



Ohio Administrative Code

Rule 901:10-2-06 Manure storage pond and manure treatment lagoon.

Effective: February 13, 2021

(A) A manure storage pond or manure treatment lagoon subject to this rule shall be designed and the plans stamped by a professional engineer. The following design and construction criteria shall be followed:

(1) An exploratory trench shall be excavated a minimum of four feet below natural grade to investigate for subsurface drainage lines in the immediate area of the manure storage pond or manure treatment lagoon. Any lines found shall be removed or relocated to provide for a minimum separation distance of not less than fifty feet between the top inner perimeter of the manure storage pond or manure treatment lagoon and the subsurface drainage line unless the subsurface drainage line is necessary to comply with paragraph (A)(9)(a) of this rule.

(2) If not already installed at the facility, a liquid level board, staff gauge, depth marker, or other appropriate device, approved by the director, shall be installed within the interior of the liquid manure storage pond or manure treatment lagoon to monitor manure levels. This device shall indicate levels every one foot in vertical elevation and shall indicate levels as described in paragraph (D)(1) of rule 901:10-2-08 of the Administrative Code.

(3) Agitation and pump-out points shall be shown on plans for a manure storage pond and a manure treatment lagoon with scour protection required.

(4) An emergency spillway may be included at the one foot freeboard level and shall be directed to a specifically designed filter strip or infiltration areas if the facility is constructed with an earthen embankment.

(5) Embankments.

(a) The minimum embankment top width shall be eight feet for embankments less than fifteen feet, ten feet for embankments ranging in height from fifteen to less than twenty feet, and twelve feet for



embankments ranging from twenty to twenty-five feet high, as measured from the low point on the downstream toe to the top of the dam.

(b) If the embankment is to be traversed by farm equipment, the minimum top width shall be twelve feet. The height of the embankment shall be no greater than twenty-five feet, as measured from the low point on the downstream toe to the top of the dam.

(c) Embankments shall have side slopes not steeper than two horizontal to one vertical.

(d) The combined side slopes of settled embankments shall not be less than five horizontal to one vertical.

(e) Vegetative cover shall be established on any exposed embankment and mowed or otherwise maintained to control erosion or other embankment deterioration. In the alternative, the director may approve other means or materials to control erosion.

(6) Inlets and outlets.

(a) Inlets shall be designed to resist corrosion, plugging and freezing.

(b) The embankment may contain no outlet piping that extends through the embankment unless the piping discharges to another facility or is a component of a re-circulating flush system.

(c) All pipes for manure transfer or manure flush systems shall have watertight joints in accordance with the following ASTM standards:

(i) ASTM D3212-standard specification for joints for drain and sewer plastic pipes using flexible elastometric seals; or

(ii) ASTM C443-standard specification for joints for concrete pipe and manholes, using rubber gaskets; or

(iii) Other standards recommended by the professional engineer and approved by the department.



(7) Storage period.

The minimum storage period of manure for a manure storage pond and manure treatment lagoon shall be one hundred eighty days of manure production unless alternative use and design is otherwise approved by the department. This section is not intended to address the surface water runoff where the runoff does not enter into the pond or lagoon.

(8) Freeboard.

Freeboard shall be provided for a manure storage pond and manure treatment lagoon in addition to the total storage volume such that the elevation of the emergency spillway or top of the settled embankment, if there is no designed emergency spillway, shall be less than the level that provides adequate storage to contain a precipitation event as required in rules 901:10-3-02 to 901:10-3-06 of the Administrative Code, plus an additional one foot of freeboard.

(9) Liners.

The owner or operator shall include the use of a liner as part of the manure storage pond or manure treatment lagoon that achieves a hydraulic conductivity of at least one times ten to the minus seven centimeters per second (1×10^{-7} cm/sec) to insure the integrity of the manure storage pond or manure treatment lagoon. A minimum of three feet of in situ soils with a hydraulic conductivity of one times ten to the minus seven centimeters per second will satisfy this requirement. The following design and construction criteria shall be followed:

(a) Ground water seepage shall be prevented from entering the bottom of the manure storage pond or manure treatment lagoon after construction by installing and/or maintaining a liner with a minimum liner thickness of three feet of in situ soil between the top of the seasonal high ground water surface and the bottom of the manure storage pond or manure treatment lagoon. In order to meet this requirement the ground water surface may be lowered by use of subsurface drainage lines that are properly designed by the engineering geologist or professional engineer and approved by the director.

(b) Soil liners shall be designed and constructed using procedures in section 651.1080 of the "United



States Department of Agriculture, Natural Resources Conservation Service Agricultural Waste Management Field Handbook, Chapter Ten, Geotechnical Design and Construction, August 2009," and "United States Department of Agriculture, Ohio Natural Resources Conservation Service, Section IV, Field Office Technical Guide Conservation Practice Standard 521-D, Pond Sealing and Lining, Compacted Earth Treatment. January 2010." Both procedures are available for review at the Ohio department of agriculture website <http://agri.ohio.gov/>. A soil liner thickness shall be a minimum of three feet.

(c) Design and construction alternatives for ground water protection.

(i) As a result of the subsurface geological exploration conducted pursuant to rule 901:10-2-03 of the Administrative Code and the findings of the report submitted in accordance with that rule, an engineering geologist, professional engineer or the director may determine that installation of an additional liner is required to insure the integrity of the manure storage pond or manure treatment lagoon and to protect groundwater.

(ii) If an additional or alternative liner protection is required as set forth in paragraph (A)(9)(c)(i) of this rule, then one or more of the following may be required by the director:

(a) Concrete liners that have a minimum thickness of five inches and shall include non-metallic water stops for all joints;

(b) Flexible plastic membranes that are installed under the supervision of the manufacturer or the manufacturer's representative and include written certification that the liner was installed in accordance with the manufacturers recommendations.

(c) Geosynthetic clay liners that are installed under the supervision of the manufacturer or the manufacturer's representative and include written certification that the liner was installed in accordance with the manufacturer's recommendations; or

(d) Other liner designs or materials will be considered at the discretion of the director if the minimum criteria of this paragraph of this rule are met.



(10) Design and construction criteria for a manure storage pond or manure treatment lagoon located in a karst area.

(a) Manure storage ponds or manure treatment lagoons may be constructed within a karst area provided that the facility is designed to prevent seepage of manure to groundwater.

(b) Any portion of a manure storage pond or manure treatment lagoon located below the pre-construction soil surface level and constructed in a karst area shall be designed and constructed utilizing a rigid material such as concrete or steel or a properly designed clay or synthetic liner, when appropriate, upon findings in the geologic exploration.

(11) Manure treatment lagoons shall be designed in accordance with the methods set forth in the appendix to this rule.