenly over the surface to be treated with a drill, seeder, or fertilizer spreader or by hand broadcasting. If broadcast by hand, the area must be staked or otherwise marked in grids of 100 square feet.

The chemicals shall be thoroughly mixed into the 6 to 8 inch thick layer of soil being treated. Mixing shall be done with disk, rototiller, pulverizer, or similar equipment. A second mixing shall be perpendicular to the first mixing.

If the moisture is inadequate for maximum compacting, water shall be added by sprinkling during the mixing operation. If the moisture content is too high, the soil shall be dried by disking or some other effective process.

Each treated layer of soil shall be compacted to a dry density of 90 percent or more of maximum standard Proctor density with the soil at optimum or slightly higher moisture content.

Treated areas shall be protected from puncture by livestock trampling. Areas near the normal waterline and at points of concentrated surface flow into the pond shall be protected against erosion.

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

Construction shall be carried out in such a manner that erosion and air and water pollution minimized. The completed job shall present a workmanlike finish.

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