

567—101.106(455B) Siting and location requirements. This rule applies to new MSWLF units and horizontal expansions of existing MSWLF units. Except for 101.106(2), this rule does not apply to permitted MSWLF units that have been approved prior to October 1, 2007. Information required to document compliance with 567—101.106(455B) shall be consolidated and maintained in a site exploration and characterization report pursuant to 101.106(3).

101.106(1) Location restrictions. MSWLFs shall comply with the following location restrictions.

a. Airports.

(1) No new MSWLF shall be constructed or established within six miles of a smaller public airport unless approved or authorized by the Federal Aviation Administration (FAA).

(2) Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions that are located within 10,000 feet (3,048 meters) of any airport runway end used by turbojet aircraft or within 5,000 feet (1,524 meters) of any airport runway end used by piston-type aircraft only must demonstrate to the FAA and obtain its approval that the units are designed and operated so that the MSWLF unit does not pose a bird hazard to aircraft. The owner or operator must place the demonstration of this requirement in the operating record and submit to the department a copy of the demonstration approved by the FAA.

(3) Owners or operators proposing to site new MSWLF units or lateral expansions within a five-mile radius of any airport runway end used by turbojet or piston-type aircraft must notify the affected airport and the FAA. A copy of these notifications shall be submitted to the department.

b. Wetlands. New MSWLF units and lateral expansions shall not be located in wetlands unless the owner or operator can make the demonstrations in 40 CFR 258.12 to the department.

c. Fault areas. New MSWLF units or lateral expansions shall not be located within 200 feet (60 meters) of a fault that has had displacement in Holocene time unless the owner or operator demonstrates to the department that an alternative setback distance of less than 200 feet (60 meters) will prevent damage to the structural integrity of the MSWLF unit and will be protective of human health and the environment.

d. Seismic impact zones. New MSWLF units and lateral expansions shall not be located in seismic impact zones unless the owner or operator demonstrates to the department that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site. The owner or operator must place the demonstration in the operating record and submit a copy of the demonstration to the department.

e. Unstable areas. Owners or operators of new MSWLF units, existing MSWLF units, or lateral expansions located in an unstable area must demonstrate to the department that engineering measures have been incorporated into the MSWLF unit's design to ensure that the integrity of the structural components of the MSWLF unit will not be disrupted. The owner or operator must place the demonstration in the operating record and submit a copy of the demonstration to the department. The owner or operator must consider the following factors, at a minimum, when determining whether an area is unstable:

- (1) On-site or local soil conditions that may result in significant differential settling;
- (2) On-site or local geologic or geomorphologic features; and
- (3) On-site or local human-made features or human-induced events (both surface and subsurface).

f. Property line setback. An MSWLF unit shall be at least 50 feet from an adjacent property line.

g. Housing and sensitive populations. An MSWLF unit shall not be within 500 feet of an occupied residence, recreational area, child care facility, educational facility, or health care facility in existence at the time of receipt of the original permit application or application to laterally expand the permitted MSWLF unit unless there is a written agreement between the MSWLF owner and such facility. The written agreement shall be filed with the county recorder for abstract of title purposes and a copy submitted to the department.

101.106(2) Soil and hydrogeologic investigations. An MSWLF shall have a qualified groundwater scientist, as defined in 567—101.3(455B), conduct a soil and hydrogeologic investigation in accordance with this subrule. The purpose of this investigation is to obtain data to determine potential routes of contaminant migration via groundwater. Such information is vital for completion of the site exploration and characterization report and the hydrologic monitoring system plan and design. This subrule sets forth the minimum requirements for soil and hydrogeologic investigations. An MSWLF shall comply with this subrule unless the department issues written approval due to specific site conditions.

a. Number of borings. A sufficient number of borings shall be made to accurately identify the stratigraphic and hydrogeologic conditions at the site.

b. Depth of borings. Unless otherwise approved by the department in writing, the following requirements shall apply to the depth of borings:

- (1) All borings shall be a minimum of 25 feet deep and at least 10 feet below the water table.
 - (2) At a minimum, half of all borings shall extend 20 feet into the uppermost aquifer, 50 feet below the water table, or 10 feet into bedrock.
 - (3) At a minimum, one boring shall extend 10 feet into bedrock or 100 feet below the lowest ground surface elevation.
 - (4) All borings shall be of sufficient depth to correlate strata between borings.
- c. Boring method and soil samples.*
- (1) Continuous samples shall be collected for all borings unless otherwise approved by the department in writing.

- (2) Boring logs shall be as detailed as possible in describing each stratum.
- (3) Samples shall be clearly marked, preserved, and transported in accordance with laboratory procedures.

(4) The permit applicant shall keep and preserve samples until at least 30 days after the permit is issued.

(5) Soil samples from each stratum shall be tested for falling-head hydraulic conductivity and grain size distribution.

d. Conversion of or plugging borings.

(1) Borings may be converted to piezometers or monitoring wells. However, the conversion of such borings does not guarantee that more piezometers or monitoring wells will not be required in the department-approved hydrologic monitoring system plan and design.

(2) Borings not converted to piezometers or monitoring wells shall be plugged and properly sealed so as not to create pathways for subsurface or surface pollution migration. Borings converted to piezometers or monitoring wells may still need to be partially plugged depending on the depth of the boring. Plugging shall be performed pursuant to 101.110(2).

e. Soil and hydrogeologic investigation description and analysis. A soil and hydrogeologic investigation description and analysis shall be completed and maintained and, at a minimum, shall contain the following:

- (1) The boring logs pursuant to 101.106(3)“c”(2).
- (2) A description of the properties of each soil and bedrock stratum as appropriate, including:
 1. Soil texture and classification.
 2. Particle size distribution.
 3. Mineral composition, cementation, and soil structure.
 4. Permeability, including horizontal and vertical permeability, and porosity.
 5. Geologic structure, including strike, dip, folding, faulting, and jointing.
 6. Previous activities and infrastructure at the site that could affect geology and hydrogeology, such as but not limited to mining, quarry operations, borrow pits, waste disposal, storage tanks, pipelines, utilities, and tile lines.
 7. Lenses and other discontinuous units, voids, solution openings, layering, fractures, other heterogeneity, and the scale or frequency of the heterogeneity.
 8. Correlation and continuity of strata between borings.
- (3) Descriptions of the hydrogeologic units within the saturated zone, including:
 1. Thickness.
 2. Hydraulic properties, including as appropriate conductivity, transmissivity, storativity, and effective porosity.
 3. Concentrations of chemical constituents listed in 40 CFR Part 258, Appendix I, present in the groundwater of hydrogeologic units and the source of those constituents, if known.
 4. Role and effect of each hydrogeologic unit as an aquifer, aquitard, or perched saturated zone.
 5. The actual or potential use of the aquifers as water supplies.

(4) Plan view maps, and a series of cross sections with two oriented perpendicular and two oriented parallel to the predominant directions of groundwater flow through the MSWLF unit, showing:

1. The extent of soil and bedrock strata.
2. The position of the water table.
3. The position of the uppermost aquifer.
4. Measured values of hydraulic head.

5. Equipotential lines and inferred groundwater streamlines of the water table, and the uppermost aquifer if different from the water table.

6. Location of soil and bedrock borings.
7. Location of piezometers and monitoring points, if any.

(5) A description and evaluation of horizontal and vertical groundwater flow that specifically addresses the following and their significance to the movement of pollutants carried by groundwater:

1. Local, intermediate, and regional groundwater systems.
2. Groundwater recharge and discharge areas within and immediately surrounding the facility, including interactions with perennial and intermittent surface waters and how the facility affects recharge rates.

3. Existing and proposed groundwater and surface water withdrawals.

4. The effects of heterogeneity, fractures, or directional differences in permeability on groundwater movement.

5. Directions of groundwater movement, including vertical components of flow, specific discharge rates, and average linear velocities within the hydrologic strata.

6. Seasonal or other temporal fluctuations in hydraulic head.

7. The effect of existing and proposed MSWLF units.

(6) An analysis of potential impacts on groundwater and surface water quality, and water users, in the event of a theoretical release at the most downgradient portion of each MSWLF unit. The analysis shall at a minimum utilize contaminants and indicator parameters with high mobility in groundwater. This analysis shall include:

1. Assumptions and approximations utilized and why they were utilized.

2. If a model is utilized, a thorough description of models used and each model's capabilities and limitations, including the reliability and accuracy of the models in actual field tests.

3. Projected paths and rates of movement of contaminants found in leachate.

(7) Recommendations for the location of the proposed MSWLF unit and conceptual design based on hydrogeologic information.

101.106(3) *Site exploration and characterization report.* An MSWLF shall develop and submit to the department for review a site exploration and characterization report. At a minimum, the site exploration and characterization report shall detail compliance with the requirements of this rule and contain the following components:

a. A title page and index.

b. A legal description of the site.

c. Proof of the applicant's ownership of the site and legal entitlement to use the site as an MSWLF. If the applicant does not own the site, then proof of legal entitlement to the site must be submitted. Such legal entitlement must include the following:

(1) Provisions that allow continued disposal operations until closure of the facility.

(2) Provisions for the performance of facility closure operations.

(3) Provisions for post-closure care for at least a 30-year period after facility closure.

d. Proof of the applicant's local siting approval pursuant to Iowa Code section 455B.305A, if applicable.

e. Scaled maps or aerial photographs locating the boundaries of the facility and identifying:

(1) North and other principal compass points.

(2) Section lines and other legal boundaries.

(3) Zoning and land use within one-half mile.

(4) Haul routes to and from the facility, including load limits or other restrictions on those routes.

- (5) Topography within one-half mile.
 - (6) Applicable setback distances and location requirements pursuant to this rule, including:
 - 1. Airports within six miles of existing, new, and planned MSWLF units.
 - 2. Floodplains within or adjacent to the facility.
 - 3. Wetlands within or adjacent to the facility.
 - 4. Fault areas within 200 feet of existing, new, and planned MSWLF units.
 - 5. Seismic impact zones within or adjacent to the facility.
 - 6. Unstable areas within or adjacent to the facility.
 - 7. Water wells within 1,000 feet of upgradient existing, new, and planned MSWLF units.
 - 8. Public water wells within one mile of upgradient existing, new, and planned MSWLF units.
 - 9. Boundaries of the existing, new, and planned MSWLF units and the facility property line.
 - 10. Housing and sensitive populations within 500 feet of existing, new, and planned MSWLF units.
 - f.* The bird-aircraft hazard demonstration pursuant to 101.106(2) “*a*,” if applicable.
 - g.* The floodplain demonstration pursuant to 101.106(2) “*b*,” if applicable.
 - h.* The wetlands demonstration pursuant to 101.106(2) “*c*,” if applicable.
 - i.* The fault area demonstration pursuant to 101.106(2) “*d*,” if applicable.
 - j.* The seismic impact zone demonstration pursuant to 101.106(2) “*e*,” if applicable.
 - k.* The unstable area demonstration pursuant to 101.106(2) “*f*,” if applicable.
 - l.* Copies of written agreements with surrounding property owners pursuant to 101.106(2) “*l*,” if applicable.
 - m.* The soil and hydrogeologic investigation description and analysis pursuant to 101.106(3) “*e*.”
- [ARC 0482D, IAB 8/19/26, effective 9/23/26]