NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
Connecticut/Rhode Island
POND SEALING OR LINING – FLEXIBLE MEMBRANE
(No.)
Code 521A

DEFINITION

A manufactured hydraulic barrier consisting of a functionally continuous sheet of synthetic or partially synthetic, flexible material.

PURPOSE

To control seepage from water and waste impoundments for water conservation and environmental protection.

CONDITION WHERE PRACTICE APPLIES

On ponds and water storage structures that require treatment to control seepage rates within acceptable limits.

On waste storage and waste treatment facilities built in or of excavated earth and/or concrete elements, and which require treatment to prevent the migration of contaminants from the site.

CRITERIA

Structures to be lined shall have been constructed to meet all applicable NRCS standards. All inlets, outlets, ramps, and other appurtenances may be installed before, during, or after the liner placement, but shall be done in a manner that does not damage or impair the proper operation of the liner.

All flexible membranes shall be certified by the manufacturer to be suitable for the intended use. Membranes exposed to ultraviolet light shall have a 20-year minimum serviceable life.

Design of the flexible membrane shall be in accordance with manufacturer's recommendations. All flexible membrane installations shall meet the material and installation requirements of the plans and specifications provided for each installation, and shall be certified by the installer.

Minimum Criteria for Membranes [1/]

Type	Limiting Parameter
HDPE	40 mil thickness
LLDPE	40 mil thickness
PVC	30 mil thickness
GCL	0.75 lb./sq ft (bentonite)
EPDM	45 mil thickness

HDPE = High Density Polyethylene
LLDPE = Linear Low Density Polyethylene
PVC = Polyvinyl Chloride
GCL = Geosynthetic Clay Liner
EPDM = Synthetic Rubber

[1/] When flexible membranes are used under and behind concrete structures the minimum thickness shall be 11 mils.

Select soil materials shall be used as cover for liners where required for the proper performance, protection, and durability of the installation. Cover soils shall not contain sharp, angular stones or any objects that could damage the liner. Maximum allowable particle size of soil cover material shall be 3/8-in (10 mm), unless the liner is cushioned by a needle punched, non-woven geotextile. Cover materials shall be stable under all operational and exposure conditions.

Subgrade preparation shall conform to manufacturer recommendations. Subgrade materials shall not contain sharp, angular

stones or any objects that could damage the liner or adversely impact its function.

All structures shall be fenced to protect the liner from damage and for the safety of humans, livestock, wildlife, and pets.

Manufacturer recommendations shall be followed with regard to protection from weather and exposure.

If venting is used, manufacturer recommendations shall be followed regarding vent type and spacing.

CONSIDERATIONS

Venting should be considered if gas build up under the liner is anticipated.

If high water tables could adversely affect the proper functioning of the facility, interceptor or relief type drainage systems should be considered to control uplift pressures.

PLANS AND SPECIFICATIONS

Plans and specifications shall be prepared for specific field sites in accordance with this standard and shall describe the requirements for applying the practice to achieve its intended uses.

OPERATION AND MAINTENANCE

A plan for operation and maintenance of the liner shall be prepared.