567—65.304(455B,459A) Unformed animal truck wash effluent structure—investigation; design; construction requirements. An unformed animal truck wash effluent structure required to be constructed pursuant to a construction permit issued pursuant to Iowa Code section 459A.205 shall meet the design and construction requirements set forth in this rule.

65.304(1) *Drainage tile investigation and removal.* Prior to constructing an unformed truck wash effluent basin, the site for the basin shall be investigated for drainage tile lines as provided in this subrule. All applicable records of known drainage tiles shall be examined for the existence of drainage tile lines.

a. Prior to excavation for an unformed manure storage structure, an inspection trench of at least ten inches wide shall be dug around the structure to a depth of at least 6 feet below the original grade and within 25 feet of the proposed outside of the toe of the berm.

b. Drainage tile lines discovered during the tile inspection of an unformed manure storage structure shall be removed and rerouted in the inspection trench or in an area outside of the inspection trench. All tiles within the inspection trench perimeter shall be removed or completely plugged with concrete, grout or similar materials. Drainage tile lines installed at the time of construction to lower the groundwater may remain in place as long as they are outside of the proposed toe of berm.

65.304(2) *Soils and hydrogeologic report.* An unformed animal truck wash effluent structure required to be constructed pursuant to a construction permit issued pursuant to rule 567—65.301(455B,459,459A) shall meet design standards as required by a soils and hydrogeologic report. The report shall be submitted with the construction permit application as provided in rule 567—65.303(455B,459A). The report shall include all of the following:

a. A description of the steps taken to determine the soils and hydrogeologic conditions at the proposed construction site, a description of the geologic units encountered, and a description of the effects of the soil and groundwater elevation and direction of flow on the construction and operation of the unformed animal truck wash effluent structure.

b. The subsurface soil classification of the site. A subsurface soil classification shall be based on ASTM international designation D 2487-06 or D 2488-06.

c. The results of a soils investigation conducted at a minimum of three locations within the area of the unformed animal truck wash effluent structure reflecting the continuous soil profile existing within the area of the unformed animal truck wash effluent structure. The soils investigation results shall be used in determining subsurface soil characteristics and groundwater elevation and direction of flow at the proposed site. The soils investigation shall be conducted and utilized as follows:

(1) By a qualified person ordinarily engaged in the practice of performing soils investigations.

(2) At locations that reflect the continuous soil profile conditions existing within the area of the proposed unformed animal truck wash effluent structure, including conditions found near the corners and the deepest point of the proposed unformed animal truck wash effluent structure. The soils investigation shall be conducted to a minimum depth of ten feet below the proposed bottom elevation of the unformed animal truck wash effluent structure.

(3) By methods that identify the continuous soil profile and do not result in mixing of soil layers. Soil corings using hollow-stem augers and other suitable methods may be used.

(4) Soil corings may be used to determine current groundwater levels by completing the corings as temporary monitoring wells as provided in subparagraph 65.304(3)*"a"*(1) and measuring the water levels in these wells no earlier than seven days after installation as provided in subparagraph 65.304(3)*"a"*(1).

(5) Upon abandonment of soil core holes, all soil core holes, including those developed as temporary water level monitoring wells, shall be plugged with concrete, Portland cement concrete grout, bentonite, or similar materials.

(6) If excavation methods are used in conducting the soils investigation, upon closure these excavations must be filled with suitable materials and adequately compacted to ensure they will not compromise the integrity of the unformed animal truck wash effluent structure liner.

65.304(3) *Hydrology.*

a. Determination of groundwater table. For purposes of this rule, the groundwater table is the seasonal high-water table determined by a PE, a groundwater professional certified pursuant to

567—Chapter 134, or qualified staff from the department or NRCS. If a construction permit is required, the department must approve the groundwater table determination.

(1) Current groundwater levels shall be measured as provided in this subparagraph for an unformed animal truck wash effluent structure. Three temporary monitoring wells shall be installed. The top of the well screen shall be within five feet of the ground surface. Each well shall be extended to at least two feet below the proposed top of the liner of an unformed animal truck wash effluent structure or to at least two feet below the proposed bottom of the footings of a formed animal truck wash effluent structure. In addition, the wells must be installed as follows:

1. Unformed animal truck wash effluent structure. For an unformed animal truck wash effluent structure, the monitoring wells may be installed in the soil core holes developed as part of conducting the soils investigation required in paragraph 65.304(2)*"c."*

2. Formed animal truck wash effluent structure. For a formed animal truck wash effluent structure, at least three temporary monitoring wells shall be installed as close as possible to three corners of the structure, with one of the wells close to the corner of deepest excavation. If the formed animal truck wash effluent structure is circular, the three monitoring wells shall be equally spaced and one well shall be placed at the point of deepest excavation.

(2) The seasonal high-water table shall be determined by considering all relevant data, including the groundwater levels measured in the temporary monitoring wells not earlier than seven days following installation, NRCS soil survey information, soil characteristics such as color and mottling, other existing water table data, and other pertinent information. If a drainage system for artificially lowering the groundwater table will be installed in accordance with the requirements of paragraph 65.304(3)*"c,"* the level to which the groundwater table will be lowered will be considered to represent the seasonal high-water table.

b. The unformed animal truck wash effluent structure shall be constructed with a minimum separation of two feet between the top of the liner of the unformed animal truck wash effluent structure and the seasonal high-water table.

c. If a drainage tile line around the perimeter of the basin is installed a minimum of two feet below the top of the unformed animal truck wash effluent structure liner to artificially lower the seasonal high-water table, the top of the unformed animal truck wash effluent structure's liner may be a maximum of four feet below the seasonal high-water table which existed prior to installation of the perimeter tile system. The seasonal high-water table may be artificially lowered by gravity flow tile lines or other similar system. However, the following shall apply:

(1) Except as provided in subparagraph 65.304(3)*"c"*(2), an animal truck wash facility shall not use a nongravity mechanical system that uses pumping equipment.

(2) If the animal truck wash facility was constructed before July 1, 2005, the operation may continue to use its existing nongravity mechanical system that uses pumping equipment or it may construct a new nongravity mechanical system that uses pumping equipment. However, an animal truck wash facility that expands the area of its animal truck wash facility on or after April 1, 2011, shall not use a nongravity mechanical system that uses pumping equipment.

(3) Drainage tile lines may be installed to artificially lower the seasonal high-water table at an unformed animal truck wash effluent structure, if all of the following conditions are satisfied:

1. A device to allow monitoring of the water in the drainage tile lines and a device to allow shutoff of the flow in the drainage tile lines are installed, if the drainage tile lines do not have a surface outlet accessible on the property where the unformed animal truck wash effluent structure is located.

2. Drainage tile lines are installed horizontally no greater than 25 feet away from the outside toe of the berm of the unformed animal truck wash effluent structure. Drainage tile lines shall be placed in a vertical trench and encased in granular material which extends upward to the level of the seasonal high-water table which existed prior to installation of the perimeter tile system.

65.304(4) *Liner design and construction.* The liner of an unformed animal truck wash effluent structure shall comply with all of the following:

a. The liner shall comply with any of the following permeability standards:

(1) The liner shall be constructed to have a percolation rate that shall not exceed one-sixteenth inch per day at the design depth of the unformed animal truck wash effluent structure as determined by percolation tests conducted by the PE. If a clay soil liner is used, the liner shall be constructed with a minimum thickness of 12 inches or the minimum thickness necessary to comply with the percolation rate in this subparagraph, whichever is greater.

(2) The liner shall be constructed to have a percolation rate that shall not exceed one-sixteenth inch per day at the design depth of the unformed animal truck wash effluent structure. The design of the liner will specify a moisture content, compaction requirement, and liner thickness that will comply with the maximum allowable percolation requirement and will be based on moisture content and percentage of maximum density as determined by a standard 5-point proctor test performed in accordance with ASTM D698 (Method A), effective date November 11, 1991. The liner thickness will be based on laboratory tests of the compacted material, with a minimum liner thickness of 12 inches. Appropriate field or laboratory testing during construction shall be provided to verify the design requirements are met.

b. If a synthetic liner is used, the liner shall be installed to comply with the percolation rate required in subparagraph 65.304(4)*"a"*(1).

65.304(5) *Berm erosion inspection and repair.* The owner of an animal truck wash facility using an unformed animal truck wash effluent structure shall inspect the berms of the unformed animal truck wash effluent structure at least semiannually for evidence of erosion. If the inspection reveals erosion that may impact the unformed animal truck wash effluent structure's structural stability or the integrity of the unformed animal truck wash effluent structure's liner, the owner shall repair the berms.

65.304(6) *Basins containing confinement manure and animal truck wash effluent.* Basins containing confinement manure and animal truck wash effluent shall meet the confinement construction standards and separation distance requirements provided in Division II of this chapter. The basin design shall ensure adequate storage including two feet of freeboard for an unformed animal truck wash effluent structure or one foot of freeboard for a formed animal truck wash effluent structure. The basin shall contain the annual manure generated from all confinement animals.

65.304(7) *Formed animal truck wash effluent structures.* An animal truck wash facility electing to use a formed animal truck wash effluent structure may submit, in lieu of an engineering report, a construction design statement that meets the requirements in subrule 65.104(3).

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