

567—65.7(455B,459,459A,459B) Karst terrain. Except as provided for in subrules 65.7(4) and 65.7(5), the provisions of this rule shall apply to the following structures: (1) confinement feeding operation structures at confinement feeding operations with over 500 animal units, (2) settled open feedlot effluent basins at open feedlot operations requiring a construction permit, (3) egg washwater structures, (4) AT systems, and (5) animal truck wash effluent structures.

65.7(1) Karst terrain submittal requirements. Prior to beginning construction of a structure identified in the introductory paragraph of this rule, the person planning the construction shall determine whether the proposed structure will be located in potential “karst terrain,” as defined in subrule 65.1(1). The AFO Siting Atlas shall be used to determine if the proposed structure is in potential karst terrain. The results of the karst terrain determination shall be submitted to the department according to the following:

a. If the proposed structure is not in potential karst terrain, the person planning the construction shall submit a printed map from the AFO Siting Atlas indicating the location of the structure, with the potential karst layer turned on, with the construction permit application documents or with the construction design statement if a construction permit is not required.

b. If the proposed formed manure storage structure is located in potential karst terrain, a PE licensed in Iowa, an NRCS-qualified staff person or a qualified organization shall submit a soil report, based on the results from soil corings, test pits or acceptable well log data, describing the subsurface materials and vertical separation distance from the bottom of the proposed structure to the underlying limestone, dolomite or soluble rock. A minimum of two soil corings spaced equally within the structure or two test pits located within five feet of the outside of the structure are required if acceptable well log data is not available. The soil corings shall be taken to a minimum depth of seven feet below the bottom elevation of the proposed structure or into bedrock, whichever is shallower. Any limestone, dolomite, or soluble bedrock in the corings or test pits shall be considered the bedrock surface rather than auger refusal. After the soil exploration is complete, each coring or test pit shall be properly plugged with concrete grout, bentonite or similar materials, and completion of this activity shall be documented in the soil report. If a 25-foot vertical separation distance can be maintained between the bottom of the proposed formed manure storage structure and limestone, dolomite, or other soluble rock, then the structure is not considered to be in karst terrain.

65.7(2) Construction standards for formed manure storage structures. A formed manure storage structure shall be constructed in accordance with the minimum concrete standards set forth in subrule 65.108(10) or Iowa Code section 459.307 if the structure is not constructed of concrete. No intact or weathered bedrock, including sandstone, shale, limestone, dolomite, or soluble rock, shall be removed or excavated during the construction of a storage structure.

65.7(3) Vertical separation distance requirements for formed manure storage structures. Except as provided for in subrule 65.7(5) related to the construction of a dry bedded confinement feeding operation structure, in addition to the concrete standards set forth in subrule 65.108(10) or Iowa Code section 459.307 if not constructed of concrete, a person constructing a formed manure storage structure on karst terrain shall comply with the following:

a. A minimum five-foot layer of low permeability soil (1×10^{-6} cm/sec) or rock between the bottom of a formed manure storage structure and limestone, dolomite, or other soluble rock is required if the formed manure storage structure is not designed by a PE or NRCS-qualified staff person.

b. If the vertical separation distance between the bottom of the proposed formed manure storage structure and limestone, dolomite, or other soluble rock is less than five feet, the structure shall be designed and sealed by a PE or NRCS-qualified staff person who certifies the structural integrity of the structure. A two-foot-thick layer of compacted clay liner material shall be constructed underneath the floor of the formed manure storage structure. However, it is recommended that any formed manure storage structure be constructed aboveground if the vertical separation distance between the bottom of the structure and the limestone, dolomite, or other soluble rock is less than five feet.

c. Groundwater monitoring shall be performed as specified by the department.

d. Backfilling shall not start until the floor slats have been placed or permanent bracing has been installed and grouted and shall be performed with material free of vegetation, large rocks, or debris.

65.7(4) *Unformed manure storage structures.* The construction of unformed manure storage structures, including unformed manure storage structures at SAFOs, is prohibited in karst terrain or an area that drains into a known sinkhole. In potential karst, at least one coring shall be taken to a minimum depth of 25 feet below the bottom elevation of the proposed unformed manure storage structure or into bedrock, whichever is shallower. If a 25-foot vertical separation distance can be maintained between the bottom of the unformed manure storage structure and limestone, dolomite, or other soluble rock, then the structure is not considered to be in karst terrain. No intact or weathered bedrock, including sandstone, shale, limestone, dolomite, or soluble rock, shall be removed or excavated during the construction of a manure storage structure.

65.7(5) *Dry bedded confinement feeding operation structure.* A person constructing any dry bedded confinement feeding operation structure, including structures at SAFOs, on karst terrain shall comply with all of the following:

a. The person must construct the structure at a location where there is a vertical separation distance of at least five feet between the bottom of the floor of the structure and the underlying limestone, dolomite, or other soluble rock in karst terrain or the underlying sand and gravel aquifer in an alluvial aquifer area.

b. The person must construct the structure with a floor consisting of reinforced concrete at least five inches thick.

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