

CHAPTER 121
LAND APPLICATION OF WASTES

[Prior to 7/1/83, DEQ Ch 33]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—121.1(455B,17A) Scope of title. The department has jurisdiction over the disposal of solid waste including the land application of those wastes. The land application of solid wastes requires a specific permit from the department, unless certain conditions are met which warrant that an exemption be granted.

This chapter provides general definitions applicable in this title and rules of practice, including forms, applicable to the public in the department's administration of the subject matter of this title.

This chapter contains rules and regulations specifying the types of waste to which the chapter applies, the circumstances under which no permit is required for land application, and the permit requirements for those activities not exempted.

567—121.2(455B) Definitions.

"Industrial sludge" means any sludge produced by industrial activity.

"Land application" means a method through which sludge is applied to the ground surface. Land application may include subsurface injection.

"Sewage sludge" is defined in 567—Chapter 67.

"Sludge" means any solid, semisolid, or liquid waste generated from a commercial or industrial wastewater treatment plant, water supply treatment plant or air pollution control facility or any other such waste having similar characteristics and effects.

"Solid waste" means garbage, refuse, rubbish, and other similar discarded solid or semisolid materials, including but not limited to such materials resulting from industrial, commercial, agricultural, and domestic activities. Solid waste may include vehicles, as defined by Iowa Code section 321.1, subsection 1. Nothing herein shall be construed as prohibiting the use of dirt, stone, brick, or similar inorganic material for fill, landscaping, excavation, or grading at places other than a sanitary disposal.

"Stabilized sludge" means sludge that has been processed to a point where it has the ability to resist further change, produces minimal odor, and has achieved a substantial reduction in the pathogenic organism content. (The department recognizes principles of stabilization other than the conventional biological processes. Whether these processes produce a stabilized sludge will be evaluated on an individual basis.)

567—121.3(455B) Application for permits and forms. Any private or public person or agent desiring to secure a permit for any land application of solid waste not exempted in rules 121.5(455B) and 121.6(455B) shall file a properly completed application.

121.3(1) A properly completed application shall consist of the application form with all blanks filled in by the applicant, all signatures, and all documents and information required by the land application rules. Application forms may be obtained from:

Environmental Services Division
Iowa Department of Natural Resources
Henry A. Wallace Building
900 East Grand
Des Moines, Iowa 50319

Properly completed forms should be submitted in accordance with the instructions for the form.

121.3(2) Application for a land application permit shall be made on Form 43, "Application for a Sanitary Disposal Project Permit."

567—121.4(455B) Land application of solid wastes.

121.4(1) General. This chapter shall apply to the land application of solid wastes, except domestic septage, sewage sludge, animal manure, animal bedding and crop residue. Land application of animal manure should be in conformance with the provisions of 567—Chapter 65. Land application of water supply sludge and certain other approved wastes is governed by 121.5(455B). Land application of other waste without a permit is governed by 121.6(455B). Land application of wastes which require a permit is governed by 121.7(455B). These rules establish permit requirements and exemptions for home and crop use and general exemptions for other wastes, contamination levels and other requirements for the disposal of solid wastes by land application. Land application of sewage sludge is governed by 567—Chapter 67.

121.4(2) Land application does not include disposal of solid waste by burial.

567—121.5(455B) Land application of solid wastes for home and certain crop use.

121.5(1) Definitions.

a. “Home and certain crop use” shall include lawns, gardens, flower beds or similar areas associated with residential use. Included also is land where food crops for human consumption are raised or are made available to the general public.

b. “Food crops for human consumption” are those crops that may be consumed by humans without prior heating or processing (e.g., lettuce, carrots) or those that are commonly available to the public in raw form (e.g., asparagus, squash). Food crops for human consumption exclude cereal crops.

121.5(2) Only the following solid wastes may be applied to land for home and certain crop uses. These and other solid wastes may be used on other agricultural lands.

a. Water supply sludges.

b. Other wastes as approved by the department based on their constituents and expected environmental impact.

567—121.6(455B) Permit exemptions. No permit is required for land application of the following solid wastes under the following circumstances. (Land applications that do not comply with these rules must have obtained a permit under rule 121.7(455B).)

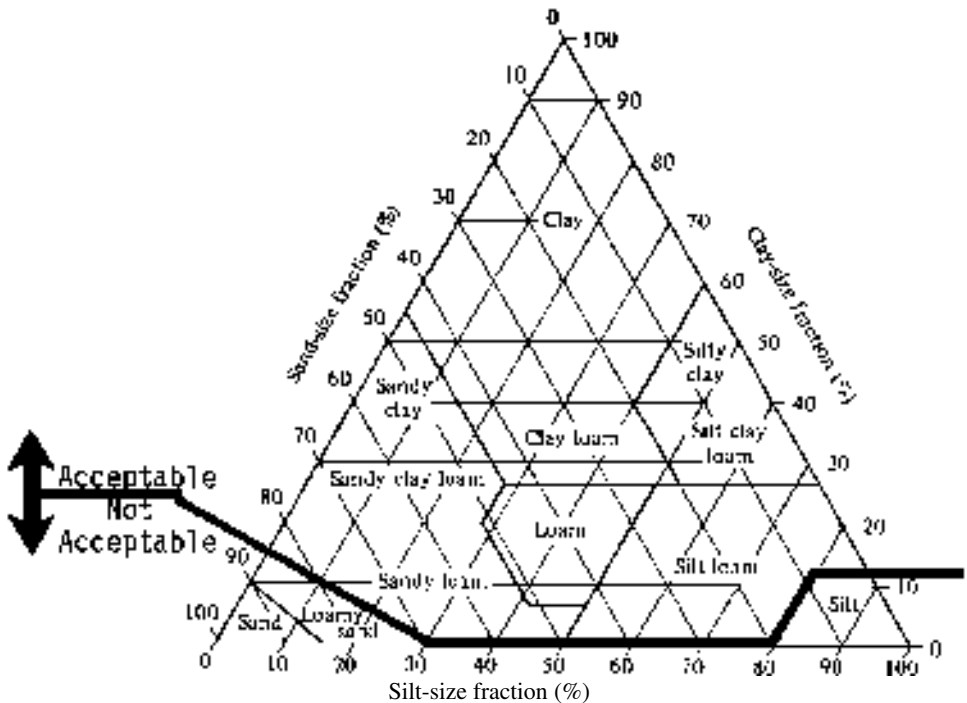
121.6(1) Solid wastes. Solid wastes (other than petroleum contaminated soil) may be land applied without permit if the land application does not violate the following:

a. Land application of sludge and other solid waste shall be conducted in accordance with the following criteria:

(1) The maximum application rate shall not exceed two tons per acre per year, measured on a dry weight basis. The maximum application rate shall be reduced if soil tests indicate that a two ton per acre per year rate would provide nutrient levels significantly in excess of crop nutrient requirements or would provide heavy metals concentrations in the soil at levels which may be detrimental to crop production or hazardous to human health.

(2) The sludge or solid waste shall be applied only to soils classified as acceptable throughout the top five feet of soil profile. The acceptability of a soil shall be determined using the following chart* based on USDA soil classifications.

*NOTE: See chart in Iowa Administrative Code, 567—Ch 121, p. 3.



U.S.D.A. textural classification chart, Sand size particles 2-0.05 mm, silt-size particles, 0.05-0.002 mm; and clay size particles; less than 0.002 mm.

(3) Land application sites shall have soil pH maintained between 6.5 and 8.4 for sludges with cadmium levels up to 15 mg/kg. The soil pH may be maintained below 6.5 but not below 6.0 if the cadmium level is 8.0 mg/kg or the sludge has been stabilized to a pH of 10-12. If the soil pH is below these levels, it is acceptable to use agricultural lime to increase the pH to an acceptable level prior to land application of sludge.

(4) The department recommends that all sludge be injected on the contour or applied to the surface and mechanically incorporated into the soil as soon as possible but not later than 48 hours after application.

(5) If the sludge is applied to land on which the soil loss exceeds the soil loss limits established by the county soil conservation district, the sludge shall be injected on the contour or shall be applied to the surface and mechanically incorporated into soil within 48 hours of application. The sludge shall not be applied to ground having greater than 9 percent slope.

(6) If the sludge is applied to land subject to flooding more frequently than once in ten years, the sludge shall be injected or shall be applied to the surface and mechanically incorporated into the soil within 48 hours. Information on which land is subject to flooding more frequently than once in ten years is available from the department.

(7) Sludge application on frozen or snow-covered ground should be avoided. If application on frozen or snow-covered ground is necessary, it shall be limited to land areas of less than 5 percent slope.

(8) If sludge is applied within 200 feet of a stream, lake, sinkhole or tile line surface intake located downgradient of the land application site, it shall be injected or applied to the surface and mechanically incorporated into the soil within 48 hours of application.

b. The waste shall not be land applied or made available for land application if the waste contains constituents in excess of the levels specified below.

<u>Constituents</u>	<u>Levels</u>	<u>Cumulative Loading Rate</u>	
Arsenic	41 mg/kg	41 kg/ha	36 lb/ac
Cadmium	39 mg/kg	39 kg/ha	34 lb/ac
Chromium	1200 mg/kg	3000 kg/ha	2670 lb/ac
Copper	1500 mg/kg	1500 kg/ha	1335 lb/ac
Lead	300 mg/kg	300 kg/ha	267 lb/ac
Mercury	17 mg/kg	17 kg/ha	15 lb/ac
Molybdenum	75 mg/kg	75 kg/ha	66 lb/ac
Nickel	420 mg/kg	420 kg/ha	373 lb/ac
Selenium	36 mg/kg	100 kg/ha	89 lb/ac
Zinc	2800 mg/kg	2800 kg/ha	2490 lb/ac

If the waste has other toxic constituents, the toxic constituents shall not be in excess of levels where there is a threat to human, animal, or plant life as determined by the department.

c. Macronutrients.

(1) The application of nitrogen available from the waste and any other sources does not exceed the nitrogen needs of the vegetation to be grown on the site over the next year, and

(2) The total application of phosphorus and potassium does not exceed the acceptable agronomic application rates for the site and crops involved.

d. The waste does not have a sodium absorption ratio in excess of levels where there is a threat to plant life. If high sodium absorption ratios are suspected, analytical testing may be required.

e. Stabilized sludge. If land applying sludge or other wastes containing pathogens, the waste must be treated to reduce pathogen content by methods specified in 567—Chapter 67 prior to land application.

f. The waste does not contain a waste having direct process stream contact with the following listed organics: Petroleum products, organic solvents, pesticides, pharmaceuticals, polychlorinated biphenyls (PCBs). The waste does not originate from a process which may release the previously mentioned compounds.

g. Assimilation capabilities. The waste would not be readily present in a visual analysis of a random sample collected two years following application.

h. General public health aspects. The waste is not putrescible, or is incorporated (or otherwise managed) to prevent runoff and odor problems.

i. Separation distance. Waste shall not be applied within 200 feet of an occupied residence nor within 500 feet of a well.

j. Operating requirements. A generator who intends to dispose of its waste by land application shall:

(1) Analyze the waste to determine if any sources exist which may contribute significant quantities of potentially hazardous chemicals or other toxic substances. If any are found, the generator shall inform the department of their presence and shall analyze the waste for chemicals or substances in accordance with guidelines provided by the department.

(2) Sample and analyze the waste to determine whether it meets the criteria in 121.6(1).

(3) Unless rules for specific programs under USEPA or department authority provide otherwise, or unless other methods are approved by the department for a specific situation, samples taken and analyses made to document contamination under this chapter shall be conducted in accordance with the following:

1. Samples. “A Compendium of Superfund Field Operations Methods,” USEPA, Office of Emergency and Remedial Response, Washington, D.C. 20460 (EPA/540/p-87/001, OSWER Directive 93.55.0-14).

2. Analyses. “Test Methods for Evaluation of Solid Waste, Physical — Chemical Methods SW-846,” USEPA, Third Edition, November 1986, as revised through December 1988. Until the department adopts rules regarding certification of laboratories, analyses shall be conducted at a laboratory that certifies to the department that the approved analytical procedure has been utilized, or a laboratory which has been approved under EPA’s Contract Laboratory Program. Upon adoption of rules by the department regarding certification of laboratories, all analyses shall be made at a certified laboratory.

k. Land application program. All generators intending to land apply their waste routinely shall establish and maintain in writing a long-range program for land application of its waste. This program shall be developed for a minimum period of five years and shall be updated annually. A copy of this program shall be available at the facility for inspection by the department. As a minimum this program shall contain the following information in detail for the next calendar year and in general terms for the following four years. The plan shall include, but not be limited to, the following:

(1) An outline of the waste sampling schedule and procedures which will be followed to ensure that the waste being applied to land continues to meet the criteria in 121.6(1).

(2) A determination of the amount of land required to allow disposal to be conducted in accordance with the requirements of 121.6(1).

(3) An identification of the land and waste application methods which will be used to dispose of the waste. Those areas and application methods shall be selected as necessary to ensure that land application can be conducted in accordance with the land application criteria in 121.6(1).

(4) The names of the owners and operators of all land to be used for waste disposal, and identification of any legal arrangements made relative to use of these areas. The programs should also outline any restrictions or special conditions which exist regarding use of these areas for waste disposal.

(5) An overall schedule for the disposal of the waste. This schedule should indicate the areas being used, the time of year that disposal on each area will be conducted, and the proposed application rates for each area.

(6) A determination of the types and capacities of the equipment required to dispose of the waste in accordance with the developed disposal schedule. The program shall also outline how the required disposal equipment will be made available and who will be responsible for conducting land disposal operations.

(7) A determination of the volumes and types of storage and handling facilities required to allow waste disposal to be conducted in accordance with the waste disposal schedule. The program shall also outline how any required additional waste storage or handling facilities will be provided.

(8) A plan to construct or obtain any additional waste storage, handling or disposal facilities or equipment which are required by the waste disposal program.

l. Other requirements.

(1) If the waste is being supplied to other persons for land application, the generating facility shall inform them of the applicable requirements of the waste disposal program, 567—subrules 101.3(2) and 121.6(1).

(2) If the generating facility determines that a person being supplied waste for land application is not complying with applicable requirements of the waste disposal program or the land application criteria, the generating facility shall work with them to obtain compliance with the requirements. If subsequent compliance cannot be achieved, the generating facility shall not supply additional waste to the person.

(3) The generating facility must inform all persons involved in waste disposal operations of the potential health hazards associated with waste disposal, including informing them of the cautions and recommended practices which should be followed to minimize these hazards.

(4) The generating facility shall maintain records of sample analysis and waste disposal operations to document compliance with 567—121.6(455B).

(5) If waste is applied to land subject to use by the general public (e.g., golf courses, parks), public access to the waste application site shall be restricted for a period of one month after waste application. In no case shall waste be applied to areas where direct body contact with the soil is likely (e.g., school yards, playground areas, picnic areas).

(6) Waste shall not be applied to land for the commercial production of human consumption food crops.

(7) If sludge is applied to land where crops being grown will be grazed by or fed to livestock within two months of sludge application, or where cereal grains will be harvested within two months of sludge application, the sludge shall be injected or shall be applied to the surface and mechanically incorporated into the soil.

m. Notification. Before opening a disposal site the department shall be notified in writing of the location of the disposal operation. This notice shall also contain the legal description of the site, the landowner, the responsible official, the quantities and type of waste (including chemical analyses which the department may require to adequately define the waste).

121.6(2) *Petroleum-contaminated soil.* Rescinded IAB 9/15/04, effective 10/20/04.

121.6(3) *Flood plains.* Rescinded IAB 9/15/04, effective 10/20/04.

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 nitrogen*; $\text{NH}_3\text{-N}^*$; $\text{NO}_3\text{-N}^*$; total phosphorus*; potassium*; the following metals*: 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.

*On a dry weight basis.

(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.

These rules are intended to implement Iowa Code sections 455B.173 and 455B.304.

[Filed 5/25/78, Notice 2/22/78—published 6/14/78, effective 7/19/78]

[Filed emergency 7/27/78—published 8/23/78, effective 7/27/78]

[Filed 3/25/82, Notice 9/30/81—published 4/14/82, effective 5/19/82]

[Filed emergency 6/3/83—published 6/22/83, effective 7/1/83]

[Filed 12/2/83, Notice 6/22/83—published 12/21/83, effective 1/25/84]

[Filed emergency 11/14/86—published 12/3/86, effective 12/3/86]

[Filed 8/31/90, Notice 5/16/90—published 9/19/90, effective 10/25/90]

[Filed 9/28/90, Notice 6/13/90—published 10/17/90, effective 11/21/90]

[Filed 7/30/93, Notice 4/14/93—published 8/18/93, effective 9/22/93]

[Filed 7/29/94, Notice 3/16/94—published 8/17/94, effective 9/21/94]

[Filed 9/20/96, Notice 7/17/96—published 10/9/96, effective 11/13/96]

[Filed 8/27/04, Notice 6/9/04—published 9/15/04, effective 10/20/04]