

567—121.7(455B) Permit requirements. Prior to any land application of solid waste not exempted in 121.5(455B) and 121.6(455B), a permit must be obtained by the waste generator in accordance with the following requirements.

121.7(1) Solid wastes. The land application of sludge other than from a publicly owned treatment works which does not comply with 121.6(455B) shall:

a. Submit plan requirements of 567—Chapter 102 for land application sites. In addition all permit applications for land application shall include:

(1) A map and aerial photograph as required in 567—subrule 102.12(3) that shall be of sufficient scale to show all homes, buildings, lakes, ponds, watercourses, wetlands, dry runs, rock outcroppings, roads and other applicable details including topography and drainage patterns. All wells located within one mile of the site shall be identified on the map or aerial photograph and a bench mark shall be indicated.

(2) A soil map.

(3) Evidence that the proposed plan has been reviewed by the local soil conservation district commission and that the technical assistance of the soil conservation district will be utilized to facilitate compliance with wind and water soil loss limit regulations provided for in Iowa Code sections 161A.42 to 161A.51.

(4) Total area of the site in acres and the number of acres which are to be used for sludge disposal.

(5) Information on the depth, construction and use of any wells located within one mile of the site.

(6) Soil loss limits applicable to the site.

(7) Design soil loss levels for the proposed site.

(8) Estimated current soil loss levels.

(9) Cation exchange capacity, current exchangeable cations, available potassium and phosphorus, total nitrogen, bulk density and pH (normal and as modified) of site soils.

(10) Water table levels of the site, including the frequency and duration of any expected high water table or flooding.

(11) Information on the source, quantity, and method of treatment of the sludge prior to disposal.

(12) Results of sludge analyses, including the following: total residue; volatile residue; pH; total nitrogen¹; NH₃-N¹; NO₃-N¹; total phosphorus¹; potassium¹; the following metals¹: Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Mercury (Hg), Molybdenum (Mo), Nickel (Ni), Lead (Pb), Selenium (Se), Zinc (Zn); and such other tests as may be necessary to establish the constituents and stability of the sludge.

The collection and preservation of samples shall be done by the highest grade operator or the operator's designee at the plant producing the sludge. This shall be done in a manner and frequency approved by the department and intended to ensure that the sampling results are representative of sludge being disposed.

All analyses shall be performed in accordance with the methods described in "Methods for Chemical Analysis of Water and Wastes," 1974 (US-EPA) or "Standard Methods for the Examination of Water and Waste Water," 17th Edition, 1989. Alternate methods may be substituted only if acceptable to the university hygienic laboratory and approved by the department.

(13) A detailed description of the disposal process to be used, including: method of application and operation; daily, annual and total loading of sludge and of all significant components of the sludge identified in the analyses of 121.7(1)"a"(12); periods of use (including duration and frequencies); crop and cropping practice employed; and final use of site.

(14) Information specifying the equipment to be used, its design capacities, degree of utilization and expected methods of operation.

(15) Information indicating that the proposed sludge disposal project will not result in predictable uptake of contaminants by site vegetation to such a degree as to make the site unsuitable for its intended uses.

This shall be supported by information as to the rate of uptake and toxicity of any constituent in question, along with soil pH and cation exchange capacities and any other data necessary to evaluate the significance of contamination.

(16) Information indicating that the proposed sludge disposal project will not result in predictable movement of significant quantities of contaminants from the site to standing or flowing surface waters or to shallow aquifers that are in actual use or are deemed to have potential for use as water sources. Cation exchange capacities of site soils shall be utilized to evaluate the potential for metal contamination.

(17) Information indicating that the portion of the site to be utilized is outside a flood plain or shoreland, unless proper engineering and protection of the site will render it acceptable and prior approval of the department under Title V of these rules and, where necessary, the U.S. corps of engineers, is obtained.

(18) Information indicating how the operational requirements of 121.7(1) "c" and "d" will be met.

b. Additional plan requirements for land application sites. If site conditions, waste constituents, or proposed operation procedures warrant, the department may require any of the following:

(1) A description of the material underlying the proposed site, including stratigraphic sections based on a number of borings adequate to accurately determine the geology of the proposed site, unless the department agrees that an equivalent description may be obtained without borings. Additional information, including additional borings, may be required for any additional locations of specific concern to the department.

The stratigraphic sections shall be described from the surface to a depth determined by the director to be necessary to evaluate the suitability of the site for disposal of the specific waste.

Samples of sediments and rock units shall be collected at 5-foot intervals or when different genetic soil horizons are encountered, whichever is more frequent, unless the department agrees the other data will provide equivalent information. If samples are required, they shall be identified by location and depth. The name of the person classifying the sediments shall be indicated. At least one complete set of unaltered sack samples shall be submitted with the application. A drilling location plan and drilling log shall be submitted for each series of samples.

(2) A detailed description of each genetic soil horizon in terms of clay mineralogy, bulk density, moisture holding capacity, seasonal water table levels, particle size distribution, organic matter content, pH, cation exchange capacity, drainage class total heavy metals concentrations, current exchangeable cations, Atterberg limits and grain size distribution (by means of laboratory sieve and hydrometer or pipette analysis) unless the department agrees that other data will provide equivalent information.

(3) The direction of groundwater flow and the number, location, and depth of monitoring wells needed to monitor the groundwater quality.

(4) Information indicating that the portion of the site to be utilized is not situated in an unconsolidated sequence that will permit leakage of a quantity of water of a quality reasonably likely to have an adverse effect on the groundwater beneath or adjacent to the proposed site. The potential leakage shall be evaluated by means of generalized Darcy's Law:

$$Q = \frac{AP(h_2-h_1)}{L} \text{ where:}$$

Q = cubic feet of liquid/day/square foot of area of the interface.

A = one square foot of area.

P = coefficient of permeability in feet/day of the unconsolidated confining unit above the high water table.

h_2 = maximum final elevation of a contiguous portion of till of the site.

h_1 = lowest elevation of the bottom of the confining unit above the high water table at the location being elevated.

L = minimum thickness of the confining unit above the high water table at the location being evaluated.

The potential leakage shall be evaluated at those points where leakage could reasonably be expected, including the location of minimum thickness of the confining unit, the lowest elevation of the site and such other locations as seem reasonable.

(5) Engineering plans and reports detailing how the site will be designed, constructed, and operated to protect ground and surface water resources.

(6) Proof of the applicant's ownership of the site or legal entitlement to use the site for the disposal of sludge for the term of the permit for which application is made. The applicant shall also designate who will be responsible for the long-range monitoring and outline legal and financial arrangements for this.

(7) Other information as required by the department.

c. Operating requirements for land application sites. All land application projects shall be operated in conformance with 567—Chapter 102 and the following:

(1) The general public and livestock shall not be given access to the disposal site during sludge disposal and for a minimum of two months after sludge disposal operations have ceased, unless specific permit conditions specify otherwise.

(2) Land application sites shall have the pH of the surface horizon or plow layer adjusted to and maintained above 6.5, unless specific permit conditions specify otherwise.

(3) Land application sites shall not be used for sludge disposal during or immediately preceding expected: rains or other occasions when runoff may result (unless subsurface injection methods are utilized); high groundwater conditions; or flooding.

(4) Land application sites shall not be used for sludge disposal when frozen or snow covered unless special precautions are taken to avoid runoff.

(5) As required by the department, groundwater monitoring wells and surface monitoring points shall be installed and a monitoring program implemented. Samples must be analyzed by a laboratory which is equipped and competent to perform the tests required by the department. The results shall be forwarded to the department on a stipulated schedule.

(6) In the event significant leachate is detected, the department shall be so notified, and the permit holder shall submit a plan for controlling and treating the leachate. Upon approval of the plan by the department, it shall be immediately implemented.

(7) Sampling and analyses of the sludge shall be performed and submitted to the department according to the schedule stipulated in the permit. Analyses shall include tests as required to confirm the constituents of the sludge.

(8) Records of the site usage shall be maintained, shall be submitted to the department on a stipulated schedule and shall include: date of use; application area; application rate; quantity of sludge applied; method and timeliness of incorporation; chemical analyses of sludge being applied; and loading rates of significant components of sludge as identified in the analyses of 121.7(1) "a"(12).

(9) Prior to completion of a site, or suspension of operations at a site, the department shall be notified in writing. As required by the department, engineering plans and reports shall be submitted detailing deviations, if any, from the permitted final site conditions. An inspection shall be made by the department before abandonment of the site.

(10) Following closing of the site, any monitoring program in effect shall be continued until the integrity of the site is confirmed and any corrective measures which may be necessary are implemented. This shall be detailed in annual reports submitted to the department for the duration of the monitoring program.

(11) A copy of the plans and reports, as amended or revised along with pertinent operations data, for any completed site shall be filed with the county recorder and the location of the filled area shall be recorded for abstract of title purposes. The recording may be made by affidavit.

d. Additional operating requirements for land application. If site conditions, waste constituents, or proposed operating procedures warrant, the department may require any of the following:

(1) Telephone or other adequate communications facilities be available on the site;

(2) Sanitary facilities, personnel washing facilities and potable water be available within a shelter on the site;

(3) The site be fenced to control access and a gate be provided at the entrance to the site and kept locked when an attendant operator is not on duty;

(4) A copy of the permit, engineering plans, and specifications be kept at the site at all times;

(5) Sites not open to the public have a permanent sign posted at the site entrance specifying: name of the operation; the site permit number; that the site is not open to the public; the owner's name and telephone number.

121.7(2) Waste pesticides. Waste pesticides may be land applied:

a. If a determination is made by the department that the disposal method is the best available disposal methodology;

b. If the applicant submits an accepted permit plan. To be accepted all applications for a permit shall include:

(1) The name, address and telephone number of the owner of site where project will be located, permit applicant, official responsible for operation of project, and design engineer, if any.

If the waste generator is not the one seeking the permit then the waste generator and a responsible official of the waste generator shall also be listed.

(2) A legal description of the site.

(3) A map or aerial photograph locating the boundaries of the site and identifying, north or other principal compass points, haul routes to and from the site with any special load limits or other restrictions which may apply, land use, homes and buildings within one-half mile, and section lines or other legal boundaries.

NOTE: Copies of current soil maps are satisfactory for this required function.

(4) A complete description of the waste including: brands, active ingredients, solvents and carriers, the concentrations and quantities thereof, original use made of the product, the date of use, duration and conditions of storage and any other information which may relate to the effects to be expected from the waste. The description of the waste shall include laboratory analysis as required by the department.

(5) The rate at which the product would normally be applied to the site given specified cropping intentions, soil types, moisture levels, soil pH, organic matter present, previous pesticide applications and any other relevant information.

(6) The rate at which the waste is to be applied to the site along with the reason for any discrepancy from normal product application rates as described in (5), the impacts to be expected and such information as necessary to show that adverse impacts will not be significant.

(7) A description of the methods to be used in disposing of the waste including any special provisions needed to ensure intended application rates.

(8) A description of methods to be used to avoid migration of the waste off the site including control of airborne drift, leaching and transportation by erosion.

(9) Other information as required by the department.

c. Operating requirements.

(1) Records detailing the waste and the proposed and actual application rates (along with any other information required by the department) shall be maintained for a period (and submitted to the department on a schedule) specified by the department.

(2) The department shall be informed immediately of any divergence from the plan, the details of that divergence and the impacts to be expected.

(3) Other requirements of the department as specified in special provisions of the permit.

121.7(3) Other wastes. Specific criteria for the permitting of the land application of waste not otherwise specified in this rule will be developed in the future. Until promulgated, the criteria for the permitting of land application in 121.7(1) shall be used.

¹ On a dry weight basis.