

NB 11-66

POND SEALING OR LINING

Field tests for use of chemical dispersants are performed as follows:

- a. Perform field classification tests for the Unified Soil Classification System. A fine-grained plastic soil with either a high or low liquid limit will seal effectively with soda ash.
- b. Where plasticity is judged to be low, set up a field sealing test as follows:
 - (1) A 3-lb coffee can with plastic lid is required. Punch 12 holes (1/8" dia.) in the bottom of the can. Place 1/2 inch of coarse sand in the bottom of the can. Using a representative sample of soil, mix the dry soil and soda ash thoroughly and then add enough water to provide 10-15% moisture. For an application rate of 1 lb. soda ash to five square feet of area, 0.37 oz. of soda ash, 4.5-5.0 lb. of soil and 1/2 lb. water are needed to prepare this field test. A small glass tube, marked at the proper level for 0.37 oz. of soda ash, is provided for each area office. The required volume of soda ash is determined by tapping the tube on a table until no further settling takes place.

For an application rate of 0.25 inches per square foot for bentonite, substitute 0.27 lb. (123 grams) of bentonite for the soda ash as given above. The remainder of the test is the same.

Place the mixture in the can and tamp thoroughly to provide a depth of soil of 3-1/2 inches. Make sure there are no voids along the side of the can. Without disturbing the tamped soil, fill the can to the top with water, place the plastic lid (punch a small vent hole in the lid), and allow the soil-soda mixture to adsorb water for 24 hours.

Refill the can to the top with water and allow two or three days for water to seep (if it will) through the soil. Measure the drop in water level each day. If the daily seepage rate decreases to 0.1 inch/day, a satisfactory pond seal can be obtained. A permeameter using untreated soil may be set up which will indicate the seepage rate for the remolded soil sample. For higher test seepage rates, two or more layers of treated soil in the pond may be constructed. It may also be necessary to consider transporting a suitable soil to the pond or an alternate sealing method when seepage rates are excessive.

A pond may contain two or more soil types, which will then require two or more field sealing tests. When field tests become inconclusive, send representative samples to the State Engineering Office for detailed testing. Twenty-five pound soil samples are needed for detailed laboratory testing. Sample bags and tags are available, on request, from the State Engineering Office.