



TERRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
LARRY J. WILSON, DIRECTOR

Site:	SHAW
ID #:	IAD 980630560
Break:	17.10
Other:	

February 19, 1991

Mr. Paul W. Roemer
Superfund Branch
U.S. Environmental Protection Agency
Region VII
726 Minnesota Avenue
Kansas City, KS 66101

RE: Shaw Avenue Dump Site

Dear Mr. Roemer:

In response to your letter dated December 17, 1990, we offer the following information on proposed ARARs for the Shaw Avenue site:

- Chapter 133 of this department's rules pertain to cleanup of groundwater and soils where groundwater may be impacted. In accordance with these rules this site poses a significant risk to groundwater because contaminants have been found in groundwater above action levels (to be described later). Sites posing a significant risk are to be investigated; this requirement is satisfied by the Remedial Investigation. Required cleanup actions include the following:

Groundwater: "The goal of groundwater cleanup is to use best available technology and best management practices as long as it is reasonable and practicable to remove all contaminants, and in any event until water contamination remains below the action level for any contaminant, and the department determines that the contamination is not likely to increase and no longer presents a significant risk. Where site conditions and available technology are such that the attainment of these goals would be impractical, the department may establish an alternative cleanup level or levels, including such other conditions as will adequately protect the public health, safety, environment, and quality of life."

Soils: "Where significant amounts of contaminants are documented as being present in the soils or other environment, such that groundwater contamination is occurring or is likely, active cleanup of the contaminated soils or other environment shall be implemented to the extent reasonable and necessary to prevent or minimize release to the groundwater; passive cleanup may be allowed in extraordinary circumstances."

Action levels are defined as the Lifetime Health Advisory Level (HAL), if one exists; the Negligible Risk Level (NRL) which is the one in a million cancer risk level, if there is no HAL; or the Maximum Contaminant Level (MCL) for drinking water, if no HAL or NRL exists for the contaminant of concern. The action levels for the contaminants of concern at the Shaw site are as follows:



Chemical	Concentration (ug/l)	Basis
Vinyl chloride	0.015	NRL
1,1-DCE	7	HAL
1,2-DCA	0.4	NRL
1,1,2-TCA	3	HAL
Benzene	1	NRL
Toluene	1000	HAL
Xylenes	10,000	HAL
2-Nitroaniline	?	
Arsenic	0.03	NRL
Cadmium	5	HAL
Magnesium	no action level	

Action levels have been exceeded for most of these contaminants; most noticeably arsenic. Therefore, to comply with Chapter 133 groundwater cleanup should be undertaken to remove all contaminants if practical or at least to reduce groundwater contaminants to below action levels unless it can be demonstrated that attainment of these goals is not practical. In addition, soil remediation should be conducted to the extent reasonable and necessary to prevent or minimize the release to groundwater. If it is not practical to reduce groundwater contaminant levels to below action levels, a request for variance should be made to this department.

- 2) Chapters 50 - 54 address water withdrawal permits. Permits are required for withdrawals of water in excess of 25,000 gallons per day.
- 3) Chapter 61 of this department's rules address surface water quality standards. In Chapter 61 the Cedar River adjacent to the site is designated as a Class B(WW) stream which is to be protected for wildlife, fish, aquatic and semiaquatic life, and secondary contact water uses. Established water quality standards (instream) for contaminants of concern are:

Chemical	Concentration (ug/l)
Arsenic (III)	50
Cadmium	15 (chronic) 75 (subchronic)
Benzene	712.8
1,2-DCA	986
1,1-DCE	32
Toluene	50 (chronic) 2500 (acute)

- 4) Chapters 62 - 63 involve the National Pollutant Discharge Elimination System (NPDES) program as administered by this department. The NPDES program requirements include permitting of wastewater discharges. In general, treatment of water to be discharged is required to the level necessary to prevent violation of Water Quality Standards (item 2 above) or to the level possible by Best Available Technology (BAT), whichever is more stringent.
- 5) Chapter 64 of the rules involve wastewater treatment facility construction and operation permits. The provisions of this chapter would have to be met for any wastewater treatment equipment to be constructed as part of a remedial effort.
- 6) Chapters 100 - 121 pertain to disposal of solid waste. Of particular significance may be subrule 103.2(13) Closure requirements. This subrule is not applicable but it could possibly be considered to be relevant and appropriate.

- 7) This department routinely does a toxics review of air emissions from new sources. It has been our goal to maintain the concentration of air toxics measured at the point of controlled access (e.g., fence) at or below levels representing a one in a million risk for carcinogens and 1/100 of the threshold limit value for non-carcinogens.

We will provide you with more definitive information regarding state ARARs for specific remedial alternatives when we receive information as to what alternatives are being considered. Copies of this department's rules Chapters 50 - 54, 61 - 64, 100 - 121, and 133 are attached for your convenience. If you have any questions regarding this information please contact Bob Drustrup of my staff.

Yours truly,



Morris Preston, P.E.
Supervisor
Solid Waste Section

MP:rd

Attachments: Chapters 50 - 54, 61 - 64, 100 - 121, and 133.

DIVISION C

WITHDRAWAL, DIVERSION AND STORAGE OF WATER: WATER RIGHTS ALLOCATION

CHAPTER 50

SCOPE OF DIVISION—DEFINITIONS—FORMS—RULES OF PRACTICE

[Prior to 12/3/86, Water, Air and Waste Management(900)]

567—50.1(455B) Scope of division. The department has jurisdiction over the surface and groundwater of the state to establish and administer a comprehensive program to assure that the water resources of the state be put to beneficial use to the fullest extent possible, that the waste or unreasonable use, or unreasonable methods of use of water be prevented, and that the conservation and protection of water resources be required with the view to their reasonable and beneficial use in the interest of the people.

Any person who proposes to pump or divert by gravity more than 25,000 gallons of water during a period of twenty-four (24) hours or less from any source of groundwater or surface water, including streams bordering the state, impound surface water, divert surface runoff into a well, sinkhole or excavation or inject water or any material into a well has a duty to review the thresholds in chapter 51 of the department's rules and contact the department to resolve any doubt concerning whether a permit is required.

Chapter 51 of the department's rules explains when approval is required for withdrawal, diversion or storage of water. Chapter 52 explains criteria for permitting withdrawal, diversion or storage of water. Chapter 53 sets forth the procedure for designating certain ground and surface water sources as protected sources and explains special criteria and conditions which may be applicable to those sources. Chapter 54 describes procedures and criteria for determining compensation to owners of nonregulated wells for well interference caused by permitted uses.

567—50.2(455B) Definitions. Definitions used in this division of these rules are listed in alphabetical order as follows:

"Adequate groundwater supply" means an aquifer which is capable of providing enough water to satisfy the demands which have been placed on it.

"Administrative resolution" means the settlement of well interference conflicts by the department according to established rules.

"Agricultural drainage well" is a vertical opening to an aquifer or permeable substratum, which has been drilled, driven, dug, bored, augered, jetted, washed, cored or otherwise constructed and which intercepts or receives or is capable of intercepting or receiving surface or subsurface drainage water from agricultural land.

"Apparent well interference" means well interference in a nonregulated well resulting from a permitted use is likely but has not been verified.

"Aquifer" means a water-bearing geologic formation capable of yielding a usable quantity of water to a well or spring.

"Bulletin No. 23" means Technical Bulletin No. 23 entitled "Guidelines for Well Interference Compensation," March 1986.

"Community public water supply" means a system for the provision to the public of piped water for domestic use which has at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

"Compensation" means payment to the owner of a nonregulated well for damages caused by a lowered water level in the well due to withdrawal of water for a permitted use.

"Complainant" means the owner of a nonregulated well who is suspected of being or has been shown to be adversely affected by well interference.

"Complaint" means the formal allegation against a permitted water user who is suspected of causing well interference.

"Conflict" means a dispute between a nonregulated well owner and a permitted water user regarding the liability of the permitted user for well interference damages to the nonregulated well.



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"Consumptive use" means any use of water which involves substantial evaporation, transpiration, incorporation of water into a product or removal of water from a source without return thereto. Consumptive uses include, but are not limited to, irrigation, evaporative cooling, and flooding of wildlife areas by withdrawals or diversions from watercourses or aquifers. Water use by community public water supplies is not considered to be consumptive in the administration of rules 52.3(455B), 52.4(455B) and 52.8(455B).

"Controlled aquifer test" means the pumping from a well at a controlled rate for a specified duration while water levels are accurately measured at given frequencies in the pumping well and other nearby wells which use the same aquifer. Data collected from such a test is suitable for determining aquifer hydrologic properties.

"Domestic use" means a use of water for human consumption and sanitation and public safety (fire protection).

"Industrial use" means a use of water by manufacturing, processing, commercial, and other industrial facilities incidental to providing a product or a service; excluding domestic use, irrigation use, livestock use, power generation use, and recreational and aesthetic use. Examples include but are not limited to manufacturing, food processing, industrial cooling, excavation and processing of rock and gravel products, commercial laundries, cooling of perishables and electrical power generation other than for public consumption.

"Informal negotiations" means discussion between a complainant and permittee or applicant regarding settlement of a well interference conflict.

"Informal settlement" means a resolution of a well interference conflict by informal negotiations between a complainant and permittee or applicant without formal action by the department.

"Irrigation use" means a use of water which is artificially applied to land to aid the growing of general farm crops (hay, corn, soybeans, oats, grain sorghum and wheat) and specialty crops.

"Livestock use" means a use of water in the production of domestic animals such as drinking, sanitation and cooling.

"Nonregulated well" means a well used to supply water for a nonregulated use (a use of water less than twenty-five thousand (25,000) gallons per day which is not required to have a water use permit).

"Permanent storage" means the volume of water expressed in acre-feet which is stored upstream from a dam or in an impoundment up to the level of the principal outlet works of the structure.

"Permitted use" means a use of water in excess of twenty-five thousand (25,000) gallons per day which requires a water use permit pursuant to these rules and chapters 51 and 52 and Iowa Code chapter 455B, division III, part 4.

"Power generation use" means a use of water incidental to the generation of electric power for distribution and sale to the public including process water (e.g., boiler makeup) and water for cooling purposes.

"Protected flow" means the *"established average minimum flow"* defined in Iowa Code section 455B.261.

"Protected source" means a surface water or groundwater source recognized by rule as deserving special protection in order to ensure its long-term availability, in terms of either quality or quantity, or both, to preserve the public health and welfare.

"Recreational and aesthetic use" means a use of water which can be easily curtailed and is not essential for the preservation of life, the general welfare, or the state's economic base. Examples include but are not limited to flooding of wildlife areas; filling of pools and fountains; nonessential cooling; car washing; street cleaning; washing of other exterior surfaces such as windows and walls; amusement park-type water rides; turf watering such as lawns, golf courses, athletic fields; and watering of landscape plantings.

"Registered well driller" means a well driller who is registered for well drilling and associated work pursuant to 1985 Iowa Code supplement section 455B.187. Until such time as rules are promulgated for registering well drillers, any reputable well driller will be treated as a "registered well driller."

"Seven-day, 1-in-10 year low flow (7Q10)" means the minimum average flow expected to occur during a period of seven (7) consecutive days which has an average recurrence interval of once in ten (10) years. The 7Q10 may be calculated for specific seasonal periods of less than one (1) year when appropriate.

"Stream" means a *"watercourse"* other than a lake as defined in Iowa Code section 455B.261.

"Stream bordering the state" means those reaches of the Missouri, Mississippi, Des Moines, and Big Sioux rivers that serve as a state boundary.

"Sufficient water supply" means a nonregulated well which is capable of providing enough water for the nonregulated use. When considering a new water supply, acceptable water quality relative to the old water supply is also a factor.

"Suspect permittee" means a party possessing a water use permit when the permitted use is suspected of causing well interference in a nonregulated well.

"Test pumping" means a controlled aquifer test for verification of well interference using the existing wells and pumping systems of the complainant and suspect permittee.

"Uses that were nonregulated prior to July 1, 1985" means beneficial uses of water in excess of 25,000 gallons per day by:

1. Any person of the surface flow from streams bordering the state.
2. Any municipal corporation or person supplying a municipal corporation which had not increased its maximum per day use of water by 100,000 gallons, or three percent (3%), whichever is greater, than its highest per day beneficial use prior to May 16, 1957; had not utilized a new source of water after May 16, 1957; and had not moved its withdrawal points more than one-half mile from withdrawal points utilized prior to May 16, 1957.

3. Any self-supplied industrial user of water which was located within the territorial boundaries of a municipal corporation on May 16, 1957; had not increased its maximum per day use of water by more than three percent (3%) above its highest per day beneficial use prior to May 16, 1957; had not utilized a new source of water after May 16, 1957; and had not moved its withdrawal points more than one-half mile from withdrawal points utilized prior to May 16, 1957.

4. Any other self-supplied user of water which was located within the territorial boundaries of a municipal corporation on May 16, 1957; had not increased its maximum per day use of water above its highest per day beneficial use prior to May 16, 1957; had not utilized a new source of water after May 16, 1957; and had not moved its withdrawal points more than one-half mile from withdrawal points utilized prior to May 16, 1957.

"*Verified well interference*" means well interference which has been proven by test pumping or with other substantial evidence to have caused or will cause a nonregulated well to be unable to maintain a sufficient water supply.

"*Well interference*" means the lowering of water level in a well caused by the withdrawal of water at another location (usually a nearby well).

567—50.3(17A,455B) Forms for withdrawal, diversion or storage of water.

50.3(1) Application forms. The following application forms are currently in use:

Form 16: Application for Permit to Divert, Store, or Withdraw Water for Beneficial Use. 1/84. 542-3105.

Form 17: Application for Permit to Use Water for Irrigation. 1/84. 542-3106.

Form 18: Application for Permit to Store Water for Beneficial Use. 7/83. 542-3109.

Form 19: Application for Permit to Divert or Withdraw Water for Production and Processing of Sand, Gravel, or Rock Materials. 1/84. 542-3110.

Form 20: Registration of Minor Nonrecurring Use of Water. 7/84. 542-3112.

Form 542-0986: Registration of Agricultural Drainage Wells 10/87.

50.3(2) Supplementary information forms. The following forms are used to obtain additional information to supplement various types of applications:

Form 16-1: Supplement to Application for Permit to Divert, Store, or Withdraw Water for Beneficial Use. 6/85. 542-3262.

Form 17-1: Supplement to Application for a Permit to Use Water for Irrigation Use from Reservoirs. 7/83. 542-1007.

Form 17-2: Supplement to Application for a Permit to Use Water for Irrigation Use from Wells. 7/83. 542-3107.

Form 17-3: Supplement to Application for a Permit to Use Water for Irrigation Use from Streams. 7/83. 542-3108.

Form 19-1: Supplemental Data for Application for Permit to Divert or Withdraw Water for Production and Processing of Sand, Gravel, or Rock Materials. 7/83. 542-3111.

Form 21: Survey of Land Owners and Occupants. 7/83. 542-3113.

Form 22: Well Inventory Form. 7/83. 542-3114.

Form 122: Water Well Inspection Report. 3/86.

50.3(3) Reporting forms. The following forms are for reporting permitted activities:

Form 23: Report of Water Use by all Regulated Users Except Irrigators and Producers of Sand, Gravel, or Rock Aggregate. 7/83. 542-3115.

Form 24: Report of Water Use for Irrigation. 12/83. 542-3116

Form 25: Report of Water Use for Aggregate Production or Mining. 7/83. 542-3117.

Form 26: Water Permit Validation Form. 7/83. 542-1008.

Form 27: Water Level Measurement Report Form. 7/83. 542-1009.

567—50.4(17A,455B) How to request a permit.

50.4(1) Form of application.

a. Application for approval of a new withdrawal, diversion or storage of water. A request for a new permit as distinguished from modification or renewal of an existing permit shall be made on a form obtained from the department. An application form must be submitted by or on behalf of the owner, lessee, easement holder or option holder of the area where the water is to be withdrawn, diverted or stored, and used. An application must be accompanied by a map portraying the points of withdrawal or diversion and storage, and the land on which water is to be used oriented as to section, township, and range. One application normally will be adequate for all uses on contiguous tracts of land. Tracts of land involved in the same operation separated only by roads or railroads will be deemed contiguous tracts.

b. Application for modification or renewal of a permit. A request for renewal of a permit need not be submitted on an application form. A letter identifying the permittee and permit number and requesting renewal is sufficient. To request modification of a permit the letter must also clearly identify each modification desired and the reasons why each modification is needed.

c. Where to submit application. An application must be mailed or delivered to the Water Supply Section, Environmental Protection Division, Department of Natural Resources, East 9th and Grand, Des Moines, Iowa 50319.

50.4(2) Application fee. A nonrefundable fee in the form of a check or money order in the amount of twenty-five dollars (\$25) payable to the department of natural resources must accompany an application for a new permit to withdraw or divert water. The same fee must accompany an application for modification or renewal of a permit to withdraw or divert water. No fee is charged for an application to store water or an application for registration of a minor nonrecurring use of water.

50.4(3) Supporting information required for complete application. An application shall not be considered complete until the fee specified in this rule and all supporting information requested under 50.6(17A,455B) of these rules have been submitted by the applicant or agents of the applicant.

50.5(455B) Initial screening of applications.

50.5(1) General procedure. Each application upon receipt shall be promptly evaluated by the department to determine whether adequate information is available to review the project. The department shall then advise the applicant of additional information required to review the project.

50.5(2) Application to withdraw groundwater. Evaluation of the potential effects of a proposed withdrawal of groundwater requires review of available hydrogeological information to identify the additional information which the applicant is responsible for providing. To the extent practical the department will screen applications for permits to withdraw groundwater by dividing them into two (2) classes according to whether potential effects can be predicted with reasonable confidence from available information.

567—50.6(17A, 455B) Supporting information. Applicants shall submit supporting information which is reasonably required to assist the department in conducting the investigation of an application required by Iowa Code section 455B.264 and 1985 Iowa Code supplement section 455B.281 and in determining whether granting of a permit would be consistent with the policies and principles of beneficial use set forth in Iowa Code section 455B.262. Forms for submitting routinely required supporting information are listed in 50.3(17A,455B) of these

rules. In addition, certain supporting information requirements are described in this rule. This description is intended to identify frequently required information; it is not intended exhaustive.

50.6(1) Application for permit to withdraw groundwater.

a. Identification of source and effects of pumping. An applicant shall be required to submit information needed by the department to identify the aquifer(s) from which withdrawals of water are proposed, predict the effects of pumping with a reasonable degree of confidence, and determine any permit conditions for well interference pursuant to chapter 54 of the department's rules. At many locations the only reliable methods to determine the availability of a water source of adequate quantity and quality and to predict the effects of pumping require test drilling, yield test pumping, and a controlled aquifer test with measurements in one or more observation wells conducted under appropriate supervision. The applicant shall be required to perform each of these exploratory operations to the extent necessary for the department to obtain information from which to determine whether a permit should be granted and to identify conditions which should be imposed in any permit granted. The following requirements apply to exploratory drilling and test pumping.

(1) *Test drilling.* In cases where test drilling is needed for geological information relevant to the application, the applicant is responsible for employing a driller who will collect, bag and properly label cutting samples at each five (5)-foot interval and at each apparent change in geological formation from a test hole or production well hole at least the approximate depth of the proposed production well. The cutting samples must be saved for collection by the department in sample bags provided by the geological survey bureau of the department. The samples shall be accompanied by a driller's log showing the location and total depth of the hole and a description of the materials encountered at successive intervals.

(2) *Yield testing.* An applicant shall be required to construct a well and test pump it for yield to the extent necessary to determine whether water is available at the applicant's proposed rate of withdrawal from the proposed source. A written registration from the department is required before any yield test in which more than 25,000 gallons will be withdrawn in a period of twenty-four (24) hours or less (see chapter 51 of these rules).

(3) *Controlled aquifer test with supervision.* An applicant shall be required to conduct a controlled aquifer test with supervision by a registered well driller, registered professional engineer or other designee of the department as a condition of obtaining a water permit if the department, after consultation with the department, finds an aquifer test necessary to determine the effects which the proposed withdrawals have on other water uses. The applicant may be required to construct, develop, and maintain adequate observation wells for use in an aquifer test and for subsequent water level measurements or water quality monitoring. An applicant shall be responsible for obtaining a registration for an aquifer test as provided in chapter 51 of the department's rules.

b. Cooperation in obtaining information about surrounding wells. An applicant who requests a permit authorizing withdrawals of groundwater from a well or reservoir may be required to assist the department in conducting an inventory of nearby wells within a designated radius of the proposed site. The need for an inventory and the appropriate radius will be determined after considering the known characteristics of the aquifer which the applicant proposes as a source of water and the rate and amount of the proposed withdrawals. The department shall provide a map specifying the area within which an inventory is proposed and forms specifying the information to be gathered in the inventory. The department shall also provide to the applicant a description of regulated uses within the inventory area. The applicant shall make a good faith effort to assist the department in obtaining available information from public records to identify landowners and occupants and from drilling contractors or pump installers identified by a landowner or occupant responding to the inventory.

50.6(2) Application for an irrigation permit. An applicant who proposes to irrigate row crops in a field which includes soils more erodible than Capability Subclass IIe as defined by the U.S. Soil Conservation Service (S.C.S.), or slopes greater than six percent (6%) where no S.C.S. Soil Survey is available, shall submit a soil conservation plan prepared with the assistance of S.C.S. for the field in which row-crop irrigation is proposed. The plan shall be accompanied by the applicant's written explanation of how operation of the proposed irrigation system will be compatible with the conservation plan. However, the department may waive the requirement of a formal soil conservation plan if the erodible area of the field is small and the potential for violation of soil loss limits established by the soil conservation district is minimal.

50.6(3) Application for permit to dewater a rock quarry. Iowa Code section 455B.268 and chapter 51 of these rules require that a permit be obtained before diverting water or material from the surface directly into any underground watercourse or basin. When the department investigates an application for a permit to pump water for dewatering of a quarry excavated in carbonate rock, the department shall consider the potential for pollution of an underground watercourse or basin from drainage of surface water into the quarry. If available information, including topographic and subsurface geological information, support a finding that drainage of surface water into the quarry would constitute a violation of the permit requirement in Iowa Code section 455B.268 and might cause pollution of an underground watercourse or basin if not controlled, then the department shall require that the applicant either request a permit to authorize a drainage of surface water into the quarry, or construct and maintain a means of controlling surface water which would otherwise drain into the quarry. Examples of suitable methods of controlling surface drainage are low berms or artificial drainage ways constructed as needed to reduce runoff of surface water from adjacent land into the quarry. If a rock quarry site is located on a flood plain, the surface runoff control plan will be reviewed by the flood plain branch to assure that diversion structures do not adversely affect the efficiency or unduly restrict the capacity of the floodway of the adjacent stream or otherwise violate the statutory criteria contained in Iowa Code sections 455B.264 and 455B.275.

50.6(4) Application for permit to divert water into an aquifer. An applicant for a permit to divert water or any other material from the surface into an aquifer shall submit information showing that the requested diversion will not pollute the aquifer.

50.6(5) Application for uses that were nonregulated prior to July 1, 1985. Submission of detailed supporting information identified by this rule, such as test drilling or yield testing, is required for applications postmarked or received prior to July 2, 1986, for uses that were nonregulated prior to July 1, 1985.

50.6(6) Applications for a permit to withdraw water from a protected water source. An applicant for a permit to withdraw water from a protected water source designated in rule 53.7(455B) may be required to provide specific information to support the application as required by rule 53.5(455B) or rule 53.7(455B).

567—50.7(17A,455B) Review of complete applications.

50.7(1) Order of processing. In general, complete applications including all requested supporting information shall be reviewed in the order that complete information is received. However, when there are a large number of pending applications, which precludes the department from promptly processing all applications, the department may expedite review of a particular application out of order if the completed application and supporting documents were submitted at the earliest practicable time and any of the following conditions exist:

- a. Relatively little staff review time (generally less than four hours) is required and delay will cause the applicant hardship;
- b. The applicant can demonstrate that a delay in the permit will result in a substantial cost increase of a large project;
- c. Prompt review of the permit would result in earlier completion of a project that conveys a significant public benefit;
- d. The need for a permit is the result of an unforeseen emergency or catastrophic event; or

e. A permit is needed to complete a project that will abate or prevent an imminent threat to the public health and welfare.

50.7(2) Summary report of application review. Before an initial decision is issued on an application, personnel assigned to review an application shall prepare a summary report which shall state whether the use of water as described in the complete application conforms to relevant criteria. The report shall identify the information used to determine the potential for the proposed use of water to adversely affect other water users. For an application to withdraw groundwater, the report shall describe the effects on water levels anticipated to occur from the proposed use; indicate if verified well interference has been found; and provide options for resolving any verified well interference in accordance with chapter 54 of the department's rules.

50.7(3) Public notice of recommendation to issue permit.

a. **New permits and modifications of permits.** Before issuance of a permit to withdraw, divert or inject water the department shall publish notice of recommendation to grant a permit. The notice shall summarize the application and the recommendations in the summary report. The notice shall allow twenty (20) days to request a copy of the summary report and submit comments on the report. The department may extend the comment period upon request for good cause shown. The notice shall be published in a newspaper circulated in the locality of the proposed water source. The notice shall be sent by ordinary mail, first class, to any person who has requested to be placed on mailing list in chapter 4 of these rules to receive notices of recommendation to grant permits within specified counties, and to any person who has requested a copy of the notice concerning the particular water use under consideration.

b. **Permit renewals.** The notice provisions of paragraph "a" of this subrule shall apply to requests for permit renewals except that the department need not publish notice of recommendation to grant a renewal permit which does not involve modification of permit conditions.

50.7(4) Notice to the applicant that proposed use of water does not conform to criteria. If the application review discloses that the proposed use of water violates one or more criteria and the application should therefore be disapproved, or approved only subject to special conditions to which the applicant has not agreed, the department shall notify the applicant and, when practical, suggest appropriate project modifications. The department shall offer the applicant an opportunity to submit comments before an initial decision is made.

50.7(5) Applications for uses that were nonregulated prior to July 1, 1985. The requirements of subrules 50.7(2) and 50.7(3) do not apply to applications postmarked or received prior to July 2, 1986, for uses that were nonregulated prior to July 1, 1985.

567—50.8(17A,455B) Initial decision by the department.

50.8(1) Form of decision. The initial decision on an application shall be a permit or disapproval order issued by the department. Each permit shall include appropriate standard and special conditions consistent with Iowa Code sections 455B.261 to 455B.274, 1985 Iowa Code supplement section 455B.281 and chapters 52 to 54 of the department's rules. The decision may incorporate by reference and attachment the summary report described in 50.7(2). Each decision shall include the following:

a. Determinations as to whether the project satisfies all relevant criteria not addressed in an attached summary report.

b. An explanation of the purpose for imposing each special condition.

c. Explanation of consideration given to all comments submitted pursuant to 50.7(3) and (4) unless the comments are adequately addressed in the attached summary report.

50.8(2) Notice of initial decision. Copies of the initial decision shall be mailed to the applicant, any person who commented pursuant to 50.7(3), and any other person who has requested a copy of the decision. The decision may be sent by ordinary mail, first class, and shall be accompanied by a certification of the date of mailing. An initial decision becomes the final decision of the department unless a timely notice of appeal is filed in accordance with 50.9(17A,455B).

567—50.9(17A,455B) Appeal of initial decision. Any person aggrieved by an initial decision issued under 50.8(17A,455B) may file a notice of appeal with the director. The notice of appeal must be filed within thirty (30) days following the certified date of mailing of the decision unless the appellant shows good cause for failure to receive actual notice and file within the allowed time. The form of the notice of appeal and appeal procedures are governed by chapter 7 of these rules. The department shall mail a copy of the notice of appeal to each person who commented on the application. If the appeal is from denial of a permit and a notice of recommendation to grant a permit was not published, the department shall publish the notice of commencement of a contested case and provide an opportunity for interested people to seek intervention in the contested case.

These rules are intended to implement Iowa Code sections 17A.3, 455B.105, 455B.262, 455B.264 to 455B.274, 455B.278, 455B.281 and 1987 Iowa Acts, House File 631.

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

[Filed 12/2/83, Notices 6/22/83, 7/20/83—published 12/21/83, effective 1/25/84]

[Filed 11/1/85, Notice 7/31/85—published 11/20/85, effective 12/15/85]

[Filed 5/2/86, Notice 1/1/86—published 5/21/86, effective 6/25/86]

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

[Filed 10/2/87, Notice 6/17/87—published 10/21/87, effective 11/25/87]

[Filed emergency 10/23/87—published 11/18/87, effective 10/23/87]

CHAPTER 51
WATER PERMIT OR REGISTRATION—WHEN REQUIRED

[Prior subject matter INRC rule 3.1]
[Prior to 12/3/86, Water, Air and Waste Management(900)]

567—51.1(455B) Scope of chapter. This chapter contains thresholds which explain when a water permit or registration is required for withdrawal, diversion or storage of water.

567—51.2(455B) Storage (surface). A permit shall be required for the storage of 18 acre-feet or more of water in permanent storage. No such permit shall be granted by the department prior to issuance of a department order approving the plans and specifications for the impounding structure. No water storage permit from the department shall be required for waste stabilization lagoons, waste storage basins, or similar structures which are used solely for waste water treatment or disposal. A permit authorizing withdrawals of water from an artificial reservoir formed by an officially designated grade stabilization structure which was constructed with federal, state, or local cost-sharing funds shall not be granted unless the person applying for such a permit provides written approval for such withdrawals from the soil conservation district in which the structure is located.

567—51.3(455B) Diversion from surface into aquifer. A permit is required for diversion of water or any other material from the surface directly into any aquifer. Diversion by tile or ditch into a sinkhole or quarry excavated in carbonate rock is presumed to be a diversion from the surface directly into an aquifer in the absence of convincing evidence to the contrary.

567—51.4(455B) Drain tile lines. Water in drain tile lines shall be considered surface water.

567—51.5(455B) Closed cooling systems. A permit shall not be granted for the withdrawal of groundwater for use solely as a coolant in a closed system without returning such ground water to the aquifer from which it came unless applicant demonstrates compelling reasons for not returning the water.

567—51.6(455B) Miscellaneous uses. Unless otherwise provided herein, a permit shall be required for the use of more than twenty-five thousand (25,000) gallons of water per day for any purpose.

51.6(1) Poultry, livestock, and domestic animals. Any use of water over 25,000 gallons per day for these purposes is an extraordinary use and a permit shall be required.

51.6(2) Drainage at construction sites. Withdrawals of water to lower the water table as necessary at a construction site shall be exempt from securing a permit except when such withdrawals cause or can reasonably be expected to cause material damage to public or private interests. After an investigation of those withdrawals allegedly causing material damage, the department shall require prompt appropriate action for the alleviation of damages. Where agreement cannot be reached on the action necessary for the alleviation of damages, withdrawals of water shall cease immediately upon notification by the department and an application for a permit shall be submitted.

51.6(3) Test pumping. The department may authorize by registration test pumping of sources of water to determine adequacy of the source and affects of such withdrawals and may require applicant to acquire technical assistance of the geological survey bureau of the department or other appropriate sources of such assistance so as to maintain supervision of the testing as deemed necessary by the department. No such registration for test pumping shall be for a period of more than one year. A registration must be obtained from the department for any pumping test in which more than 25,000 gallons of water will be withdrawn in a period of twenty-four (24) or less hours. A request for issuance of a registration need not be in writing if the contractor or responsible landowner accurately describes the location of the test, the aquifer to be pumped, and the planned test duration and pumping rate in an oral request.

Rural water districts. A permit shall be required for withdrawals of water by any water district having its own source of water and withdrawals shall be classified as a class 1 by community public water supply.

51.6(5) Nonrecurring minor uses. Any use of water which is a minor, nonrecurring use, including but not limited to highway construction and maintenance, charging of lagoons, filling wells, and hydrostatic testing of pipelines, shall not require a permit but rather may be registered with the department on such forms as the department shall provide. Such registration shall be for up to one year and may be reregistered at the discretion of the department should the project require more than one year to complete. After an investigation of those withdrawals allegedly causing material damage, the department shall require prompt appropriate action for the alleviation of damages. Where agreement cannot be reached on the action necessary for the alleviation of damages, withdrawals of water shall cease immediately upon notification by the department and an application for a permit shall be submitted.

51.6(6) Research contracts. The withdrawal of water for research purposes by the geological survey bureau of the department (GSB) through its agents, employees, or contractees may be authorized by registration in aquifers approved by the department and under such conditions as the department may set. Such registration shall be for periods of up to one year and may be reregistered at the discretion of the department should the research require more than one year to complete. The withdrawal of water pursuant to such registration shall be conducted under the direct supervision of the GSB and its employees and according to a schedule adopted by or approved by GSB. The GSB shall contract with each individual who is cooperating in the research. Such contract shall delineate the responsibilities of each party to the research. A copy of each such contract shall be filed with the department. The violation of any provision of said contract by any party thereto shall be grounds for the department to revoke the registration of that contractee. If withdrawal of water pursuant to this registration results in serious adverse effects on the aquifer or on any other water user, the department shall revoke the registration as it applies to the particular research site causing such serious adverse effect.

51.7-51.7(455B) Excavation and processing of rock and gravel products. A water permit is required for withdrawal of more than 25,000 gallons of surface or groundwater in one day for processing, washing, pugging, or use of a hydraulic dredge in connection with removal or processing of rock or gravel products. This permit requirement is subject to the following exceptions:

1. A permit is not required for operation of a hydraulic dredge which returns all water used as a transport medium directly back into the pit from which it is withdrawn by the dredge;
2. A permit is not required for withdrawal of water from a gravel pit or rock quarry sump for material washing if the wash water is discharged directly back into the pit from which it is withdrawn.

567—51.8(159) Agricultural drainage wells. All agricultural drainage wells must be registered by the owner with the department by September 30, 1988, on the form provided by the department. Registration of an agricultural drainage well is not considered a permit as required under rule 51.3(455B).

These rules are intended to implement Iowa Code sections 455B.262, 455B.264 to 455B.274 and 455B.278, 1987 Iowa Code supplement section 159.29 and 1988 Iowa Acts, Senate File 38.

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CHAPTER 52 CRITERIA AND CONDITIONS FOR AUTHORIZING WITHDRAWAL, DIVERSION AND STORAGE OF WATER

[Prior to 12/3/86, Water, Air and Waste Management(900)]

567—52.1(455B) Scope of chapter. This chapter contains criteria for issuance of water permits, permit conditions, and conditions under which the department may modify, cancel, or suspend permits. This chapter includes special criteria applicable to particular types of water uses such as irrigation, and criteria applicable to particular types of sources of water such as streams and groundwater sources.

*See Delays, IAB 6/28/78, p.194.

**Effective date of 51.2 [NRC 3.1(4)] delayed seventy days by the administrative rules review committee; published IAC 6/23/82.
Effective date of 51.3 [NRC 3.1(4)] delayed by the administrative rules review committee forty-five days after convening of the next General Assembly pursuant to §17A.8(9); published IAC 8/18/82.

567—52.2(455B) Conditions on permitted water uses. This rule includes permit restrictions that apply to various types of permitted water uses. A permitted use may be subject to additional restrictions related to its potential effects on surface or groundwater. Requirements and restrictions which relate to particular types of water sources are found in rules 52.3(455B), 52.4(455B), 52.6(455B), 53.6(455B) and 53.7(455B). Procedures for determining conditions imposed due to well interference are found in rule 54.7(455B).

52.2(1) Irrigation permits.

a. Authorized irrigation season. Permits shall authorize irrigation of general farm crops such as row crops, small grain and hay from April 1 to September 30 and specialty crops such as vegetables, fruits, and sod from April 1 to October 31 unless the department finds that a different period is justified.

b. Authorized annual amount. Permits shall authorize withdrawals equivalent to 12 acre-inches per acre for general farm crops and 24 acre-inches per acre for specialty crops unless the department finds that a different amount is justified. Factors to be considered in determining whether a different amount is justified include soil types and potential water availability during drought events. Notwithstanding the general criteria in this paragraph, permits for irrigation of general farm crops from the alluvial aquifers of the Missouri and Mississippi Rivers shall authorize withdrawals of up to 18 acre-inches per acre if requested by the applicant unless the department finds that a different amount is justified.

c. Conservation plan for erosion control. When subrule 50.6(2) requires that an applicant for an irrigation permit submit a soil conservation plan, any permit granted to the applicant shall make authorization of irrigation contingent upon the permittee's compliance with the soil conservation plan.

d. Irrigation scheduling. The department may require that irrigation of general farm crops be scheduled according to a method recommended by the department to minimize the potential for waste of water or by an equivalent method selected by the permittee and approved by the department.

e. Irrigation system check valve. Each irrigation permit shall require the permittee to submit documentation that an adequate check valve has been installed to prevent back-siphoning of contaminants into the water source before a fertilizer, pesticide, herbicide, or other additive is introduced into the irrigation system.

52.2(2) The amount of water authorized for industrial use or power generation use shall be consistent with industry-wide usage for the same or similar purposes and types of facilities and shall provide for growth where need is demonstrated by the applicant.

52.2(3) The amount of water authorized for use by a community public water supply shall not exceed two hundred (200) gallons per day per capita except additional water may be provided for growth and industrial use where need is demonstrated by the applicant.

52.2(4) Recreational and aesthetic permits.

a. Authorized amount. The amount of water authorized for recreational and aesthetic uses shall be determined on a case-by-case basis.

b. Watering system backflow-prevention valve. Each permit authorizing the use of water for turf or landscape plantings shall require the permittee to submit documentation that an adequate check valve has been installed to prevent back-siphoning of contaminants into the water source before a fertilizer, pesticide, herbicide or other additive is introduced into the irrigation system.

This rule is intended to implement Iowa Code section 455B.265.

567—52.3(455B) Conditions on withdrawals from streams.

52.3(1) Streams draining less than fifty (50) square miles. Withdrawals of water from streams draining less than fifty (50) square miles shall be subject to the following conditions:

a. Two hundred gallon per minute (200 gpm) restriction. New withdrawals of water for

consumptive uses shall not be in excess of two hundred gallons per minute (200 gpm). Permits in effect on July 5, 1978, that authorize withdrawals in excess of two hundred gallons per minute (200 gpm) for consumptive uses, upon renewal, shall not authorize withdrawals in excess of two hundred gallons per minute (200 gpm) after December 31, 1988. However, the department may authorize withdrawals in excess of two hundred gallons per minute (200 gpm) for storage purposes during high stream flows.

b. Protected flow restriction. Except as provided in 52.3(1)"c," withdrawals for consumptive uses shall cease when the stream flow is below the protected flow designated in rule 52.8(455B). When the flow of a stream, or portion thereof designated by the department, is below a flow equal to the protected flow plus the summation of all permitted consumptive withdrawals by permittees whose permits provide for maintenance of a protected flow in such stream or portion thereof, the department may, subject to the provisions of 52.3(1)"c," order temporary cessation or rotation of all consumptive withdrawals to ensure that the protected flow is preserved.

c. Replacement water exemption. Subrules 52.3(1)"a" and "b" shall not apply to withdrawals for consumptive uses from a stream if the permittee discharges replacement water into such stream at rates sufficient to offset the consumptive withdrawals and the department approves the method and location of discharge.

d. Exemption until July 1, 1991, for certain users. Paragraphs 52.3(1)"a" and "b" shall not apply until July 1, 1991 to uses that were nonregulated prior to July 1, 1985, provided the application for said permit is postmarked or received prior to July 2, 1986.

52.3(2) *Streams draining fifty (50) or more square miles.* Withdrawals of water from streams draining fifty (50) or more square miles shall be subject to the following conditions:

a. Protected flow restriction. Except as provided in 52.3(2)"b" to 52.3(2)"d," withdrawals for consumptive uses shall cease when the stream flow is below the protected flow designated in rule 52.8(455B). When the flow of a stream, or portion thereof designated by the department, is below a flow equal to the protected flow plus the summation of all permitted consumptive withdrawals by permittees whose permits provide for maintenance of a protected flow in said stream or portion thereof, the department may, subject to the provisions of 52.3(2)"b" to 52.3(2)"d," order temporary cessation or rotation of all consumptive withdrawals to ensure that the protected flow is preserved.

b. Replacement water exemption. Subrule 52.3(2)"a" shall not apply to withdrawals for consumptive uses from a stream if the permittee discharges replacement water into such stream or tributary thereto at rates sufficient to offset the consumptive withdrawals and the department approves the method and location of discharge.

c. Exemption until January 1, 1989, for certain water uses. Subrule 52.3(2)"a" shall not apply until January 1, 1989, to withdrawals pursuant to a permit that was in effect on July 5, 1978, and authorized withdrawals for a consumptive use without a condition as of July 5, 1978, for maintenance of a protected flow. Withdrawals pursuant to the renewal of any such permit shall be likewise exempted.

d. Exemption after December 31, 1988, for certain electric generating facility cooling needs. After December 31, 1988, subrules 52.3(2)"a" and 52.4(2)"a" and "b" shall not apply to withdrawals pursuant to a permit that was granted an exemption under subrule 52.3(2)"c" and authorized a consumptive use of water for cooling electrical generating equipment at an electric generating facility or any renewal of such permit, unless the department finds upon the periodic renewal of these permits that—(1) an electrical generating unit requiring a consumptive use of water for cooling purposes has been installed after July 5, 1978, at the electric generating facility associated with the permit; or (2) the construction of an electrical generating unit requiring a consumptive use of water for cooling purposes was commenced after July 5, 1978, at another electric generating facility owned in whole or part by the permittee, for which facility replacement water is provided because of the restrictions imposed by 52.3(2)"a" or 52.3(2)"b" and additional replacement water is reasonably available from the source of such replacement water to satisfy the consumptive use at the generating facility site associated with the permit; or (3) the permittee, when replacing after July 5, 1978, any

major component of the cooling system (including cooling towers) at the electric generating facility, increases the facility's consumptive use of water; or (4) the consumptive use of water or cooling electric generation equipment at the electric generating facility is less beneficial to the interests of the public than are other specific beneficial uses that are adversely affected by such a consumptive use when considerations of the public health, safety, and welfare are balanced.

e. Exemption until July 1, 1991 for certain users. Paragraph 52.3(2)"a" shall not apply until July 1, 1991 to uses that were nonregulated prior to July 1, 1985, provided the application for said permit is postmarked or received prior to July 2, 1986.

567—52.4(455B) Conditions on withdrawals from groundwater sources.

52.4(1) Withdrawals from unconsolidated aquifers adjacent to streams draining less than fifty (50) square miles. Withdrawals of water from unconsolidated aquifers adjacent to streams draining less than fifty (50) square miles shall be subject to the following conditions:

a. Two hundred gallon per minute (200 gpm) restriction. New withdrawals for a consumptive use at any location within one-fourth (1/4) mile (1320 feet) of a stream shall not be in excess of two hundred gallons per minute (200 gpm), except when the applicant can conclusively demonstrate by conducting appropriate tests that withdrawals in excess of two hundred gallons per minute (200 gpm) will not reduce the flow of the stream. Permits in effect on July 5, 1978, that authorize withdrawals in excess of two hundred gallons per minute (200 gpm) for consumptive uses at such locations, upon renewal, shall not authorize withdrawals in excess of two hundred gallons per minute (200 gpm) after December 31, 1988. However, the department may authorize withdrawals in excess of two hundred gallons per minute (200 gpm) for storage purposes during high stream flows.

b. Protected flow restriction. Except as provided in 52.4(1)"c" and 52.4(1)"e," withdrawals for consumptive uses at any point within one eighth (1/8) mile (660 feet) of a stream shall be considered withdrawals from the stream and shall cease when the stream is below the protected flow designated in rule 52.8(455B), unless the applicant or permittee can conclusively demonstrate by conducting appropriate tests that the withdrawal will not reduce the flow of the stream. This protected flow restriction shall not apply until January 1, 1989, to withdrawals pursuant to a permit that was in effect on July 5, 1978, and authorized withdrawals for a consumptive use without a condition as of July 5, 1978, for maintenance of a protected flow. Withdrawals pursuant to the renewal of any such permit shall be likewise exempted.

c. Border stream-interior stream confluence restriction. Withdrawals for consumptive uses from the alluvial aquifers below the floodplains of streams bordering the state at any point within one-eighth (1/8) mile (660 feet) of any interior stream, shall cease when the flow of such interior stream is at or below the seven-day, one-in-ten year (7Q10) low flow, except as provided in 52.4(1)"d."

d. Other conditions. Notwithstanding 52.4(1)"a" to 52.4(1)"c," other conditions may be imposed that are necessary to ensure adequate protection of water supplies for ordinary household, livestock, and domestic uses, for fish and wildlife, for recreational use, for the preservation and enhancement of aesthetic values, and for other uses of a public nature.

e. Replacement water exemption. Rules 52.4(1)"a" to 52.4(1)"c" shall not apply to withdrawals for consumptive uses from an unconsolidated aquifer if the permittee discharges replacement water into such stream or tributary thereto at rates sufficient to offset the consumptive withdrawals and the department approves the method and location of discharge.

f. Exemption until July 1, 1991, for certain users. Paragraphs 52.4(1)"a," "b" and "c" shall not apply until July 1, 1991 to uses that were nonregulated prior to July 1, 1985, provided the application for said permit is postmarked or received prior to July 2, 1986.

52.4(2) Withdrawals from unconsolidated aquifers adjacent to streams draining fifty (50) or more square miles. Withdrawals of water from unconsolidated aquifers adjacent to streams draining fifty (50) or more square miles shall be subject to the following conditions:

a. Protected flow restriction. Withdrawals for consumptive uses at any point within one-eighth (1/8) mile (660 feet) of a stream shall be considered withdrawals from the stream and shall cease when the stream is below the protected flow designated in rule 52.8(455B), except as provided in 52.4(2)"c" to 52.4(2)"f."

b. Seven-day, one-in-ten year low flow restriction. Withdrawals for consumptive uses at any point located between one-eighth (1/8) mile (660 feet) and one-fourth (1/4) mile (1320 feet) of a stream, other than a stream bordering the state, shall cease when the stream flow is at or below the seven-day, one-in-ten year low flow (7Q10 flow), except as provided in 52.4(2)"c" to 52.4(2)"f."

c. Border stream-interior stream confluence restriction. Withdrawals for consumptive uses from the alluvial aquifers below the floodplains of streams bordering the state at any point within one-eighth (1/8) mile (660 feet) of any interior stream, shall cease when the flow of such interior stream is at or below the seven-day, one-in-ten year (7Q10) low flow, except as provided in 52.4(2)"d."

d. Other conditions. Notwithstanding 52.4(2)"a" to 52.4(2)"c," other conditions may be imposed if they are necessary to ensure adequate protection of water supplies for ordinary household, livestock, and domestic uses, for fish and wildlife, for recreational use, for the preservation and the enhancement of aesthetic values, and for other uses of a public nature.

e. Replacement water exemption. Subrules 52.4(2)"a" to 52.4(2)"c" shall not apply to withdrawals for consumptive uses from an unconsolidated aquifer, if the permittee discharges replacement water into such stream or tributary thereto at rates sufficient to offset the consumptive withdrawals and the department approves the method and location of discharge.

f. Exemptions from low flow restrictions. The restrictions of 52.4(2)"a" to 52.4(2)"d" may be waived if the applicant or permittee can conclusively demonstrate by conducting appropriate tests that the withdrawal will not reduce the flow of the adjacent stream. Withdrawals pursuant to a permit, which was in effect on July 5, 1978, and authorized withdrawals for a consumptive use without a condition as of July 5, 1978, for maintenance of the protected flow, and withdrawals pursuant to the renewals of such permit shall be exempt from subrules 52.4(2)"a" to 52.4(2)"d" under the conditions for exemption specified in 52.3(2)"c" and 52.3(2)"d." Withdrawals eligible for the exemptions of 52.3(2)"c" and 52.3(2)"d," if shifted from a stream to an adjacent unconsolidated aquifer, shall not lose the exemptions granted under the conditions of 52.3(2)"c" and 52.3(2)"d."

g. Exemption until July 1, 1991 for certain users. Paragraphs 52.4(2)"a," "b" and "c" shall not apply until July 1, 1991 to uses that were nonregulated prior to July 1, 1985, provided the application for said permit is postmarked or received prior to July 2, 1986.

52.4(3) Withdrawals from the Jordan Sandstone Aquifer. Withdrawals of water from the Jordan Sandstone Aquifer including the Prairie Du Chien formation and the St. Lawrence formation, shall be subject to the following conditions:

a. Two hundred gallon per minute (200 gpm) restriction on irrigation use and recreational and aesthetic use. New withdrawals of water for irrigation and recreational and aesthetic uses shall not be in excess of two hundred gallons per minute (200 gpm). Existing permits for irrigation and recreational and aesthetic uses that authorize withdrawal rates in excess of two hundred gallons per minute (200 gpm) shall not be renewed if serious impact on other water withdrawals or on groundwater piezometric levels occur or are forecasted to occur.

b. Two thousand gallon per minute (2000 gpm) restriction on industrial use and power generation use. New withdrawals of water for industrial and power generation uses at one plant location shall not exceed two thousand gallons per minute (2000 gpm).

c. Two hundred (200) foot limit on the decline of groundwater piezometric levels. The maximum collective long-term decline in groundwater piezometric levels in the Jordan Sandstone Aquifer in any high use area will not be permitted to exceed two hundred (200) feet from the 1977 baseline as determined from available records of the geological survey bureau.

d. Variances. Variances from the restrictions imposed by subrule 52.3(3) will be considered by the department through the appeal procedures in chapter 7 of these rules.

52.4(4) Withdrawals from the Dakota formation of the Cretaceous system. The department may issue permits authorizing withdrawals of water from the Dakota formation

cretaceous system for all beneficial uses under the following conditions:

a. Inventory of nearby wells by applicant. An applicant who requests authorization for withdrawals of water at a maximum rate in excess of 200 gallons per minute shall conduct and submit an inventory of nearby wells as described in 50.6(1)"b" of these rules.

b. Observation wells. In addition to the requirement of 52.6(3) in these rules for construction of an access port to allow measurement of water levels in each production well, applicant or permittee may also be required to construct, maintain, and monitor observation wells as a condition of obtaining or keeping a water permit if the department, after consultation with the geological survey bureau, finds observation wells necessary to monitor the effects of the proposed or authorized withdrawals of water. Observation wells must be properly constructed and developed to respond to water level fluctuations in the aquifer.

c. Prohibition of excessive water level declines. If the department, after consultation with the geological survey bureau, determines that withdrawals of water from the Dakota formation of the Cretaceous system within a designated geographical area are causing water level declines which constitute a significant threat to the public interest in the availability of water for sustained beneficial use of the aquifer, renewals of permits shall be denied, and permits all be modified or canceled in accordance with procedures in Iowa Code section 455B.271, necessary to protect the aquifer for sustained use.

d. Priorities in renewal, modification and cancellation of permits. If permit renewals must be denied or if permits must be modified or canceled to prevent or abate water level declines which constitute a significant threat to the public interest in the availability of water for sustained beneficial use of the aquifer, withdrawals of water for community public water supplies and for agricultural research shall have priority over withdrawals of water for other regulated uses.

This rule is intended to implement Iowa Code sections 455B.261, 422B.264, 455B.266, 455B.271 and 455B.272.

57—52.5(455B) Duration of permits for withdrawal or diversion of water.

52.5(1) Permits for withdrawal or diversion of surface water. Permits for withdrawal or diversion of surface water shall be issued for ten (10) years.

52.5(2) Permits for withdrawal of groundwater. Permits for withdrawal of groundwater shall be issued for a maximum period of ten (10) years and may be granted for less than ten (10) years if geological data on the capacity of the aquifer and the rate of its recharge are indeterminate.

This rule is intended to implement Iowa Code section 455B.265.

67—52.6(455B) Monitoring, recording and reporting of water use and effects on water source.

52.6(1) Water use reports. Each permittee shall submit to the department reports of water used, diverted, or stored and any other information deemed necessary by the department.

52.6(2) Reserved.

52.6(3) Requirement of access port for measurement of water levels in a regulated well. All new water permits which authorize withdrawals from wells shall require that each authorized production well be equipped with an access port having a minimum diameter of 3/4 inch. The access port must be located to allow insertion of a steel tape or electric probe into the well casing for measurement of water levels.

52.6(4) Aquifer tests and observation wells. A permittee may be required to conduct a controlled aquifer test as a condition of keeping a water permit if the department, after consultation with the geological survey bureau, finds an aquifer test to be necessary to determine the effects which the authorized withdrawals have on other water uses. A controlled aquifer test, authorized by the department and supervised by a registered well driller, registered professional engineer or other designee of the department, may be required for an administrative resolution of a well interference conflict pursuant to chapter 54 of the department's rules. The permittee may be required to construct, develop, and maintain adequate observation wells for

use in an aquifer test and for subsequent water level measurements or water quality monitoring.

This rule is intended to implement Iowa Code sections 455B.261, 455B.264, 455B.266, 455B.268(1) and 1985 Iowa Code Supplement section 455B.281.

567—52.7(455B) Modification, cancellation, and emergency suspension of permits.

52.7(1) General. Except as provided in subrule 52.7(2), after at least thirty (30) days' written notice mailed to the permittee's last known address by restricted certified mail or personal service, and an opportunity for the permittee to be heard in an evidentiary hearing conducted according to the contested case provisions of Iowa Code chapter 17A, the department may modify or cancel a water permit or any condition of a permit, notwithstanding any other rule, for any of the following:

a. Breach of permit condition or law. A condition of the permit has been breached or the law pertaining to the permit has been violated by the permittee or permittee's agent.

b. Nonuse. The permittee has failed for three (3) consecutive years to use the water, and the permittee has not demonstrated adequate plans to use water within a reasonable time. Nonuse due to adequate rainfall shall not be a justification for cancellation of a permit. However, authorization to withdraw water from a proposed well may be canceled after notice to the permittee if the permittee has failed to construct the proposed well within three (3) years after issuance of the permit.

c. Public health and safety. Modification or cancellation is necessary to protect the public health and safety, to protect the public interests in lands and waters, or to prevent any manner of substantial injury to persons or property.

d. Addition of conservation provisions. Modification to include conservation provisions is deemed necessary by the department.

52.7(2) Emergency suspension or restriction. Notwithstanding any other rule or permit conditions, if the department finds that it is imperatively necessary in an emergency to protect from imminent danger or substantial injury the public health, welfare or safety, the public or private interest in lands or water, or to implement the priority allocation system pursuant to rule 52.10(455B), and these findings are incorporated into a written emergency order to the permittee, then the department may immediately suspend or restrict operations under a permit and require the permittee to take measures necessary to prevent or remedy the injury. The emergency order shall state an effective date appropriate to the situation which involves the suspension or restriction and shall be immediately effective on that date unless stay modified, or vacated at a hearing before the commission or by the court. The emergency order shall remain in effect until a date specified in the order, unless the order is revoked or the expiration date modified, due to a change in the situation giving rise to the order or a decision following appeal.

This rule is intended to implement Iowa Code sections 455B.271, 455B.272 and 17A.18(3).

567—52.8(455B) Designated protected flows of streams.

52.8(1) Purpose. The protected flow is designed to protect and maintain adequate water supplies for ordinary household and livestock use; for fish and wildlife use; for recreational use; for in-stream wasteload assimilation and pollution control; for beneficial water use needs in the watershed; for preservation of aesthetic values; and for other uses of a public nature.

52.8(2) Protected flow basis. The protected flow is based in part on statistical information contained in "Low-Flow Characteristics of Iowa Streams," (INRC Bulletin No. 9 (1958)), and "Low-Flow Characteristics of Iowa Streams through 1966," (INRC Bulletin No. 10 (1970)), "Annual and Seasonal Low-Flow Characteristics of Iowa Streams" (INRC Bulletin No. 13 (1976)).

52.8(3) Protected flow levels.

at stream gaging stations. The protected flow, expressed in cubic feet per second (cfs) at
in a stream with an official U.S. Geological Survey stream flow gage are listed in the
table below.

The Protected Flow at U.S.G.S.
Stream Gaging Locations

Number of Stream	Gage Location	Protected Low Flow (CFS)
1	New Hartford	18
2	Mount Pleasant	2
3	Hudson	4.5
4	Webster City	24
5	Logan	41
6	Conesville	1240
7	Cedar Rapids	937
8	Waterloo	710
9	Janesville	185
10	Charles C.	100
11	Rathbun	2.9
12	Keosauqua	350
13	Ottumwa	300
14	Tracy	300
15	Des Moines (14th St.)	300
16	Saylorville	200
17	Stratford	310
18	Fort Dodge	220
19	Estherville	22
20	Klemme	6
21	Dakota City	42
22	Red Oak	37
23	Atlantic	18
24	James	22
25	Wapello	1390
26	Lone Tree	150
27	Iowa City	150
28	Marengo	204
29	Marshalltown	104
30	Rowan	21
31	Ionia	28
32	Turin	200
33	Correctionville	106
34	Linn Grove	42
35	Clare	4.2
36	Mapleton	50
37	Maquoketa	372
38	Panora	20
39	Indianola	14.6
40	Turin	27
41	Hamburg	128
42	Clarinda	15
43	Jefferson	82
44	Sac City	14
45	Norwalk	5.6

River or Stream	Gage Location	Protected L Flow (CFS)
North Skunk River	Sigourney	35
Raccoon River	Van Meter	190
Rock River	Rock Valley	26
Shell Rock River	Shell Rock	147
Shell Rock River	Northwood	23
Skunk River	Augusta	287
Soldier River	Pisgah	20
South Raccoon River	Redfield	58
South River	Ackworth	4.1
South Skunk River	Oskaloosa	94
South Skunk River	Ames (below Squaw Creek)	23
South Skunk River	Ames	4.8
Tarkio River	Stanton	0.3
Thompson River	Davis City	13
Turkey River	Garber	210
Upper Iowa River	Decorah	80
Walnut Creek	Hartwick	2
Wapsipinicon River	DeWitt	150
Wapsipinicon River	Independence	17
West Branch Floyd River	Struble	0.85
West Fork Cedar River	Finchford	66
West Fork Ditch	Hornick	12
West Nishnabotna River	Randolph	67
West Nishnabotna River	Hancock	49
White Breast Creek	Dallas	3.2
Winnebago River	Mason City	39

b. *At stream locations other than gaging stations.* The protected flow for points on a stream, other than at a U.S. Geological Survey gaging station, shall be established, as the need arises, by comparison of available stream flow data and basin characteristics.

This rule is intended to implement Iowa Code sections 455B.261, 455B.262 and 455B.267.

567—52.9(455B) Water conservation.

52.9(1) *General.* The purpose of water conservation requirements is to preserve the availability of water which is withdrawn for use, as opposed to protected flow provisions in rules 52.3(455B), 52.4(455B), and 52.8(455B) which preserve instream flows.

Each permit granted after July 1, 1986, will include conditions requiring routine (day-to-day) conservation practices, and requiring emergency conservation practices after notification by the department. Existing permits may be modified to include conservation conditions pursuant to 52.7(1)"d," if deemed necessary by the department.

Only general provisions for routine conservation will be included in a permit, unless water is to be withdrawn from a protected water source designated in 567—Chapter 53 which has specific requirements for routine conservation. Permit conditions requiring routine conservation are primarily intended to raise awareness of water usage, develop a preparedness for periods of water shortages, and minimize waste of water.

General conditions involving emergency conservation will be included in all permits. Specific emergency conservation conditions may be included in a water use permit pursuant to subrule 52.9(2). If specific emergency conservation permit conditions are required, they will be based on a water conservation plan developed by the permittee or applicant, in accordance with subrule 52.9(3), and approved by the department.

The purpose of emergency conservation is to minimize consumptive use of water from a

experiencing a temporary shortage. Emergency conservation restrictions will be imposed only when water shortages are imminent or actually exist, in accordance with rule 52.10(455B). Long-term water shortages may be dealt with in the protected source rules, 567—Chapter 53.

52.9(2) Applicability of emergency conservation. Specific emergency conservation requirements may be made a condition of a water withdrawal permit if the proposed or permitted withdrawal could result in a significant consumptive use of water from a source which is likely to experience a short-term shortage.

A determination of the consumptive nature of a water use will be based on the hydrologic relationship of the sources of water withdrawal and wastewater discharge. If the source of withdrawal and discharge are the same, the consumptive use from the source will be considered to be the amount of water withdrawal minus the wastewater discharge. If the sources of withdrawal and discharge are hydrologically independent, then consumptive use from the source of withdrawal will be considered to be the total amount of withdrawal. Water sources which are in close hydrologic connection (e.g., an alluvial aquifer and adjacent stream) will be considered as the same source.

Specific emergency conservation requirements will not normally be included in a water use permit under any of the following conditions:

- a. The proposed or existing permitted water use involves a consumptive use of less than 25,000 gallons per day from any water source during periods of substantial water shortage.
- b. The proposed or permitted use is subject to protected stream flow conditions pursuant to rules 52.3(455B), 52.4(455B), and 52.8(455B).
- c. The water source for the proposed or permitted use is from a surface water impoundment or purchased storage owned by the applicant or permittee.
- d. The proposed or permitted use is unable to conserve water without substantially disrupting or ceasing an essential activity which requires water, such as operating a steam electric generating plant, watering livestock, or operating a commercial laundry.
- e. The proposed or permitted withdrawal is from a source of water which is not likely to experience a substantial short-term water shortage including, but not limited to, the Missouri and Mississippi Rivers and adjacent alluvial aquifers, the Jordan Sandstone Aquifer, and the lower Great Lakes.

The source of water is or will be utilized by only the permitted or proposed water user and the withdrawal from the source for the permitted or proposed use has no potential for affecting other water uses.

52.9(3) Water conservation plans. Unless specific emergency conservation permit conditions are not required in accordance with subrule 52.9(2), the applicant or permittee shall submit a water conservation plan with an application for a new water use permit or renewal of an existing permit. The department may also require a water conservation plan to be submitted by any existing permittee after a minimum of 90 days' notice. If an applicant is in doubt as to whether or not the application requires a water conservation plan, the department should be contacted and provided with a description of the proposed source of water, intended use, and desired amount and rate of withdrawal. The department will then make a determination of whether or not a conservation plan is necessary. If a water conservation plan is required with an application for permit renewal, the department will notify the permittee at least 120 days prior to expiration of the permit.

Water conservation plans shall describe the measures to be used to achieve water conservation and estimate water savings from each measure. Water conservation plans must contain the following information, as applicable, to be approved by the department.

a. General provisions. The following information shall be included in all water conservation plans:

- (1) A description of each source of water withdrawal (i.e., well or surface water intake) including the location, well depth, pumping rate, and date of installation.
- (2) A description of wastewater discharge including the location and discharge frequency.
- (3) Monthly withdrawal amounts from each source for the past five years.
- (4) Monthly total water withdrawal amount for the past five years.

- (5) Monthly total wastewater discharge amount for the past five years.
 - (6) A quarterly breakdown, by the water use categories in subrule 52.10(3), of total water use and estimated consumptive water use over the past five years.
 - (7) A description of any previous water shortage problems, including the cause, frequency, other affected parties, and how they were resolved.
 - (8) Identification of nearby water supplies which are potentially affected by or could potentially affect the proposed or permitted withdrawal.
 - (9) A means of identifying impending water shortage problems (e.g., water level in wells or a reservoir decline to a certain level or stream flows fall to a certain rate).
- b. Routine conservation provisions.* Consideration of routine conservation is encouraged although it is not normally required in a water conservation plan. Documented water savings from routine conservation measures will be credited towards emergency conservation requirements. Suggested routine conservation measures include:
- (1) Use of water-saving plumbing devices or required use of these devices in building codes.
 - (2) Scheduling irrigation to minimize peak water use.
 - (3) Use of efficient irrigation techniques.
 - (4) Implementing programs to minimize lost water, such as piping leaks.
 - (5) Use of metered water billing by public water supplies.
 - (6) Utilizing best commercially-available technology to optimize efficiency of water use.
 - (7) Implementing recycling and reuse practices.
 - (8) Developing alternative water sources which are not susceptible to shortages.
 - (9) Increasing rates charged for water or eliminating reduced rates for large users.

c. Emergency conservation provisions. Water conservation plans shall contain emergency conservation provisions in accordance with the following criteria.

(1) General. The consumptive nature of a water use, as described in subrule 52.9(2) and determined from information required in 52.9(3) "a," shall be reduced by at least 50 percent over similar periods of normal use. This criterion does not apply to irrigation use. If this requirement cannot be met, justification for nonattainment shall be provided which must include documentation that an activity involving water use is essential and demonstration of use of best commercially available technology. The department may then grant variances on a case-by-case basis.

Measures which will be credited for emergency conservation include, but are not limited to, the following: Documented water savings resulting from routine water conservation measures; shutdown, postponement, or curtailment of nonessential activities involving water use; switching to nonaffected sources for water supply; mitigation of consumptive uses by direct discharge of stored water or water from a nonaffected source to the affected water source; acquisition and retirement of existing consumptive uses from the affected water source (credit for retirement of existing consumptive uses will be given only for the amount authorized during periods when emergency conservation is required); and imposing surcharges on water use during periods of shortage.

(2) Public water supplies. At a minimum, emergency water conservation plans for public water supplies must include provisions for restricting outside, consumptive water use.

(3) Irrigation water use. Emergency water conservation plans for irrigation water uses shall limit irrigation water use to the equivalent of one inch per irrigated acre per week for general farm crops and specialty crops, unless the water conservation plan contains other mitigating provisions such as listed in 52.9(3) "c"(1) above.

Water conservation plans shall also address irrigation scheduling. Irrigation scheduling should attempt to provide approximately equal water use on each day of an irrigation cycle. Irrigation scheduling may be done in cooperation with other nearby irrigators who utilize the same water source.

This rule is intended to implement Iowa Code sections 455B.262 and 455B.265.

52.10(455B) Priority allocation restrictions.

52.10(1) General. After any event described in subrule 52.10(2) has occurred, the department will investigate and, if appropriate, may restrict water use according to the priority allocation plan as described in subrule 52.10(3). Prior to imposing the priority allocation plan, the department will normally require emergency conservation measures to be taken by existing permittees. The department will not normally require emergency conservation until a shortage of water is imminent and will not normally impose the priority allocation plan until an actual impairment of water usage exists.

The department will notify existing permittees of any emergency restriction or suspension of water use by written order pursuant to subrule 52.7(2). A permittee will be required to maintain daily records of water withdrawal and wastewater discharge, if any, while the emergency order is in effect. These records shall be available for inspection by the department to verify compliance with the order.

Suspension or restriction of water usage applicable to otherwise nonregulated water users shall be by emergency order of the director which the department shall cause to be published in local newspapers of general circulation and broadcast by local media. The emergency order shall state an effective date of the suspension or restriction and shall be immediately effective on that date unless stayed, modified or vacated at a hearing before the commission or by a court.

The department will lift the suspension or restriction of water usage, as deemed appropriate, when evidence of sustained, improved conditions is available.

The department will not impose a suspension of water or a further restriction, other than emergency conservation, on the uses of water provided in paragraphs 52.10(3) "g" through "i" or on uses of water pursuant to a contract with the state as provided in Iowa Code subsections 455B.263(5) and 455B.263(6) unless the governor has issued a proclamation, as described in paragraph 52.10(2) "b." Notwithstanding such proclamation, in the case of water use under a contract with the state pursuant to Iowa Code subsections 455B.263(5) and 455B.263(6) and in effect prior to March 5, 1985, restriction or suspension measures will be limited to emergency conservation.

52.10(2) Triggering events. The department may implement the priority allocation plan following the occurrence of any of the following:

a. Receipt of a petition by a governmental subdivision or 25 persons that the priority allocation plan be implemented due to a substantial local water shortage adversely affecting their water supply.

b. Issuance by the governor of a proclamation of a disaster emergency due to a drought or other event affecting water resources of the state.

c. Determination by the department in conjunction with the office of disaster services of a local crisis which affects availability of water.

d. Receipt of information from a state or federal natural resource, research or climatological agency indicating that a drought of local or state magnitude is imminent. As a general guideline, emergency conservation or priority allocation restrictions will not be imposed on withdrawals from a surface stream or adjacent alluvial aquifer when stream flow is above the even-day, one-in-ten-year low-flow level.

52.10(3) Priority allocation plan. Notwithstanding a person's possession of a permit or the person's use of water being a nonregulated use, the department may suspend or restrict usage of water by category of use on a local or statewide basis in the following order:

a. Water conveyed across state boundaries.

b. Water used primarily for recreational or aesthetic purposes.

c. Uses of water for the irrigation of hay, corn, soybeans, oats, grain sorghum or wheat.

d. Uses of water for the irrigation of crops other than hay, corn, soybeans, oats, grain sorghum or wheat.

e. Uses of water for manufacturing or other industrial processes.

f. Uses of water for generation of electrical power for public consumption.

- g. Uses of water for livestock production.
- h. Uses of water for human consumption and sanitation supplied by rural water districts, municipal water systems, or other public water supplies.
- i. Uses of water for human consumption and sanitation supplied by a private water supply. This rule is intended to implement Iowa Code section 455B.266.

567—52.11(455B) Plugging of abandoned wells. When authorization for withdrawals of water from a well expires without renewal, the permittee shall be responsible for plugging the well in accordance with Iowa Geological Survey Public Information Circular #1, "Well Plugging Procedures", or by an alternate method approved by the department for prevention of groundwater pollution. However, the department shall grant a variance from the requirement that the well be plugged if the permittee demonstrates an intent to maintain the well as a source of water for a nonregulated use or if the department determines that the well should be maintained as an observation well.

This rule is intended to implement Iowa Code sections 455B.262 and 455B.263 to 455B.279(2).

52.12 to 52.19 Reserved.

567—52.20(455B) Water storage permits.

52.20(1) Beneficial use and protected flow criteria. A permit for storage of impounded water shall be based on the following findings:

- a. The proposed storage is for a specified beneficial use such as human or livestock water supply, recreation, aesthetic value, erosion control, or low-flow augmentation.
- b. The impounding structure can be operated in a manner which will not adversely affect any applicable protected flow in the impounded stream.
- c. The construction, operation, and maintenance of the impounding structure has been approved by the department.

52.20(2) Duration of permit. A permit for storage of water impounded by a dam other than a major structure may be granted for the life of the structure. A permit for storage of water impounded by a major structure may be granted for any period not exceeding ten (10) years.

52.20(3) Conditions of approval for storage of water impounded by a major structure. A permit authorizing storage of water impounded by a major structure as defined in 567—chapter 70 shall include the following conditions:

- a. Storage of water shall not commence until construction of the dam as approved by the department is completed and accepted by the department pursuant to 567—74.21(1), paragraph "c." Until construction of the dam is accepted the gate on the low level or dewatering outlet shall remain open.
- b. The permittee shall notify the department of any proposed change in the ownership of any part of the dam, or of any change in the identity of the person responsible for its construction, operation, and maintenance. For dams built under easement where the property owner does not have primary responsibility for construction, operation, and maintenance, notice of proposed change in ownership is not required if the identity of the responsible person does not change.
- c. The permittee shall permit inspections of the dam in accordance with 567—chapter 74.

52.20(4) Criteria for renewal of water storage permits. In addition to considering the criteria in subrule 52.9(1), the department shall review its most recent dam safety inspection report as part of the review of an application for renewal of a water storage permit and shall consider the following additional factors:

- a. The physical condition of the dam and appurtenant structures as related to safety of the dam.

b. The permittee's record of compliance with the conditions of the expiring storage permit approval order which authorized construction, use and maintenance of the dam. Changed circumstances including upstream or downstream development which may affect the hazard classification of the dam or its ability to function as intended.

52.20(5) *Conditions of cancellation or suspension of water storage permits.* When a water storage permit is canceled or suspended pursuant to Iowa Code section 455B.271, the gate on the low level or dewatering outlet shall be opened and the impoundment drained in accordance with the procedures in 567—chapter 74 and the impoundment shall remain drained unless storage water is again authorized. Additional measures including breaching of the dam may be required if necessary to reduce risk of damage associated with dam failure.

This rule is intended to implement Iowa Code sections 455B.262, 455B.264, 455B.265, 455B.267, 455B.270, 455B.271, 455B.274 and 455B.278, as amended by 1985 Iowa Acts, chapter 7.

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CHAPTER 53
PROTECTED WATER SOURCES — PURPOSES — DESIGNATION PROCEDURES —
INFORMATION IN WITHDRAWAL APPLICATIONS — LIMITATIONS —
LIST OF PROTECTED SOURCES

(Prior to 12/3/86, Water, Air and Waste Management(900))

567—53.1(455B) Scope of chapter. This chapter describes the purpose and procedures for designating specific surface water and groundwater sources as protected sources. This includes the special information that may be required of applicants for permits to withdraw water from such sources and conditions that may be applied to approved permits. Those protected sources so designated by rule are also listed.

This rule is intended to implement Iowa Code sections 455B.262, 455B.264 through 455B.274 and 455B.278.

567—53.2(455B) Designation of protected sources. The department, after consultation with the geological survey bureau of the department and other authorities, may designate a surface water or groundwater source within a defined geographical area as a protected source.

Notwithstanding rules 53.3(455B) to 53.7(455B) the department may impose permit conditions on a case-by-case basis as it determines are necessary to protect water resources of the state.

This rule is intended to implement Iowa Code sections 455B.262, 455B.264 through 455B.274 and 455B.278.

567—53.3(455B) Purposes of designating a protected source. The general purpose of designating a specific water source as a protected source is to ensure long-term availability in terms of quantity and quality to preserve public health and welfare. Specific purposes include, but are not limited to the following:

53.3(1) To preserve the availability of the protected source for sustained beneficial use.

53.3(2) To prevent or minimize the movement of groundwater contaminants.

53.3(3) To maintain the surface water quality within a specific stream segment in order to meet state or federal standards, to preserve protected flows, or to maintain its availability for other beneficial use.

53.3(4) To preserve the protected flows in a stream which is hydraulically connected to a protected aquifer.

This rule is intended to implement Iowa Code section 455B.262.

567—53.4(455B) Designation procedure. The procedure for designation of a protected source shall be a rule-making proceeding to amend the list of protected sources in rule 53.7(455B). In addition to the requirements of subrule 5.2(2), an interested person who petitions the department to designate a protected water source may also be required to provide further supporting information including, but not limited to:

53.4(1) Facts and arguments demonstrating that existing rules and the opportunity for public participation in the application review and decision-making procedures of rules 50.7(17A, 455B) to 50.9(17A, 455B) are inadequate to ensure the long-term availability of the source and to preserve the public health and welfare.

53.4(2) Predictive geohydrological and chemical analyses of the groundwater source if the basis of the petition is to prevent or minimize the movement of known or suspected contaminants.

53.4(3) Facts and arguments demonstrating the effect that additional withdrawals from a stream or stream segment proposed for designation would have on downstream discharges, surrounding alluvial systems, natural biological systems, and potential changes in the frequency at which the protected stream discharge levels are reached.

This rule is intended to implement Iowa Code sections 455B.262, 455B.264 through 455B.274 and 455B.278.

567—53.5(455B) Information requirements for applications to withdraw water from protected sources. An applicant proposing to withdraw water from a protected source, as listed in rule 53.7(455B), may be required to submit information necessary for the department to determine the effects resulting from such withdrawal.

53.5(1) Withdrawals from protected groundwater sources. Applicants for permits may be required to provide that information detailed in rule 50.7(17A, 455B) and additional predictive geohydrological and chemical analyses of the groundwater source. Where there is potential for a known contaminant to migrate, predictive analyses may also be requested to show potential movement and effects of the withdrawal on the piezometric head. Monitoring may be required in a permit authorizing withdrawals from a protected groundwater source.

53.5(2) Withdrawals from protected surface water sources. Applicants for permits may be required to demonstrate the effect of proposed withdrawals on downstream discharges, surrounding alluvial systems, natural biological systems, and potential changes in the frequency at which protected stream discharge levels are reached for any stream or stream reaches listed in rule 53.7(455B).

This rule is intended to implement Iowa Code sections 455B.262, 455B.264 through 455B.274 and 455B.278.

567—53.6(455B) Conditions in permits for withdrawals of water from a protected source. The designation of a protected water source in rule 53.7(455B) may include listing of special conditions on issuance of permits for withdrawals of water from the designated source. The designation may also include guidelines for imposition of special limitations on withdrawals authorized by permits which were in force on the effective date of the protected source designation. However, such guidelines may be enforced only in accordance with the procedures in rule 52.7(455B) for modification, cancellation and emergency suspension of permits, or after a permittee has had an opportunity to contest the imposition of proposed special limitations in permit renewal proceedings. When a group of permits is potentially affected by guidelines in rule 53.7(455B), hearings under rule 52.7(455B) may be consolidated.

53.6(1) Withdrawals from streams or associated alluvium that are protected sources. The department may apply special conditions on all permits for withdrawals from streams and associated alluvial systems that are protected water sources as listed in rule 53.7(455B). Such conditions may include cessation of withdrawals at a stream discharge rate to be determined by the department which may be in excess of the level required by subrule 52.8(3). These restrictions may apply to both consumptive and nonconsumptive withdrawals.

53.6(2) Withdrawals from groundwater sources that are protected sources. The department may apply special conditions on all permits for withdrawals from groundwater systems that are protected water sources as listed in rule 53.7(455B). Such conditions may include immediate cessation of withdrawals if declines in piezometric levels or movement of known contaminants in the source are detected. These restrictions may apply to both consumptive and nonconsumptive withdrawals.

567—53.7(455B) List of protected water sources. The following list identifies water sources designated as protected sources under this chapter. Each listing includes the name of the surface water or groundwater source designated, the geographical areas affected, the specific purposes for designating the source, and special limitations imposed or recommended to achieve the purpose of the protected source designation. The listing may also include any special monitoring requirements and may specify a date by which the department must review the designation of the protected source.

NOTE: When protected sources are designated they will be listed as part of this rule.

This rule is intended to implement Iowa Code sections 455B.262, 455B.264 through 455B.274 and 455B.278.

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CHAPTER 54
CRITERIA AND CONDITIONS FOR PERMIT
RESTRICTIONS OR COMPENSATION BY
PERMITTED USERS TO NONREGULATED
USERS DUE TO WELL INTERFERENCE

[Prior to 12/3/86, Water, Air and Waste Management(900)]

567—54.1(455B) Scope of chapter. This chapter provides an administrative means for resolving well interference conflicts in situations where an existing or proposed permitted use causes or will cause well interference in a nonregulated well. While administrative resolution is available, informal negotiations between affected parties must first be attempted and are encouraged throughout the procedure. This chapter applies only to situations in which an adequate groundwater supply is available from the utilized aquifer, but withdrawal for a permitted use causes or will cause such a water level decline in a nonregulated well that it does not provide a sufficient water supply. Situations with inadequate groundwater supply in the utilized aquifer will be managed according to 1985 Iowa Code supplement section 455B.266 regarding priority allocation. Resolution of well interference conflicts is predicated on the nonregulated well providing a sufficient water supply prior to well interference. These rules do not apply to situations in which the permitted use existed prior to construction of the nonregulated well, unless a significant change in the permitted use occurs.

567—54.2(455B) Requirements for informal negotiations. The complainant and permittee or applicant must attempt to negotiate an informal settlement prior to the department becoming involved in the verification and settlement procedures described in rules 54.6 (455B) and 54.7(455B). If good faith negotiations fail, a letter stating the reasons for the failure to achieve a settlement and signed by all parties to the complaint or identifying those parties who refuse to sign shall be sent to the department. Verbal notification will be accepted if followed by written confirmation.

Guidelines for informal negotiations are provided in Bulletin No. 23. Settlements which result from informal negotiations may be registered with the department for consideration in subsequent conflicts.

567—54.3(455B) Failure to cooperate. If any party refuses to cooperate, fails to provide the required information, or fails to meet the specified deadlines, the complaint may be dismissed, a permanent permit modification or cancellation order may be issued pursuant to subrule 52.7(1) or an application may be conditioned or denied.

567—54.4(455B) Well interference by proposed withdrawals. If the department, using supporting data provided by the applicant pursuant to rule 50.6(455B), determines that a proposed withdrawal will cause verified well interference in a nonregulated well(s), the applicant will be given options for resolving the imminent conflict(s) in accordance with subrule 50.7(2). If the applicant selects an option involving compensation to the nonregulated well owner(s), the applicant and nonregulated well owner(s) must attempt to negotiate an informal settlement in accordance with rule 54.2(455B). If informal negotiations fail, administrative resolution of a well interference conflict will be taken pursuant to rule 54.7(455B). The applicant will remain liable for future well interference which is proven to be greater than the amount resolved in the original settlement and for other well interference which was not previously verified.

567—54.5(455B) Well interference by existing permitted uses. If a complaint is made to the department by the owner of a nonregulated well regarding suspected well interference, the following procedures will be followed.

54.5(1) Initial notification of complaint. The complainant shall provide the department with the following information:

- a. Name, address, and telephone number.

b. Description of the nonregulated well, including: Location, depth, construction data and other pertinent information, as available.

c. Description of the problem.

d. Suspected cause of well interference.

54.5(2) Initial response by the department. The department will provide the complainant with a description of procedures, guidelines for resolving well interference complaints and information from department files on permitted uses in the area. The department will also notify any permitted user who is suspected of causing well interference of a possible well interference complaint.

54.5(3) Well inspection. It is the responsibility of the complainant to have the affected well inspected by a registered well driller, to have the driller complete Form 122: Water Well Inspection Report, and to submit the report to the department. Costs for a well inspection are eligible for compensation if well interference is subsequently verified.

54.5(4) Corrective work prior to a settlement. The complainant may proceed with corrective measures prior to a settlement and remain eligible for compensation if well interference is subsequently verified. However there will be no assurance of compensation. To be eligible for compensation, conditions prior to the corrective work must be documented on Form 122: Water Well Inspection Report.

The department and suspect permittee(s) should be notified and given opportunity to inspect the nonregulated well and consider alternative means for resolving the possible conflict prior to proceeding with the corrective work. If not, and well interference is subsequently verified but a reasonable settlement other than compensation is available, no compensation will be awarded.

Determination of apparent well interference, verified well interference and compensation, if any, will proceed in accordance with subrule 54.5(5) and rules 54.6(455B) and 54.7(455B).

54.5(5) Determination of apparent well interference. The department will determine that the complaint appears valid if all of the following criteria are met:

- a. The well inspection found no mechanical or structural reason for well failure.
- b. A permitted use can be identified as an apparent cause of well interference.
- c. The nonregulated well was in use when the permitted use began or the suspect permitted use changed significantly while the nonregulated well was still active.
- d. The suspect permittee and complainant withdraw water from the same aquifer or sources likely to be in close hydraulic connection.
- e. The suspect permittee was withdrawing water during the period when well interference was claimed.
- f. Well interference is reasonably possible with known conditions (i.e., pumping rates, separation distances, aquifer properties and relative water levels in the wells).
- g. Other obvious causes of water level decline are not apparent.

The department may identify permitted uses, in addition to those identified by the complainant, as apparent causes of well interference and will so notify the complainant and each suspect permittee. The department or a suspect permittee may identify other nonregulated wells which may also be affected by well interference caused by the suspected permittee(s), and the department will so notify the suspect permittee(s) and each potential complainant who has been so identified.

If the department determines that apparent well interference exists, the department will immediately notify the complainant and suspect permittee(s) of the situation, procedures, and required informal negotiations. If the department determines that apparent well interference does not exist, the complaint will be dismissed and the complainant and each suspect permittee will be so notified. A dismissal may be appealed by the complainant as provided in rule 54.10(455B).

54.5(6) Emergency withdrawal suspension or restrictions. If the complainant's well is not able to deliver a sufficient water supply due to apparent well interference, the department may immediately suspend or restrict withdrawal by the suspect permittee(s) pursuant to subrule

52.7(2). Restrictions may include, but are not limited to, scheduling withdrawals or reducing withdrawal rates. If approved by the department, the permittee(s) may elect to provide a temporary water supply to the complainant or take other appropriate measures as an alternative to withdrawal suspension or restrictions. A temporary water supply must meet the needs of the intended use in terms of both quantity and quality.

567—54.6(455B) Verification of well interference.

54.6(1) Test pumping. Test pumping of the complainant's and permittee's wells may be required for verification of well interference. A permittee may perform test pumping to verify well interference even if it is not required by the department. Test pumping shall be authorized by the department and supervised by a registered well driller, registered professional engineer or other designee of the department. The test pumping shall be performed within thirty (30) days of notification by the department to the permittee and the complainant that test pumping is to be conducted. The permittee and complainant shall each be responsible for all costs associated with test pumping their own well, although the complainant's cost may be eligible for compensation.

The complainant shall provide access to the nonregulated well for water level measurements during test pumping by the permittee. The permittee may be required to provide the complainant with a temporary water supply during test pumping by the permittee. Test pumping shall be performed in accordance to procedures specified in Bulletin No. 23.

54.6(2) Determination of verified well interference. The department will evaluate the occurrence of well interference based on data from the test pumping or other available hydrologic information and notify the affected parties of the results. If the test pumping was not performed under critical conditions (e.g., pumping rate less than maximum permitted rate, pumping duration less than critical duration, recharge more than minimum, etc.), the department will adjust test pumping results accordingly and qualify estimations in reporting the test pumping results.

The results of this evaluation will be used by the department to determine if well interference is verified in accordance with guidelines in Bulletin No. 23. In general, well interference will be verified if it causes the water in a nonregulated well to drop to a level below the pump suction, or it is shown to significantly diminish well performance.

If well interference is verified, settlement procedures according to rule 54.7(455B) will be followed. If well interference is not verified, the complaint will be dismissed and any emergency order will be removed. The department will notify the complainant and permittee of its decision regarding the complaint and either party may appeal pursuant to rule 54.10(455B).

567—54.7(455B) Settlement procedures.

54.7(1) Settlement options. At the same time as notification prescribed in subrule 54.6(2) or upon notice to the applicant of verified well interference according to subrule 50.7(2), the department will also advise the permittee or applicant of available settlement options including:

- a. Permanent permit modifications (i.e., reduced pumping rate or scheduled pumping).
- b. Compensation to the complainant (see subrule 54.7(3) and guidelines in Bulletin No. 23).

In situations in which verified well interference has occurred due to an existing permitted use, the permittee shall notify the department of the selected option within thirty (30) days of notification.

54.7(2) Compensation offer requirements. If the compensation option is selected, the applicant or permittee shall submit a notarized offer to the complainant and the department. This offer shall be submitted by a permittee within thirty (30) days of the notification prescribed in subrules 54.6(2) and 54.7(1). An offer must include the following:

- a. Written comments by a registered well driller or registered professional engineer detailing well improvements needed in order to provide the complainant with a sufficient water supply.
- b. Itemized costs of the improvements by a registered well driller with a breakdown of costs eligible for compensation (see subrule 54.7(3) and guidelines in Bulletin No. 23).
- c. A water quality analysis of the existing well water, if a new well is proposed. The analy-

sis shall include, at minimum, determination of nitrate, bacteria, iron and hardness.

d. A statement of what is being offered to the complainant and terms of the offer (timing, who will do the work, cash or completed work settlement, etc.).

54.7(3) *General criteria for cost liability.* The nonregulated well owner's cost for well inspection and test pumping are eligible for compensation. All costs for remedial work necessary to resolve a verified well interference problem are eligible for compensation, except as noted below. (Technical Bulletin No. 23 includes additional details on cost liability.)

a. When the existing well does not comply with applicable well construction standards (Chapter 49 of the rules), costs which are required to bring the well "up to standards" are not eligible for compensation.

b. Costs for work requested by the nonregulated well owner which result in upgrading the nonregulated water supply are not eligible for compensation.

c. Costs for legal fees are not eligible for compensation.

d. Operation and maintenance costs of the water supply system are not eligible for compensation.

e. Costs of the well rejuvenation, unless the well still fails to provide a sufficient water supply after well rejuvenation requested by the permittee is completed, are not eligible for compensation.

f. Costs due to temporary loss of water for such things as hauling water and going to a laundromat are not eligible for compensation, unless the permittee refuses to comply with an emergency order by the department.

54.7(4) *Complainant's response to the offer.* The complainant shall respond in writing to the department within fifteen (15) days of receipt of the offer. The response shall indicate acceptance or rejection of the offer. If the offer is rejected, the complainant shall submit a counteroffer with the response. The counteroffer shall contain supporting information including an itemized cost estimate of needed improvements by a registered well driller or registered professional engineer, if appropriate.

54.7(5) *Department review of offer and counteroffer.* The department will review the offer and counteroffer and determine if the offer is reasonable in accordance with criteria given in Bulletin No. 23. If the offer is determined to be reasonable but is rejected by the complainant, the complainant will be given fifteen (15) days to reconsider the offer after which the complaint will be dismissed and any suspension or restrictions on withdrawals by the permittee will be removed or, in the case of an application, the permit process will be continued. A dismissal may be appealed by the complainant as provided in rule 54.10(455B).

If the offer is not found to be reasonable, the permittee will be given one opportunity to revise the offer in accordance with determinations of the department. If a revised offer is not received within fifteen (15) days or the revised offer is determined by the department not to be reasonable, the department will determine the amount of compensation or withdrawal restrictions to resolve the well interference. This determination will be enforced through the imposition of permit conditions, or permit revocation or denial. In the case of an existing permit the department will modify or revoke the permit as provided in subrule 52.7(1). For a pending permit application the department will render an initial decision pursuant to rule 50.8(455B) which denies the application or subjects the permit to appropriate conditions.

567—54.8(455B) *Recurring complaints.* If a complainant accepts compensation from a permittee for settlement of a well interference conflict, any future complaint by the complainant against the same permittee will not be considered unless: A significant change in the permitted withdrawal occurs; the permittee utilized simplified test pumping procedures or other less than optimal verification methods, as described in Bulletin No. 23; or the permittee provided compensation to resolve less than the estimated worst-case well interference. A complainant who accepts compensation from an applicant is still eligible for compensation if subsequent well interference is proven to be greater than resolved in the original settlement.

If a previous complaint was dismissed or settled without compensation, a new complaint must include justification for reconsideration. Justification may include a significant change

in withdrawals by the suspect permittee or water level measurements from the complainant's well which indicate more well interference than found in the previous complaint. A physical change to withdrawal facilities may be considered a significant change to a permitted use (e.g., moving the withdrawal location, installing a new well, or installing a higher-capacity pump).

A complaint which was dismissed due to failure to cooperate, as provided in rule 54.3(455B), will be reconsidered when the required cooperation is demonstrated. However, it will be treated as a new complaint.

567—54.9(455B) Variances. Variance to these rules may be granted by the department provided just cause can be demonstrated. Requests for variances and supporting information shall be submitted in writing to the department.

567—54.10(455B) Appeal procedures. Determinations of the department under subrules 54.5(5), 54.6(2) and 54.7(4) may be appealed by following the procedure in subrule 7.5(1). These rules are intended to implement 1985 Iowa Code Supplement section 455B.281.

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

CHAPTERS 55 to 59

Reserved

CHAPTER 61
WATER QUALITY STANDARDS

[Prior to 7/1/83, DEQ Ch 16]
[Prior to 12/3/86, Water, Air and Waste Management(WA)]

61.1 Rescinded, effective August 31, 1977.

567—61.2(455B) General considerations.

61.2(1) Policy statement. It shall be the policy of the commission to protect and enhance the quality of all the waters of the state. In the furtherance of this policy it will attempt to prevent and abate the pollution of all waters to the fullest extent possible consistent with statutory, and technological limitations. This policy shall apply to all point and nonpoint sources of pollution.

These water quality standards establish selected criteria for certain present and future designated uses of the surface waters of the state. The standards establish the areas where these uses are to be protected and provide minimum criteria for waterways having non-designated uses as well. Many surface waters are designated for more than one use. In these cases the more stringent criteria shall govern for each parameter.

Certain of the criteria are in narrative form without numeric limitations. In applying such narrative standards, decisions will be based on the U.S. Environmental Protection Agency's methodology described in "Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses," (1985) and on the rationale contained in "Quality Criteria for Water," published by the U.S. Environmental Protection Agency (1977), as updated by supplemental Section 304 (of the Act) Ambient Water Quality Criteria documents.

All methods of sample collection, preservation, and analysis used in applying any of the rules in these standards shall be in accord with those prescribed in Chapter 63.

61.2(2) Antidegradation policy. It is the policy of the state of Iowa that:

a. Existing surface water uses and the level of water quality necessary to protect the existing uses will be maintained and protected.

b. Chemical integrity: For those water bodies where water quality significantly exceeds levels necessary to protect existing uses and the waters designated as high quality in 61.3(5) "e," that water quality will be maintained at or above existing quality, except when it is determined by the environmental protection commission after public hearing and after intergovernmental coordination and public participation provisions noted in the continuing planning process that there is need to allow a lower chemical quality because of necessary and justifiable economic and social development in the area. The state shall ensure adequate chemical quality to fully protect existing uses.

- (1) Bear Creek, mouth in Winneshiek County and tributary to the Upper Iowa River.
- (2) Bloody Run, mouth in Clayton County and tributary to the Mississippi River.
- (3) Catfish Creek from Swiss Valley Park in Dubuque County to its source.
- (4) Unnamed Creek known locally as Coldwater Creek with mouth in Winneshiek County and tributary to the Upper Iowa River.
- (5) Fenchel Creek, mouth to Richmond Springs, in Delaware County and tributary to the Maquoketa River.
- (6) Odell Branch (aka Fountain Spring Creek), mouth (section 10, T90N, R4W, Delaware County), tributary to Elk Creek, which is tributary to the Turkey River to west line of section 9, T90N, R4W, Delaware County.
- (7) Iowa Great Lakes chain of lakes in Dickinson County, including West Lake Okoboji, Spirit Lake, East Lake Okoboji, Minnewashta Lake, Upper Gar Lake, and Lower Gar Lake.
- (8) North Bear Creek, with mouth in Winneshiek County and tributary to Bear Creek, listed as number 1 in this listing.



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- (9) North Cedar Creek, with mouth in Clayton County and tributary to Sny Magill Creek.
- (10) Sny Magill Creek, with mouth in Clayton County and tributary to the Mississippi River.
- (11) Turkey River, from the point where it is joined by the Volga River in Clayton County to Vernon Springs in Howard County.
- (12) Waterloo Creek, with mouth in Allamakee County and tributary to the Upper Iowa River.
- (13) Maquoketa River, from confluence with South Fork Maquoketa River (section 16, T90N, R6W, Delaware County) to Highway 3 (north line of section 24, T91N, R7W, Fayette County).
- (14) Spring Branch, mouth (section 10, T88N, R5W, Delaware County) to spring source (section 35, T89N, R5W, Delaware County).
- (15) Little Turkey River, Clayton-Delaware County line to south line of section 11, T90N, R3W, Delaware County.
- (16) Middle Fork Little Maquoketa River (aka Bankston Creek), west line of section 31, T90N, R1E to north line of section 33, T90N, R1W, Dubuque County.
- (17) Brush Creek, north line of section 23, T85N, R3E to north line of section 1, T85N, R3E, Jackson County.
- (18) Dalton Lake — Jackson County.
- (19) Little Mill Creek, mouth (Jackson County) to west line of section 29, T86N, R4E, Jackson County.
- (20) Mill Creek (aka Big Mill Creek), from confluence with Little Mill Creek in section 13, T86N, R4E, Jackson County, to confluence with Unnamed Creek, section 1, T86N, R3E, Jackson County.
- (21) Unnamed Creek (tributary to Mill Creek), mouth (section 1, T86N, R3E, Jackson County) to west line of section 1, T86N, R3E, Jackson County.
- (22) Unnamed Creek (aka South Fork Big Mill), tributary to Mill Creek, from mouth (section 8, T86N, R4E, Jackson County) to west line of section 17, T86N, R4E, Jackson County.
- (23) Clear Creek, mouth (Allamakee County) to west line of section 25, T99N, R4W, Allamakee County.
- (24) French Creek, mouth (Allamakee County) to east line of section 23, T99N, R5W, Allamakee County.
- (25) Hickory Creek, mouth (Allamakee County) to south line of section 28, T96N, R5W, Allamakee County.
- (26) Little Paint Creek, mouth to north line of section 30, T97N, R3W, Allamakee County.
- (27) Paint Creek, from confluence with Little Paint Creek to road crossing in section 18, T97N, R4W, Allamakee County.
- (28) Patterson Creek, mouth (Allamakee County) to east line of section 3, T98N, R6W, Allamakee County.
- (29) Silver Creek, mouth (Allamakee County) to south line of section 31, T99N, R5W, Allamakee County.
- (30) Village Creek, mouth (Allamakee County) to west line of section 19, T98N, R4W, Allamakee County.
- (31) Wexford Creek, mouth to west line of section 25, T98N, R3W, Allamakee County.
- (32) Buck Creek, mouth (Clayton County) to west line of section 9, T93N, R3W, Clayton County.
- (33) Ensign Creek (aka Ensign Hollow), mouth (section 28, T92N, R6W, Clayton County) to spring source (section 29, T92N, R6W, Clayton County).
- (34) South Cedar Creek (aka Cedar Creek), mouth (Clayton County) to north line of section 7, T92N, R3W, Clayton County.
- (35) Bear Creek, mouth (Fayette County) to west line of section 6, T92N, R7W, Fayette County.
- (36) Unnamed Creek (aka Glover's Creek), mouth to west line of section 15, T94N, R8W, Fayette County.
- (37) Grannis Creek, mouth to west line of section 36, T93N, R8W, Fayette County.
- (38) Mink Creek, mouth to west line of section 15, T93N, R7W, Fayette County.

(39) Otter Creek, mouth (Fayette County) to confluence with Unnamed Creek (aka Glover's Creek) in section 22, T94N, R8W, Fayette County.

(40) Nichols Creek (aka Bigalk Creek), mouth (section 18, T100N, R10W, Winneshiek County) to west line of section 23, T100N, R11W, Howard County.

(41) Spring Creek, mouth (Mitchell County) to north line of section 8, T97N, R16W, Mitchell County.

(42) Turtle Creek, mouth (Mitchell County) to east line of section 7, T99N, R17W, Mitchell County.

(43) Wapsipinicon River, from the town of McIntire to north line of section 20, T99N, R15W, Mitchell County.

(44) Bohemian Creek, mouth (Winneshiek County) to Howard County Road 58 (west line of section 2, T97N, R11W, Howard County).

(45) Coon Creek, mouth (Winneshiek County) to road crossing in section 13, T98N, R7W, Winneshiek County.

(46) Smith Creek (aka Trout River), mouth to south line of section 33, T98N, R7W, Winneshiek County.

(47) Unnamed Stream (aka Trout Run), mouth to south line of section 27, T98N, R8W, Winneshiek County.

(48) Twin Springs Creek, mouth to springs in Twin Springs Park in section 20, T98N, R8W, Winneshiek County.

(49) Canoe Creek (aka West Canoe Creek), from Winneshiek County Road W38 to west line of section 8, T99N, R8W, Winneshiek County.

c. Standards and restrictions more stringent than those applied to other waters may be applied by the commission to those waters listed below when it is determined that such more stringent standards and restrictions are necessary to fully maintain water quality at existing levels.

We, Lake Okoboji in Dickinson County.

d. The Mississippi River and the Missouri River do not meet the criteria of 61.2(2)"c" but nevertheless constitute waters of exceptional state and national significance. Water quality management decisions will be made in consideration of the exceptional value of the resource.

e. In furtherance of the policy stated in 61.2(2)"b," there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources, and feasible management and regulatory programs pursuant to section 208 of the Federal Water Pollution Control Act for nonpoint sources, both existing and proposed.

f. Physical and biological integrity: The waters designated as high-quality resource waters in 61.3(5)"e" will receive protection of existing uses through maintaining water quality levels necessary to fully protect existing uses or improve water quality to levels necessary to meet the designated use criterion in Tables 1, 2 and 3 and at preserving or enhancing the physical and biological integrity of these waters. This involves the protection of such features of the water body as channel alignment, bed characteristics, water velocity, aquatic habitat, and the type, distribution and abundance of existing aquatic species.

g. It is the intent of the antidegradation policy to protect and maintain the existing physical, biological, and chemical integrity of all waters of the state. Consistency with Iowa's water quality standards requires that any proposed activity modifying the existing physical, biological, or chemical integrity of a water of the state shall not adversely impact these resource attributes, either on an individual or cumulative basis. An adverse impact shall refer to the loss of or irreparable damage to the aquatic, semiaquatic or wildlife habitat or population, or a modification to the water body that would cause an overall degradation to the aquatic or wildlife population and diversity. The fish and wildlife division of the department and the U.S. Fish and Wildlife Service shall serve as consultants to the department for assessing impacts. Exceptions to the preceding will be allowed only if full mitigation is provided by the applicant and approved by the department.

For those waters of the state designated as high quality or high quality resource waters and the Mississippi and Missouri Rivers, any proposed activity that will adversely impact the existing physical, chemical, or biological integrity of that water will not be consistent with Iowa's water quality standards. Mitigation will not be allowed except in highly unusual situations where no other project alternatives exist. In these cases, full mitigation must be provided by the applicant and approved by the department.

This policy shall be applied in conjunction with water quality certification review pursuant to Section 401 of the Act. In the event that activities are specifically exempted from flood plain development permits or any other permits issued by this department in 567—Chapters 70, 71 and 72 the activity will be considered consistent with this policy. Other activities not otherwise exempted will be subject to 567—Chapters 70, 71 and 72 and this policy.

61.2(3) Minimum treatment required. All wastes discharged to the waters of the state must be of such quality that the discharge will not cause the narrative or numeric criteria limitations to be exceeded. Where the receiving waters provide sufficient assimilative capacity that the water quality standards are not the limiting factor, all point source wastes shall receive treatment in compliance with minimum effluent standards as adopted in rules by the department.

There are numerous parameters of water quality associated with nonpoint source runoff which are of significance to the designated water uses specified in the general and specific designations in 61.3(455B), but which are not delineated. It shall be the intent of these standards that the limits on such nonpoint source related parameters when adopted shall be those that can be achieved by best management practices as defined in the course of the continuing planning process from time to time. Existing water quality and nonpoint source runoff control technology will be evaluated in the course of the Iowa continuing planning process, and best management practices and limitations on specific water quality parameters will be reviewed and revised from time to time to assure that the designated water uses and water quality enhancement goals are met.

61.2(4) Regulatory mixing zones. Mixing zones are recognized as being necessary for the initial assimilation of point source discharges which have received the required degree of treatment or control. Mixing zones shall not be used for, or considered as, a substitute for minimum treatment technology required by subrule 61.2(3). The objective of establishing mixing zones is to provide a means of control over the placement and emission of point source discharges so as to minimize environmental impacts. Waters within a mixing zone shall meet the general water quality criteria of subrule 61.3(2). Waters at and beyond mixing zone boundaries shall meet all applicable standards and the chronic criteria of subrule 61.3(3) Tables 1 and 3 for that particular water body or segment. A zone of initial dilution may be established within the mixing zone beyond which the applicable standards and the acute criteria of subrule 61.3(3) will be met. For waters designated under subrule 61.3(5), any parameter not included in Tables 1, 2 and 3 of subrule 61.3(3), the chronic and acute criterion calculated following subrule 61.2(1), will be met at the mixing zone and zone of initial dilution boundaries respectively.

a. Due to extreme variations in wastewater and receiving water characteristics, spatial dimensions of mixing zones shall be defined on a site-specific basis. These rules are not intended

to define each individual mixing zone, but will set maximum limits which will satisfy most biological, chemical, physical and radiological considerations in defining a particular mixing zone. Additional details are noted in the "Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on March 20, 1990, for considering unusual site-specific features such as side channels and sand bars which may influence a mixing zone. Applications for operation permits under subrule 64.3(1) may be required to provide specific information related to the mixing zone characteristics below their outfall so that mixing zone boundaries can be determined.

b. For parameters included in Table 1 only (which does not include ammonia nitrogen), the dimensions of the mixing zone and the zone of initial dilution will be calculated using a mathematical model presented in the "Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on March 20, 1990, or from instream studies of the mixing characteristics during low flow. In addition, the most restrictive of the following factors will be met:

(1) The stream flow in the mixing zone may not exceed the most restrictive of the following:

1. Twenty-five percent of the seven-day, ten-year low stream flow for interior streams and rivers, and the Big Sioux and Des Moines Rivers.

2. Ten percent of the seven-day, ten-year low stream flow for the Mississippi and Missouri Rivers.

3. The stream flow contained in the mixing zone at the most restrictive of the applicable mixing zone length criteria, noted below.

(2) The length of the mixing zone below the point of discharge shall be set by the most restrictive of the following:

1. The distance to the juncture of two perennial streams.
2. The distance to a public water supply intake.
3. The distance to the upstream limits of an established recreational area, such as public beaches, and state, county and local parks.

4. The distance to the middle of a crossover point in a stream where the main current flows from one bank across to the opposite bank.

5. The distance to another mixing zone.

6. Not to exceed a distance of 2000 feet.

7. The location where the mixing zone contained the percentages of stream flow noted in 61.2(4)"b"(1).

(3) The width of the mixing zone is calculated as the portion of the stream containing the allowed mixing zone stream flow. The mixing zone width will be measured perpendicular to the basic direction of stream flow at the downstream boundary of the mixing zone. This measurement will only consider the distance of continuous water surface.

(4) The width and length of the zone of initial dilution may not exceed 10 percent of the width and length of the mixing zone.

c. The stream flow used in determining wasteload allocations to assure compliance with the chronic criteria of Table 1 will be that value contained at the boundary of the allowed mixing zone. This stream flow may not exceed the following percentages of the seven-day, ten-year low stream flow as measured at the point of discharge:

- (1) Twenty-five percent for interior streams and rivers, and the Big Sioux and Des Moines Rivers.

- (2) Ten percent for the Mississippi and Missouri Rivers.

The stream flow in the zone of initial dilution used in determining effluent limits to assure compliance with the acute criteria of Table 1 may not exceed 10 percent of the calculated flow associated with the mixing zone.

d. For toxic parameters noted in Table 1, the following exceptions apply to the mixing zone requirements:

- (1) No mixing zone or zone of initial dilution will be allowed for waters designated as lakes or wetlands.

(2) No zone of initial dilution will be allowed in waters designated as cold water.

(3) The use of a diffuser device to promote rapid mixing of an effluent in a receiving stream will be considered on a case-by-case basis with its usage as a means for dischargers to comply with an acute numerical criterion.

(4) A discharger to interior streams and rivers, the Big Sioux and Des Moines Rivers, and the Mississippi or Missouri Rivers may provide to the department, for consideration, instream data which technically supports the allowance of an increased percentage of the stream flow contained in the mixing zone due to rapid and complete mixing. Any allowed increase in mixing zone flow would still be governed by the mixing zone length restrictions. The submission of data should follow the guidance provided in the "Supporting Document for Iowa Water Quality Management Plans" (Iowa Department of Water, Air and Waste Management, Chapter IV, July 1976, as revised on March 20, 1990).

e. For ammonia criteria noted in Table 3, the dimensions of the mixing zone and the zone of initial dilution will be calculated using a mathematical model presented in the "Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on March 20, 1990, or from instream studies of the mixing characteristics during low flow. In addition, the most restrictive of the following factors will be met:

(1) The stream flow in the mixing zone may not exceed the most restrictive of the following:

1. One hundred percent of the seven-day, ten-year low stream flow for locations where the dilution ratio is less than or equal to 2:1.
2. Fifty percent of the seven-day, ten-year low stream flow for locations where the dilution ratio is greater than 2:1, but less than or equal to 5:1.
3. Twenty-five percent of the seven-day, ten-year low stream flow for locations where the dilution ratio is greater than 5:1.
4. The stream flow contained in the mixing zone at the most restrictive of the applicable mixing zone length criteria, noted below.

(2) The length of the mixing zone below the point of discharge shall be set by the most restrictive of the following:

1. The distance to the juncture of two perennial streams.
2. The distance to a public water supply intake.
3. The distance to the upstream limits of an established recreational area, such as public beaches, and state, county, and local parks.
4. The distance to the middle of a crossover point in a stream where the main current flows from one bank across to the opposite bank.
5. The distance to another mixing zone.
6. Not to exceed a distance of 2000 feet.
7. The location where the mixing zone contained the percentages of stream flow noted in 61.2(4)"e"(1).

(3) The width of the mixing zone is calculated as the portion of the stream containing the allowed mixing zone stream flow. The mixing zone width will be measured perpendicular to the basic direction of stream flow at the downstream boundary of the mixing zone. This measurement will only consider the distance of continuous water surface.

(4) The width and length of the zone of initial dilution may not exceed 10 percent of the width and length of the mixing zone.

f. For ammonia criteria noted in Table 3, the stream flow used in determining wasteload allocations to assure compliance with the chronic criteria of Table 3 will be that value contained at the boundary of the allowed mixing zone. This stream flow may not exceed the percentages of the seven-day, ten-year low stream flow noted in 61.2(4)"e"(1) as measured at the point of discharge.

The pH and temperature values at the boundary of the mixing zone used to select the chronic ammonia criteria of Table 3 will be from one of the following sources. The source of the pH and temperature data will follow the sequence listed below, if applicable data exists from the source.

(1) Specific pH and temperature data provided by the applicant gathered at their mixing zone boundary. Procedures for obtaining this data are noted in the "Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on March 20, 1990.

(2) Regional background pH and temperature data provided by the applicant gathered along the receiving stream and representative of the background conditions at the outfall. Procedures for obtaining this data are noted in the "Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on March 20, 1990.

(3) The statewide average background values presented in Table IV-5 of the "Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on March 20, 1990.

The stream flow in the zone of initial dilution used in determining effluent limits to assure compliance with the acute criteria of Table 3 may not exceed 5 percent of the calculated flow associated with the mixing zone for facilities with a dilution ratio of less than or equal to 2:1, and not exceed 10 percent of the calculated flow associated with the mixing zone for facilities with a dilution ratio of greater than 2:1. The pH and temperature values at the boundary of the zone of initial dilution used to select the acute ammonia criteria of Table 3 will be from one of the following sources and follow the sequence listed below, if applicable data exists from the source.

1. Specific effluent pH and temperature data if the dilution ratio is less than or equal to 2:1.

2. If the dilution ratio is greater than 2:1, the logarithmic average pH of the effluent and the regional or statewide pH provided in 61.2(4)"f" will be used. In addition, the flow proportioned average temperature of the effluent and the regional or statewide temperature provided in 61.2(4)"f" will be used. The procedures for calculating these data are noted in the "Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on March 20, 1990.

g. For ammonia criteria noted in Table 3, the following exceptions apply to the mixing zone requirements.

(1) No mixing zone or zone of initial dilution will be allowed for waters designated as lakes or wetlands.

(2) No zone of initial dilution will be allowed in waters designated as cold water.

(3) The use of a diffuser device to promote rapid mixing of an effluent in a receiving stream will be considered on a case-by-case basis with its usage as a means for dischargers to comply with an acute numerical criterion.

(4) A discharger to interior streams and rivers, the Big Sioux and Des Moines Rivers, and the Mississippi and Missouri Rivers may provide to the department, for consideration, instream data which technically supports the allowance of an increased percentage of the stream flow contained in the mixing zone due to rapid and complete mixing. Any allowed increase in mixing zone flow would still be governed by the mixing zone length restrictions. The submission of data should follow the guidance provided in the "Supporting Document for Iowa Water Quality Management Plans" (Iowa Department of Water, Air and Waste Management, Chapter IV, July 1976, as revised on March 20, 1990).

h. Temperature changes within mixing zones established for heat dissipation will not exceed the temperature criteria in 61.3(3)"b"(5).

i. The appropriateness of establishing a mixing zone where a substance discharged is bioaccumulative, persistent, carcinogenic, mutagenic, or teratogenic will be carefully evaluated. In such cases, effects such as potential groundwater contamination, sediment deposition, fish attraction, bioaccumulation in aquatic life, bioconcentration in the food chain, and known or predicted safe exposure levels shall be considered.

61.2(5) Implementation strategy. Numerical criteria specified in these water quality standards shall be met when the flow of the receiving stream equals or exceeds the seven-day, ten-year low flow. Exceptions may be made for intermittent or low flow streams classified as significant resource warm waters or limited resource warm waters. For these waters, the department may waive the seven-day, ten-year low flow requirement and establish a minimum flow in lieu thereof. Such waiver shall be granted only when it has been determined that the aquatic resources of the receiving waters are of no significance at flows less than the established minimum, and that the continued maintenance of the beneficial uses of the receiving waters will be assured. In no event will toxic conditions be allowed to occur in the receiving waters outside of mixing zones established pursuant to subrule 61.2(4). The policy for granting waivers is described in the "Supporting Document for Iowa Water Quality Management Plans" (Iowa Department of Water, Air and Waste Management, Chapter IV, July 1976, as revised on March 20, 1990). (Copies are available upon request to the Department of Natural Resources, Henry A. Wallace Building, 900 East Grand, Des Moines, Iowa 50319-0034. Copy also on file with the Iowa Administrative Rules Coordinator.)

All minimum flows established under the provisions of this rule will be published annually by the department.

a. The allowable 3°C. temperature increase criterion for warm water interior streams, 61.3(3)"f"(1), is based in part on the need to protect fish from cold shock due to rapid cessation of heat source and resultant return of the receiving stream temperature to natural background temperature. On low flow streams, in winter, during certain conditions of relatively cold background stream temperature and relatively warm ambient air and groundwater temperature, certain wastewater treatment plants with relatively constant flow and constant temperature discharges will cause temperature increases in the receiving stream greater than allowed in 61.3(3)"f"(1).

b. During the period November 1 to March 31, for the purpose of applying the 3°C. temperature increase criterion, the minimum protected receiving stream flow rate below such discharges may be increased to not more than three times the rate of flow of the discharge, where there is reasonable assurance that the discharge is of such constant temperature and flow rate and continuous duration as to not constitute a threat of heat cessation and not cause the receiving stream temperature to vary more than 3°C. per day.

c. Site-specific water quality criteria may be allowed in lieu of the specific numerical criteria listed in Tables 1 and 3 of this chapter if adequate documentation is provided to show that the proposed criteria will protect all existing or potential uses of the surface water. Site-specific water quality criteria may be appropriate where:

(1) The types of organisms differ significantly from those used in setting the statewide criteria;

or

(2) The chemical characteristics of the surface water such as pH, temperature, and hardness differ significantly from the characteristics used in setting the statewide criteria.

Development of site-specific criteria shall include an evaluation of the chemical and biological characteristics of the water resource and an evaluation of the impact of the discharge. All evaluations for site-specific criteria modification must be coordinated through the department, and be conducted using scientifically accepted procedures approved by the department. Any site-specific criterion developed under the provisions of this subrule is subject to the review and approval of the U.S. Environmental Protection Agency. All criteria approved under the provisions of this subrule will be published periodically by the department. Guidelines for establishing site-specific water quality criteria can be found in "Water Quality Standards Handbook," published by the U.S. Environmental Protection Agency, December 1983.

d. A wastewater treatment facility may submit to the department technically valid instream data which provides additional information to be used in the calculations of their wasteload allocations and effluent limitations. This information would be in association with the low flow characteristics, width, length and time of travel associated with the mixing zone or decay rates of various effluent parameters. The wasteload allocation will be calculated considering the applicable data and consistent with the provisions and restrictions in the rules.

567—61.3(455B) Surface water quality criteria.

61.3(1) Surface water classification. All waters of the state are classified for protection of beneficial uses. These classified waters include general use segments and designated use segments.

a. General use segments. These are intermittent watercourses and those watercourses which typically flow only for short periods of time following precipitation in the immediate locality or as a result of discharges from wastewater treatment facilities, and whose channels are normally above the water table. These waters do not support a viable aquatic community of significance during low flow, and do not maintain pooled conditions during periods of no flow.

However, during periods when sufficient flow exists in the intermittent watercourses to support various uses, the general use segments are to be protected for livestock and wildlife watering, noncontact recreation, crop irrigation, and industrial, agricultural, domestic and other incidental water withdrawal uses. The aquatic life existing within these watercourses during elevated flows will be protected from acutely toxic conditions.

b. Designated use segments. These are water bodies which maintain flow throughout the year, or contain sufficient pooled areas during intermittent flow periods to maintain a viable aquatic community of significance.

Designated use waters are to be protected for all uses of general use segments in addition to the specific uses assigned. Designated use segments include:

(1) Primary contact recreation (Class "A"). Waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risk of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

(2) Cold water aquatic life (Class "B(CW)"). Waters in which the temperature, flow, and other habitat characteristics are suitable for the maintenance of a wide variety of cold water species including nonreproducing populations of trout and associated aquatic communities.

(3) High quality water (Class "HQ"). Waters with exceptionally better quality than the levels specified in Tables 1, 2 and 3 and with exceptional recreational and ecological importance. Special protection is warranted to maintain the unusual, unique or outstanding physical, chemical, or biological characteristics which these waters possess.

(4) High quality resource water (Class "HQR"). Waters of substantial recreational or ecological significance, which possess unusual, outstanding or unique physical, chemical, or biological characteristics which enhance the beneficial uses and warrant special protection.

(5) Significant resource warm water (Class "B(WW)"). Waters in which temperature, flow and other habitat characteristics are suitable for the maintenance of a wide variety of reproducing populations of warm water fish and associated aquatic communities, including sensitive species.

(6) Limited resource warm water (Class "B(LR)"). Waters in which flow or other physical characteristics limit the ability of the water body to maintain a balanced warm water community. Such waters support only populations composed of species able to survive and reproduce in a wide range of physical and chemical conditions, and are not generally harvested for human consumption.

(7) Lakes and wetlands (Class "B(LW)"). These are artificial and natural impoundments with hydraulic retention times and other physical and chemical characteristics suitable to maintain a balanced community normally associated with lake-like conditions.

(8) Drinking water supply (Class "C"). Waters which are used as a raw water source of potable water supply.

61.3(2) General water quality criteria. The following criteria are applicable to all surface waters including general use and designated use waters, at all places and at all times to protect livestock and wildlife watering, aquatic life, noncontact recreation, crop irrigation, and industrial, domestic, agricultural and other incidental water withdrawal uses not protected by the specific numerical criteria of subrule 61.3(3).

a. Such waters shall be free from substances attributable to point source wastewater discharges that will settle to form sludge deposits.

b. Such waters shall be free from floating debris, oil, grease, scum and other floating materials attributable to wastewater discharges or agricultural practices in amounts sufficient to create a nuisance.

c. Such waters shall be free from materials attributable to wastewater discharges or agricultural practices producing objectionable color, odor or other aesthetically objectionable conditions.

d. Such waters shall be free from substances attributable to wastewater discharges or agricultural practices in concentrations or combinations which are acutely toxic to human, animal, or plant life.

e. Such waters shall be free from substances, attributable to wastewater discharges or agricultural practices, in quantities which would produce undesirable or nuisance aquatic life.

f. The turbidity of the receiving water shall not be increased by more than 25 Nephelometric turbidity units by any point source discharge.

g. Total dissolved solids shall not exceed 750 mg/l in any lake or impoundment or in any stream with a flow rate equal to or greater than three times the flow rate of upstream point source discharges.

h. Water which enters a sinkhole or losing stream segment shall not exceed a fecal coliform content of 200 organisms/100 ml, except when the waters are materially affected by surface runoff; but in no case shall fecal coliform levels downstream from an existing discharge which may contain pathogens to humans be more than 200 organisms/100 ml higher than the background level upstream from the discharge. No new wastewater discharges will be allowed on watercourses which directly or indirectly enter sinkholes or losing stream segments.

61.3(3) Specific water quality criteria.

a. *Class "A" waters.* Waters which are designated as Class "A" in subrule 61.3(5) are to be protected for primary contact recreation. The general criteria of subrule 61.3(2) and the following specific criteria apply to all Class "A" waters.

(1) From April 1 through October 31, the fecal coliform content shall not exceed 200 organisms/100 ml, except when the waters are materially affected by surface runoff; but in no case shall fecal coliform levels downstream from a discharge which may contain pathogens to humans be more than 200 organisms/100 ml higher than the background level upstream from the discharge.

(2) The pH shall not be less than 6.5 nor greater than 9.0. The maximum change permitted as a result of a waste discharge shall not exceed 0.5 pH units.

b. *Class "B" waters.* All waters which are designated as Class B(CW), B(WW), B(LR), or B(LW) are to be protected for wildlife, fish, aquatic and semiaquatic life, and secondary contact water uses. The following criteria shall apply to all Class "B" waters designated in subrule 61.3(5).

(1) Dissolved oxygen. Dissolved oxygen shall not be less than the values shown in Table 2 of this subrule.

(2) pH. The pH shall not be less than 6.5 nor greater than 9.0. The maximum change permitted as a result of a waste discharge shall not exceed 0.5 pH units.

(3) General chemical constituents. The specific numerical criteria shown in Tables 1, 2, and 3 of this subrule apply to all waters designated in subrule 61.3(5). The sole determinant of compliance with these criteria will be established by the department on a case-by-case basis. Effluent monitoring or instream monitoring, or both, will be the required approach to determine compliance.

1. The acute criteria represent the level of protection necessary to prevent acute toxicity to aquatic life. Instream concentrations above the acute criteria will be allowed only within the boundaries of the zone of initial dilution.

2. The chronic criteria represent the level of protection necessary to prevent chronic toxicity to aquatic life. Excursions above the chronic criteria will be allowed only inside of mixing zones or only for short-term periods outside of mixing zones; however, these excursions cannot exceed the acute criteria shown in Tables 1 and 3. The chronic criteria will be met as short-term average conditions at all times the flow equals or exceeds either the seven-day, ten-year flow or any site-specific low flow established under the provisions of subrule 61.2(5).

(4) The waters shall contain no substances in concentrations which will make fish or shellfish inedible due to undesirable tastes or cause a hazard to humans after consumption.

(5) Temperature.

1. No heat shall be added to interior streams or the Big Sioux River that would cause an increase of more than 3°C. The rate of temperature change shall not exceed 1°C per hour. In no case shall heat be added in excess of that amount that would raise the stream temperature above 32°C.

2. No heat shall be added to streams designated as cold water fisheries that would cause an increase of more than 2°C. The rate of temperature change shall not exceed 1°C per hour. In no case shall heat be added in excess of that amount that would raise the stream temperature above 20°C.

3. No heat shall be added to lakes and reservoirs that would cause an increase of more than 2°C. The rate of temperature change shall not exceed 1°C per hour. In no case shall heat be added in excess of that amount that would raise the temperature of the lake or reservoirs above 32°C.

4. No heat shall be added to the Missouri River that would cause an increase of more than 3°C. The rate of temperature change shall not exceed 1°C per hour. In no case shall heat be added that would raise the stream temperature above 32°C.

5. No heat shall be added to the Mississippi River that would cause an increase of more than 3°C. The rate of temperature change shall not exceed 1°C per hour. In addition, the water temperature at representative locations in the Mississippi River shall not exceed the maximum limits in the table below during more than 1 percent of the hours in the 12-month period ending with any month. Moreover, at no time shall the water temperature at such locations exceed the maximum limits in the table below by more than 2°C.

Zone II—Iowa-Minnesota state line to the northern Illinois border (Mile Point 1534.6)

Zone III—Northern Illinois border (Mile Point 1534.6) to Iowa-Missouri state line.

Month	Zone II	Zone III
January	4°C	7°C
February	4°C	7°C
March	12°C	14°C
April	18°C	20°C
May	24°C	26°C
June	29°C	29°C
July	29°C	30°C
August	29°C	30°C
September	28°C	29°C
October	23°C	24°C
November	14°C	18°C
December	9°C	11°C

c. *Class "C" waters.* Waters which are designated as Class "C" are to be protected as a raw water source of potable water supply. The following criteria shall apply to all Class "C" waters designated in subrule 61.3(5).

(1) Radioactive substances.

1. The combined radium-226 and radium-228 shall not exceed 5 picocuries per liter at the point of withdrawal.

2. Gross alpha particle activity (including radium-226 but excluding radon and uranium) shall not exceed 15 picocuries per liter at the point of withdrawal.

3. The average annual concentration at the point of withdrawal of beta particle and photon radioactivity from man-made radionuclides other than tritium and strontium-90 shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem year.

4. The average annual concentration of tritium shall not exceed 20,000 picocuries per liter at the point of withdrawal; the average annual concentration of strontium-90 shall not exceed 8 picocuries per liter at the point of withdrawal.

(2) All substances toxic or detrimental to humans or detrimental to treatment process shall be limited to nontoxic or nondetrimental concentrations in the surface water.

(3) The pH shall not be less than 6.5 nor greater than 9.0.

TABLE 1: Criteria For Chemical Constituents

(all values as micrograms per liter unless noted otherwise).

Parameter		Use Designations				C
		B(CW)	B(MM)	B(LR)	B(LW)	
Arsenic (III)	Chronic	200	200	1000	200	--
	Acute	360	360	1800	360	50
Barium	Acute	--	--	--	--	1000
Benzene	Acute	--	--	--	--	5
Cadmium	Chronic	1	15	25	1	--
	Acute	4	75	100	4	10
Carbon Tetra-chloride	Acute	--	--	--	--	5
Chloride	Acute	--	--	--	--	250*
Chlordane	Chronic	.004	.004	.15	.004	--
	Acute	2.5	2.5	2.5	2.5	--
Chromium (VI)	Chronic	40	40	200	10	--
	Acute	60	60	300	15	50
Copper	Chronic	20	35	55	10	--
	Acute	30	60	90	20	1000
Cyanide	Chronic	5	10	10	10	--
	Acute	20	45	45	45	20
para-Dichloro-benzene	Acute	--	--	--	--	75
1,2-Dichloro-ethane	Acute	--	--	--	--	5

1,1-Dichloro-ethylene	Acute	--	--	--	--	7
Fluoride	Acute	--	--	--	--	2000
Lead	Chronic	3	30	80	3	--
	Acute	80	200	750	80	50
Mercury (II)	Chronic	.05	.05	.25	.05	--
	Acute	6.5	6.5	10	2.5	2
Nitrate as NO3	Acute	--	--	--	--	45*
Nickel	Chronic	350	650	750	150	--
	Acute	3250	5800	7000	1400	--
Polychlorinated Biphenyls (PCBs)	Chronic	.014	.014	1	.014	--
	Acute	2	2	2	2	--
Polynuclear Aromatic Hydro-Carbons (PAHs)**	Chronic	.03	.03	3	.03	--
	Acute	30	30	30	30	--
Phenols	Chronic	50	50	50	50	--
	Acute	1000	2500	2500	1000	50
Selenium (VI)	Chronic	10	125	125	70	--
	Acute	15	175	175	100	10
Silver	Chronic	2.5	8.5	8.5	.35	--
	Acute	30	100	100	4	50
Toluene	Chronic	50	50	150	50	--
	Acute	2500	2500	7500	2500	--
Total Residual Chlorine (TRC)	Chronic	10	20	25	10	--
	Acute	35	35	40	20	--
1,1,1-Trichloro-ethane	Acute	--	--	--	--	200
Trichloroethylene (TCE)	Chronic	80	80	80	80	--
	Acute	4000	4000	4000	4000	5
Vinyl Chloride	Acute	--	--	--	--	2
Zinc	Chronic	200	450	2000	100	--
	Acute	220	500	2200	110	1000

*expressed as milligrams/liter

**to include the sum of known and suspected carcinogenic PAHs

TABLE 2: Criteria For Dissolved Oxygen
(all values expressed in milligrams per liter as N)

	B(CW)	B(WW)	B(LR)	B(LW)
Minimum value for at least 16 hours of every 24-hour period	7.0	5.0	5.0	5.0 ^w
Minimum value at any time during every 24-hour period	5.0	5.0	4.0	5.0 ^w

^wApplies only to the upper layer of stratification in lakes

TABLE 3a: Criteria For Ammonia Nitrogen -- Cold Water Streams
(all values expressed in milligrams per liter as Nitrogen)

Temp. °C	pH												
	6.5	7.0	7.2	7.4	7.6	7.8	8.0	8.2	8.4	8.6	8.8	9.0	
1.0	Acute	28.5	22.9	19.7	16.0	12.4	9.2	6.5	4.1	2.6	1.7	1.0	.7
	Chronic	5.7	4.6	3.9	3.2	2.5	1.8	1.3	0.8	0.5	0.3	.2	.1
5.0	Acute	27.0	21.7	18.7	15.2	11.8	8.7	6.2	3.9	2.5	1.6	1.0	.7
	Chronic	5.4	4.3	3.7	3.0	2.4	1.7	1.2	0.8	0.5	.3	.2	.1
10.0	Acute	25.6	20.6	17.7	14.5	11.2	8.3	5.9	3.8	2.4	1.6	1.0	.7
	Chronic	5.1	4.1	3.5	2.9	2.2	1.7	1.2	0.8	0.5	.3	.2	.1
15.0	Acute	24.6	19.8	17.0	13.9	10.8	8.0	5.7	3.7	2.4	1.5	1.0	.7
	Chronic	4.9	4.0	3.4	2.8	2.2	1.6	1.1	0.7	0.5	.3	.2	.1
20.0	Acute	24.0	19.3	16.6	13.6	10.6	7.9	5.6	3.6	2.4	1.5	1.0	.7
	Chronic	4.8	3.9	3.3	2.7	2.1	1.6	1.1	0.7	0.5	.3	.2	.1
25.0	Acute	16.7	13.5	11.6	9.5	7.4	5.5	4.0	2.6	1.7	1.2	.8	.6
	Chronic	3.3	2.7	2.3	1.9	1.5	1.1	0.8	0.5	0.3	.2	.2	.1
30.0	Acute	11.8	9.6	8.2	6.8	5.3	4.0	2.9	1.9	1.3	.9	.6	.5
	Chronic	2.4	1.9	1.6	1.4	1.1	0.8	0.6	0.4	0.3	.2	.1	.1

TABLE 5b: Criteria For Ammonia Nitrogen -- Warm Water Streams and Lakes
(all values expressed in milligrams per liter as Nitrogen)

Temp. °C		pH											
		6.5	7.0	7.2	7.4	7.6	7.8	8.0	8.2	8.4	8.6	8.8	9.0
1.0	Acute	49.0	39.5	33.8	27.6	21.4	15.8	11.2	7.1	4.5	2.9	1.8	1.2
	Chronic	9.8	7.9	6.8	5.5	4.3	3.2	2.2	1.4	0.9	0.6	.4	.2
5.0	Acute	46.4	37.4	32.1	26.2	20.3	15.0	10.6	6.6	4.3	2.8	1.8	1.2
	Chronic	9.3	7.5	6.4	5.2	4.1	3.0	2.1	1.4	0.9	.6	.4	.2
10.0	Acute	44.0	35.5	30.5	24.9	19.3	14.3	10.1	6.5	4.1	2.7	1.8	1.2
	Chronic	8.8	7.1	6.1	5.0	3.9	2.9	2.0	1.3	0.8	.5	.4	.2
15.0	Acute	42.5	34.1	29.3	24.0	18.6	13.8	9.8	6.3	4.1	2.7	1.8	1.2
	Chronic	8.5	6.8	5.9	4.8	3.7	2.8	2.0	1.3	0.8	.5	.4	.2
20.0	Acute	41.2	33.3	28.6	23.4	18.2	13.5	9.7	6.2	4.1	2.7	1.8	1.2
	Chronic	8.2	6.7	5.7	4.7	3.6	2.7	1.9	1.2	0.8	.5	.4	.2
25.0	Acute	40.7	32.9	28.3	23.2	18.1	13.5	9.7	6.3	4.2	2.7	1.8	1.2
	Chronic	8.1	6.6	5.7	4.6	3.6	2.7	1.9	1.3	0.8	.5	.4	.2
30.0	Acute	20.4	16.5	14.2	11.7	9.1	6.8	5.0	3.3	2.2	1.5	1.1	.8
	Chronic	4.1	3.3	2.8	2.3	1.8	1.4	1.0	0.7	0.4	.3	.2	.2

TABLE 5c: Criteria For Ammonia Nitrogen -- Limited Resource Streams
(all values expressed in milligrams per liter as Nitrogen)

Temp. °C		pH											
		6.5	7.0	7.2	7.4	7.6	7.8	8.0	8.2	8.4	8.6	8.8	9.0
1.0	Acute	71.5	57.6	49.4	40.3	31.2	23.0	16.3	10.3	6.6	4.2	2.6	1.7
	Chronic	14.3	11.5	9.9	8.1	6.2	4.6	3.3	2.1	1.3	0.8	.5	.3
5.0	Acute	67.8	54.6	46.8	38.2	29.6	21.9	15.5	9.9	6.3	4.0	2.6	1.7
	Chronic	13.6	10.9	9.4	7.6	5.9	4.4	3.1	2.0	1.3	.8	.5	.3
10.0	Acute	64.2	51.8	44.4	36.3	28.2	20.8	14.8	9.4	6.1	3.9	2.6	1.7
	Chronic	12.8	10.4	8.9	7.3	5.6	4.2	3.0	1.9	1.2	.8	.5	.3
15.0	Acute	61.8	49.8	42.8	35.0	27.2	20.1	14.3	9.2	5.9	3.9	2.6	1.8
	Chronic	12.4	10.0	8.6	7.0	5.4	4.0	2.9	1.8	1.2	.8	.5	.4
20.0	Acute	60.2	48.6	41.7	34.2	26.6	19.7	14.1	9.1	6.0	4.0	2.7	1.9
	Chronic	12.0	9.7	8.3	6.8	5.3	3.9	2.8	1.8	1.2	.8	.5	.4
25.0	Acute	59.4	48.0	41.3	33.8	26.4	19.7	14.2	9.2	6.1	4.0	2.7	1.9
	Chronic	11.9	9.6	8.3	6.8	5.3	3.9	2.8	1.8	1.2	.8	.5	.4
30.0	Acute	29.7	24.1	20.7	17.0	13.3	10.0	7.2	4.8	3.2	2.2	1.6	1.2
	Chronic	5.9	4.8	4.1	3.4	2.7	2.0	1.4	1.0	0.6	.4	.3	.2

61.3(4) Class "C" waters. Rescinded IAB 4/18/90, effective 5/23/90.

61.3(5) Surface water classification.**a. Water use designation abbreviations.**

- (1) "A" means primary body contact recreation.
- (2) "B" means wildlife, aquatic life, and secondary body contact uses. "WW" means significant resource warm water, "LR" means limited resource warm water, "LW" means lakes and wetlands warm water, "CW" means cold water.
- (3) "C" means raw water source of potable water supply.

b. Key to the order of streams.

- (1) Streams are listed in downstream to upstream sequence within a basin.
- (2) Major streams (1st order) are described in entirety from downstream end to upstream end, before listing their tributary (2nd order) streams, or the next (major) stream.
- (3) Tributary (2nd order) streams (if any) are then listed in downstream to upstream sequence, and each is described in entirety before listing its tributaries (3rd order), or before listing the next upstream 2nd order tributary.
- (4) When a stream and all its tributaries are described in entirety, the next upstream equal order stream is then listed and described.
- (5) The scheme is repeated through 3rd, 4th and 5th orders, as necessary.
- (6) The relationship of tributaries is indicated in the list by the spacing from the left margin. Names of tributaries are indented two spaces from the name of the stream to which they are tributary, and equal order streams fall one below the other on the same margin.

Example:

- | | |
|--|---|
| <ol style="list-style-type: none"> (I) River (A) River (B) River (1) Creek (2) Creek (a) Creek (3) Creek (C) River (II) River | <p>(I) and (II) are first order streams and (II) is upstream from (I). (A), (B) and (C) are tributaries of (I). (B) is upstream from (A), and (C) is upstream from (B). (1), (2) and (3) are tributaries of (B). (2) is upstream from (1), and (3) is upstream from (2). (a) is a tributary of (2).</p> |
|--|---|

- (7) Stream names are in accordance with "Drainage Areas of Iowa Streams", U.S. Geological Survey, March, 1974, except that locally known names are used for streams not listed therein.

c. Stream abbreviations.

- (1) "R" means river.
- (2) "cr." means creek.
- (3) "Br." means branch.
- (4) "D.D." means drainage ditch.
- (5) "E", "W", "N", and "S" are compass directions.
- (6) "Fk." means fork.
- (7) "aka" means also known as.

d. Location abbreviations.

- (1) "R" means range.
- (2) "T" means township.
- (3) "S" means section.
- (4) "Rd." means road.
- (5) "hwy." means highway.
- (6) "co." means county.
- (7) "st." means street.

Iowa Water Quality Standards
Water Use Designations

e.

WESTERN IOWA RIVER BASINS

Western Iowa River Basins (Missouri, Big Sioux, and Little Sioux Rivers)

The streams or stream segments named below in alphabetical order are referenced within the Water Use Designations for Western Iowa River Basins. Reference numbers provided in the alphabetical list correspond to numbered stream segments in the Water Use Designations.

- | | |
|------------------------------|-----------------------|
| Big Sioux River - 6 | Missouri River - 1, 2 |
| Boyer River - 3 | Soldier River - 4 |
| Deep Creek - 5b | Willow Creek - 5a |
| Floyd River - 5 | Wiskey Creek - 10 |
| Little Sioux River - 7, 8, 9 | |

		Water Uses							
		A	B(W)	B(LR)	B(LW)	B(CW)	C	BO	BOR
<u>Missouri R.</u>									
1.	Iowa-Missouri State Line to confluence with the Big Sioux R.	X	X						
2.	City of Council Bluffs Water Works Intakes						X		
<u>Boyer R.</u>									
3.	Mouth (Pottawattawie Co.) to confluence with the East Boyer R. (Crawford Co.)		X						
<u>Soldier R.</u>									
4.	Mouth (Harrison Co.) to confluence with E. Soldier R.		X						
<u>Floyd R.</u>									
5.	Mouth (Woodbury Co.) to confluence with W. Br. Floyd R. (Plymouth Co.)		X						
<u>Willow Cr.</u>									
5a.	Mouth (Plymouth Co.) to confluence with an unnamed tributary (NE 1/4, Sec. 11, T93N, R44W, Plymouth Co.)			X					
<u>Deep Cr.</u>									
5b.	Mouth (Plymouth Co.) to confluence with an unnamed tributary (NE 1/4, Sec. 11, T93N, R44W, Plymouth Co.)			X					
<u>Big Sioux R.</u>									
6.	Mouth (Woodbury Co.) to Iowa-Minnesota State Line	X	X						
<u>Little Sioux R.</u>									
7.	Mouth (Harrison Co.) to Bvy. 3 in Cherokee (S26, T92N, R40W, Cherokee Co.)		X	X					
8.	Bvy. 3 in Cherokee (S26, T92N, R40W, Cherokee Co.) to Linn Grove Dam (Buena Vista Co.)	X	X						X
9.	Linn Grove Dam (Buena Vista Co.) to Clay Co., S17, T96N, R36W (east corporate limit, Spencer)		X						X
<u>Wiskey Cr.</u>									
10.	Mouth (Plymouth Co.) to confluence with an unnamed tributary (NW 1/4, Sec. 11, T91N, R44W, Plymouth Co.)			X					

Iowa Water Quality Standards
Water Use Designations

SOUTHERN IOWA RIVER BASINS

The streams or stream segments named below in alphabetical order are referenced within the Water Use Designations for Southern Iowa River Basins. Reference numbers provided in the alphabetical list correspond to numbered stream segments in the Water Use Designations.

- Chariton River - 1 to 4
- East Fork 102 River - 5
- East Nishnabotna River - 9
- Nishnabotna River - 8
- Modaway River - 6, 7
- Silver Creek - 11
- West Nishnabotna River - 10, 10a

		Water Uses							
		A	B:W	B:LR	B:LN	B:CN	C	DQ	DR
<u>Chariton R.</u>									
1.	Iowa-Missouri State Line (Appanoose Co.) to Hwy. 2 (Appanoose Co., S27, T69N, R.7W)		X						
2.	Hwy. 2 (Appanoose Co., S27, T69N, R.7W) to Rathbun Reservoir Dam (Appanoose Co., S35, T69N, R.8W)		X						X
3.	Rathbun Regional Water Company water supply intake						X		
4.	Rathbun Reservoir Dam to Appanoose-Wayne Co. Line	X	X						X
<u>E. Fork 102 R.</u>									
5.	City of Bedford Water Works Intake						X		
<u>Modaway R.</u>									
6.	Iowa-Missouri State Line (Page Co.) to confluence of Middle Modaway R. and the W. Modaway R. (Montgomery Co.)		X						
7.	City of Clarinda Water Works Intake						X		
<u>Nishnabotna R.</u>									
8.	Iowa-Missouri State Line (Fremont Co.) to confluence of the E. Nishnabotna R. and the W. Nishnabotna R. (Fremont Co.)		X						
<u>E. Nishnabotna R.</u>									
9.	Mouth (Fremont Co.) to confluence of Troublesome Creek (Cass Co.)		X						
<u>W. Nishnabotna R.</u>									
10.	Mouth (Fremont Co.) to confluence with W. Fork of Nishnabotna R. (Shelby Co.)		X						
10a.	Confluence with Elk Cr. (Sec. 36 T61N, R36W, Shelby Co.) to confluence with an unnamed tributary (Sec. 34, T63N, R36W, Carroll Co.)			X					
<u>Silver Cr.</u>									
11.	Mouth (Wells Co.) to Hwy. 41 (Wells Co.)		X						

Iowa Water Quality Standards
Water Use Designations

DES MOINES RIVER BASIN

Des Moines River Basin (Lower Des Moines River, Upper Des Moines River, East Fork Des Moines River, Blue Earth River, and Raccoon River Subbasins).

The streams or stream segments named below in alphabetical order are referenced within the Water Use Designations the Des Moines River Basin. Reference numbers provided in the alphabetical list correspond to numbered stream segments in the Water Use Designations.

- | | |
|---|---|
| Big Creek Lake - 14 | Middle Raccoon River - 27, 28, 29, 30, 31 |
| Boone River - 15, 16, 17 | Middle River - 3 |
| Brushy Creek - 31 | Muchaknock Creek - 2b |
| Cedar Creek - 2c | North Raccoon River - 24, 25 |
| Des Moines River - 1, 2, 4 to 13 | Raccoon River - 21, 22, 23 |
| East Fork Des Moines River - 18, 19, 20 | Short Creek - 25a |
| Miller Creek - 2a | South Raccoon River - 24 |

	Water uses							
	A	B(W)	B(LR)	B(LW)	B(CW)	C	BQ	BQR
LOWER DES MOINES RIVER SUBBASIN								
<u>Des Moines R.</u>								
1. Mouth (Lee Co.) to confluence with the Raccoon River (includes Red Rock Reservoir)	X	X						
2. Ottumwa Municipal Water Works Intake							X	
<u>Miller Cr.</u>								
2a. Mouth (Wapello Co.) to confluence with an unnamed tributary (Sec. 29, T73N, R16W, Monroe Co.)				X				
<u>Muchaknock Cr.</u>								
2b. Confluence with an unnamed tributary (N 1/2, Sec. 2, T75N, R16W, Mahaska Co.) to confluence with Little Muchaknock (Sec. 34, T75N, R16W, Mahaska Co.)				X				
<u>Cedar Cr.</u>								
2c. Confluence with Bee Branch (Sec. 3, T72N, R18W, Monroe Co.) to Hwy 34 bridge crossing (Monroe Co.)				X				
<u>Middle R.</u>								
3. Mouth (Warren Co.) to confluence with Fletcher Br. (Madison Co.)			X					
UPPER DES MOINES RIVER SUBBASIN								
<u>Des Moines R.</u>								
4. Raccoon R. to Center St. Dam in Des Moines			X					
5. Center St. Dam in Des Moines to Hwy. I-80/I-35 (S17, T97N, R24W, Polk Co.)	X	X						
6. Des Moines Water Works Intake, Prospect Park (NE 1/4, S28, T79N, R24W, Polk Co.)							X	
7. Hwy. I-80/I-35 to Saylorville Reservoir Dam			X					
8. Saylorville Reservoir Dam to Polk-Dallas Co. Line	X	X						
9. Saylorville Reservoir to Fraser Dam (S2, T84N, R27W, Boone Co.)			X					

Water Uses

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z			
10. Fraser Dam (Boone Co.) to W. line of S15, T88N, R28W, Webster Co.	X																												
<u>Des Moines R.</u>																													
11. West line of S15, T88N, R28W (Webster Co.) to dam of upper impoundment at Fort Dodge	X																												
12. Upper impoundment at Fort Dodge	X	X																											
13. Fort Dodge Upper impoundment to Blumhardt Dam	X																												
<u>Big Cr. Lake Outlet</u>																													
14. Big Cr. Lake	X	X																											
<u>Boone R.</u>																													
15. Mouth (Webster Co.) To State Hwy 17 (S18, T88N, R25W, Hamilton Co.)	X	X																											
16. State Hwy. 17 to confluence with Brewers Creek (Hamilton Co.)	X																												
17. Confluence with Brewers Creek to confluence with Otter Creek (Wright Co.)	X																												
EAST FORK DES MOINES RIVER SUBBASIN																													
<u>E Fr. Des Moines R.</u>																													
18. Mouth (Blumhardt Co.) to Divine bridge access Hwy. 169 (S26, T94N, R29W, Kossuth Co.)	X	X																											
19. Divine bridge access Hwy. 169 (S26, T94N, R29W, Kossuth Co.) to County Rd. 863 (S23, T94N, R29W, Kossuth Co.)	X																												
20. County Rd. 863 (Kossuth Co.) to confluence with Buffalo Cr. (Kossuth Co.)	X																												
RACCOON RIVER SUBBASIN																													
<u>Raccoon R.</u>																													
21. Mouth (Polk Co.) to Polk-Dallas County line	X	X																											
22. City of Des Moines Water Works intake										X																			
23. Polk-Dallas Co. line to confluence of N Raccoon R. and S. Raccoon R.	X	X																											
<u>N. Raccoon R.</u>																													
24. Mouth (Dallas Co.) to Hwy 286 (S17, T85N, R33W, Carroll Co.)	X	X																											
25. Hwy. 286 (Carroll Co.) to Sac. Co. Rd. 854 (S24, T88N, R36W, Sac Co.)	X	X																											
<u>Shon Cr.</u>																													
25a. Mouth (Greene Co.) to confluence with an unnamed tributary (S21, T84N, R37W, Greene Co.)																									X				

	Water Uses				SQ	BGP
	A	B	C	D		
<u>S. Raccoon R.</u>						
26.	Mouth (Dallas Co.) to confluence with Brushy Cr. (Guthrie Co.)	X				
<u>Middle Raccoon R.</u>						
27.	Mouth (Dallas Co.) to Redfield Dam (S5, T8N, R29W, Dallas Co.)	X	X			
27.	Redfield Dam (Dallas Co.) to Lake Panorama Dam (S31, T8N, R30W, Guthrie Co.)	X	X			X
28.	City of Pandora Water Works Intakes				X	X
29.	Lake Panorama	X	X			X
30.	Lake Panorama to Guthrie-Carroll County line	X				
<u>Brushy Creek</u>						
31.	Mouth (Guthrie Co.) to the Guthrie-Audubon Co. Line	X				

Iowa Water Quality Standards
Water Use Designation

SKUNK RIVER BASIN

The streams or stream segments named below in alphabetical order are referenced within the Water Use Designations for the Skunk River Basin. Reference numbers provided in the alphabetical list correspond to numbered stream segments in the Water Use Designations.

- Bear Creek - 14
- Cedar Creek - 9
- Mississippi River - 1, 2, 3
- Skunk River - 4, 5, 6, 7, 8
- Sugar Creek - 15
- South Skunk River - 11, 12, 13
- West Fork Crooked Creek - 10

	Water Uses					
	A: B(W)	B(LR)	B(LN)	B(CW)	C	BQ BQR
<u>Mississippi R.</u>						
1. Iowa-Missouri State Line to confluence with the Skunk R.	X	X				
2. Keokuk Municipal Water Works intakes					X	
3. Fort Madison Municipal Water Works intakes					X	
<u>Skunk R.</u>						
4. Mouth to Oakland Mills Dam		X				
Oakland Mills Impoundment						
5. Dam to N line of S.4, T7N, R7W, Henry Co.	X	X				
6. City of Mt. Pleasant Water Works intake					X	
7. Oakland Mills Impoundment to Henry Co. Rd. (S3, T7N, R7W)		X				
8. Henry Co. Rd. (S3, T7N, R7W) to confluence of N Skunk R. and S Skunk R.	X					X
<u>Cedar Cr.</u>						
9. Confluence with Little Cedar Cr. (S26, T73N, R13W) to confluence with an unnamed tributary (NW 1/4 of the NE 1/4, S24, T74N, R15W, Mahaska Co.)			X			
<u>W. Fk. Crooked Cr.</u>						
10. Mouth (Washington Co.) to confluence with an unnamed tributary (SW 1/4, S21, T76N, R9W, Washington Co.)			X			
<u>S Skunk R.</u>						
11. Mouth (Keokuk Co.) to Hwy 21 (S34, T75N, R13W, Keokuk Co.)		X				X
12. Hwy. 21 (Keokuk Co.) to confluence with Indian Cr. (Jasper Co.)		X				
13. At Okaloosa					X	
<u>Bear Cr.</u>						
14. Mouth (Story Co.) to N Line of Sec. 32, T85N, R23W, Story Co.		X				
<u>Sugar Cr.</u>						
15. Interstate 80 bridge crossing to confluence with an unnamed tributary (SW 1/4, Sec. 24, T80N, R17W, Jasper Co.)		X				

Iowa Water Quality Standards
Water Use Designations

IOWA-CEDAR RIVER BASIN

The streams or stream segments named below in alphabetical order are referenced within the Water Use Designations for the Iowa-Cedar River Basin. Reference numbers provided in the alphabetical list correspond to numbered stream segments in the Water Use Designations.

- | | |
|---------------------------|-------------------------------|
| Beaver Creek - 38 | Rock Creek - 30a |
| Beeds Lake - 44 | Rock Creek - 39, 40 |
| Big Creek - 31 | Shell Rock River - 45, 46, 47 |
| Black Hawk Creek - 34, 35 | Spring Creek - 41 |
| Burr Oak Creek - 37 | Sugar Creek - 30 |
| Cedar River - 16 to 28 | Turtle Creek - 42 |
| Cone Lake - 29 | Upper Pine Lake - 15 |
| Honey Creek - 13b | West Fork Cedar River - 43 |
| Iowa River - 3 to 13 | Wannebago River - 48, 49 |
| Lane Creek - 32a, 32b | Wolf Creek - 33 |
| Little Bear Creek - 13a | |
| Little Cedar River - 36 | |
| Lower Pine Lake - 14 | |
| Mississippi River - 1, 2 | |
| Prairie Creek - 32 | |

	Water Uses							
	A	B (NW)	B (LR)	B (LM)	B (CM)	C	BQ	BCR
<u>Mississippi R.</u>								
1. Skunk R. to confluence with Iowa R.	X	X						
2. Burlington Municipal Water Works intakes						X		
<u>IOWA RIVER SUBBASIN</u>								
<u>(Mississippi R. Tributaries)</u>								
<u>Iowa R.</u>								
3. Mouth (Louisa Co.) to Louisa County, Section 35, T74N, R3W, (south corporate limit, Wapello).	X	X						X
4. South corporate limit, Wapello to confluence with Cedar River (Iouisa County, Section 20, T75N, R4W)	X	X						X
5. Confluence with Cedar River to Johnson-Washington County line	X	X						X
6. Johnson-Washington County line to Hwy 149 (Iowa County, Section 35, T81N, R9W) (includes Coralville Reservoir)	X	X						X
7. University of Iowa Water Works intake						X		
8. City of Iowa City Water Works intakes						X		
9. Hwy 149 to confluence with Asher Creek (Marshall County, Section 27, T84N, R10W)	X	X						X
10. Confluence with Asher Creek to Marshall-Bardin County line.	X	X						X
11. Marshall-Bardin County line to Bardin County, Section 20, T89N, R20W, (east corporate limit, Iowa Falls)	X	X						X

		Water Uses						
		A	B:LN	B:LR	B(L):B:OW	C	BQ	BQR
	<u>Sugar Cr.</u>							
30.	Mouth (Muscatine Co.) to confluence with Mud Cr. (Muscatine Co.)	X						
	<u>Rock Cr.</u>							
30a.	County Rd. F28 bridge to the confluence with an unnamed tributary (SW 1/4, Sec. 13, T80N, R16W, Poweshiek Co.)			X				
	<u>Big Cr.</u>							
31.	Mouth (Linn Co.) to confluence with Abbe Cr. (Linn Co.)	X						
	<u>Prairie Cr.</u>							
32.	Mouth (Linn Co.) to confluence with Mud Cr. (Benton Co.)	X						
	<u>Lime Cr.</u>							
32a.	Mouth (Benton Co.) to confluence with an unnamed tributary (Sec. 1, T87N, R10W, Buchanan Co.)	X						
32b.	Confluence with an unnamed tributary (Sec. 1, T87N, R10W, Buchanan Co.) to confluence with an unnamed tributary (SW 1/4, Sec. 11, T86N, R10W, Buchanan Co.)			X				

		Water Uses							
		A	B1(W)	B2(L)	B3(W)	B4(W)	C	EQ	BQR
33.	<u>Wolf Cr.</u> Mouth (Black Hawk Co.) to confluence with Twelve Mile Cr. (Tazewell Co.)		X						
34.	<u>Black Hawk Creek</u> Mouth (Black Hawk Co.) to Hwy 58 (E half of Section 27, T86N, R14W, Black Hawk Co.)	X	X						
35.	Hwy 58 to confluence with N. Black Hawk Cr. (Grundy Co.)		X						
36.	<u>Little Cedar R.</u> Mouth (Chickasaw Co.) to Iowa-Minn. State Line		X						
37.	<u>Burr Oak Cr.</u> Mitchell Co. Rd. 746 to N line of S5, T98N, R15W, Mitchell Co.					X			X
38.	<u>Beaver Cr.</u> Mouth (Mitchell Co.) to Mitchell Co. Rd. A31 (N line of S19, T99N, R15W, Mitchell Co.)					X			X
39.	<u>Rock Cr.</u> Mouth (Floyd Co.) to confluence with Goose Cr. (S35, T98N, R18W, Mitchell Co.)		X						
40.	Confluence with Goose Cr. (Mitchell Co.) to Hwy 9 (N line of S26, T98N, R18W, Mitchell Co.)					X			X
41.	<u>Spring Cr.</u> Mouth (Mitchell Co.) to N line of S8, T97N, R16W, Mitchell Co.					X			X
42.	<u>Turtle Cr.</u> Mouth (Mitchell Co.) to E line of Section 7, T99, R17W, Mitchell Co.					X			X
WEST FORK CEDAR RIVER SUBBASIN									
43.	<u>W. Fork Cedar R.</u> Mouth (Black Hawk Co.) to confluence with Waynes Creek (Butler County, S7, T91N, R1W)		X						X
44.	<u>Beeds Lake</u> Dike to N line of S16, T92N, R20W, Franklin Co.	X	X						
SHELL ROCK RIVER SUBBASIN									
45.	<u>Shell Rock R.</u> Mouth (Black Hawk Co.) to Butler County, Section 12, T91N, R15W, (south corporate limits, Shellrock)		X						X
46.	South corporate limit of Shellrock to confluence with the Wyanabago R.		X						
47.	Wyanabago R. to Iowa-Minn. State Line	X	X						

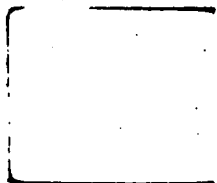
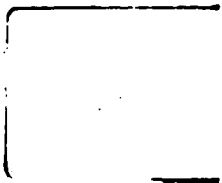
WINNEBAGO RIVER SUBBASIN

		Water Uses					
A	B:W1	B:LR	B:LR	B:W1	C	BQ	BQR
48.		X					
49.	X	X					

Minnebagoc R. (aka Line Cr.)

48. Mouth (Floyd Co.) to dam at Fertile (S34
T98N, R22W, Worth Co.)

49. Mill Pond at Fertile



Iowa Water Quality Standards

Water Use Designations

NORTHEASTERN IOWA RIVER BASINS

Northeastern Iowa River Basins (Wapawapicon River, Maquoketa River, North Fork Maquoketa River, Turkey River, Volga River, Yellow River, and Upper Iowa River Subbasins).

The streams or stream segments named below in alphabetical order are referenced within the Water Use Designations for Northeastern Iowa River Basins. Reference numbers provided in the alphabetical list correspond to numbered stream segments in the Water Use Designations.

Alderson Hollow - 81	Fountain Spring Creek - 65	Pleasant Creek - 35
Barber Creek - 7a	French Creek - 116	Plum Creek - 25
Baton Spring - 82a	Grassus Creek - 88	Point Hollow Creek - 56
Bass Creek - 73	Grimes Hollow - 57	Ran Hollow - 57a
Bear Creek - 24	Hewen Creek - 83	Rogers Creek - 73a
Bear Creek - 79	Hickory Creek - 102	Schechtman Branch - 67
Bear Creek - 87	Hogans Branch - 49	Silver Creek - 7
Bear Creek - 119, 120	Irish Hollow Creek - 115	Silver Creek - 118
Beaver Creek - 145	Kleinman Creek - 82	Silver Creek - 139, 139a
Bell Creek - 71	Little Maquoketa River - 44, 45	Smith Creek - 132
Bigalk Creek - 144	Little Mill Creek - 38	Sny Magill Creek - 92
Bloody Run - 46	Little Paint Creek - 106	South Branch Fountain Spring Creek - 66
Bloody Run - 57	Little Turkey River - 55	South Cedar Creek - 59
Bloody Run - 95	Little Turkey River - 72	South Fork Big Mill Creek - 39
Scheman Creek - 74	Little Volga River - 89	Spring Creek - 26
Brophy Creek - 6	Little Wapawapicon River - 12	Spring Creek - 82
Brownfield Creek - 63	Lyle Creek - 31	Stah Creek - 146
Brush Creek - 22, 23	Maquoketa River - 14 to 20	Steeles Branch - 61
Brush Creek - 86	Martha Creek - 143	Storybrook Hollow - 40
Buck Creek - 91	Middle Bear Creek - 123	Sunle Creek - 100
Buffalo Creek - 8, 9	Middle Ft. Little Maquoketa R. - 48	Ten Mile Creek - 137
Casey Spring Creek - 138	Mill Creek - 12a	Trout Creek - 131
Canoe Creek - 127	Mill Creek - 36, 37	Trout Creek - 133
Catfish Creek - 42, 43	Miners Creek - 90	Trout River - 132
Cedar Creek - 30	Mink Creek - 85	Trout Run - 111
Cedar Creek - 59	Mississippi River - 1, 2	Trout Run - 134
Calah Creek - 75	Mossey Glen Creek - 80	Turkey River - 50 to 54
Clear Creek - 112	Nichols Creek - 144	Twin Springs Creek - 64
Clear Creek - 117	Norfolk Creek - 103	Twin Springs Creek - 136
Clois Branch - 47	North Bear Creek - 122	Unnamed Creek - 32
Cold Water Creek - 142	North Canoe Creek - 129	Unnamed Creek - 39
Coon Creek - 130	North Cedar Creek - 93	Unnamed Creek - 40
Cota Creek - 107	North Fork Maquoketa River - 28, 29	Unnamed Creek - 41
Cox Creek - 81	Odell Branch - 65	Unnamed Creek - 70
Deep Creek - 21	Otter Creek - 10, 11, 11a, 11b	Unnamed Creek - 94
Dousman Creek - 99	Otter Creek - 69	Unnamed Creek - 101
Dry Mill Creek - 68	Ozark Spring Run - 33	Unnamed Creek - 110
Dry Run - 135	Paint Creek - 104, 105	Unnamed Creek - 125
East Pine Creek - 141	Paint Creek - 124	Unnamed Creek - 138
Eik Creek - 60	Patterson Creek - 126	Unnamed Creek - 142
Eik River - 13	Pecks Creek - 58	Unnamed Creek - 134
Ensign Creek - 84	Pine Creek - 62	
Ensign Hollow - 84	Pine Creek - 128	
Fanchel Creek - 27	Pine Creek - 140	

Iowa Water Quality Standards
Water Use Designations

NORTHEASTERN IOWA RIVER BASINS

Upper Iowa River - 113, 114
Village Creek - 109
Volga River - 76 to 78
Wapsipinicon River - 3, 4, 5

Waterloo Creek - 121
Waxford Creek - 108
Whitewater Creek - 34
White Pine Creek - 56

Yellow River - 96, 97, 98

	Water Uses							
	A	B:BW	B:LR	B:LN	B:CN	C	BQ	BQR
<u>Mississippi R.</u>								
1. Iowa R. to the Iowa-Minnesota State Line	X	X						
2. Davenport Water Company Water Works Intake						X		
<u>Wapsipinicon River Subbasin</u>								
<u>(Mississippi R. Tributaries)</u>								
<u>Wapsipinicon R.</u>								
3. Mouth (Scott-Clinton Co. Line) to Snyder Access, Section 34, T93N, R12W, Bremer Co.	X	X						X
4. Snyder Access (Section 24, T93N, R12W, Bremer Co.) to confluence with the Little Wapsipinicon (Chickasaw Co.)		X						
5. Town of McIntire to N line of Section 20, T100N, R15W, Mitchell Co.		X					X	
<u>Brophy Cr.</u>								
6. Mouth (Clinton Co.) to confluence with Cherry Cr. (Clinton Co.)		X						
<u>Silver Cr.</u>								
7. Mouth (Clinton Cr.) to confluence with Clear Cr. (Clinton Co.)		X						
<u>Barber Cr.</u>								
7a. Mouth (Clinton Co.) to bridge crossing (SW 1-4, Sec. 33, T81N, R3E, Clinton Co.)				X				
<u>Buffalo Cr.</u>								
8. Mouth (Jones Co.) to the dam at Coggon (Linn Co.)		X						
9. Coggon Impoundment	X	X						
<u>Oxley Cr.</u>								
10. Mouth (Buchanan Co.) to Dam at Lake Oswein		X						
11. Lake Oswein to N line of Section 33, T91N, R9W, Fayette Co.	X	X						
11a. N. line of Sec. 33, T91N, R9W, Fayette Co. to confluence with an unnamed tributary (Sec. 29, T91N, R9W, Fayette Co.)		X						
11b. Confluence with an unnamed tributary (Sec. 29, T91N, R9W, Fayette Co.) to confluence with an unnamed tributary (Sec. 18, T91N, R9W, Fayette Co.)			X					

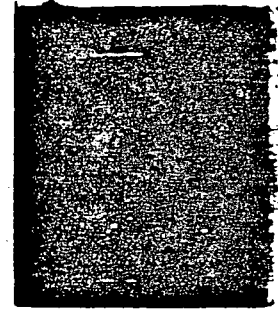
Water Uses

	A	B(W)	B(CP)	B(LW)	B(CM)	C	DQ	DQR
12. <u>Little Mississippi R.</u> Mouth (Buchanan Co.) to confluence with Buck Cr. (Buchanan Co.)	X							
12a. <u>Mill Cr.</u> Mouth (Clinton Co.) to confluence with an unnamed tributary (Sec. 26, T82N, R6E, Clinton Co.)			X					
MAQUOKETA RIVER SUBBASIN (Mississippi R. Tributaries)								
13. <u>Blk R.</u> Mouth (Clinton Co.) to confluence with W Br. Blk R. (Clinton Co.)	X							

	Water Uses		C	BQ	BOR
	A : B:WV	B:CR			
<u>Maquoketa R.</u>					
14.	Mouth (Jackson Co.) to confluence with Deep Cr. (Jackson Co., Section 18, T84N, R5E)	X	X		
15.	Confluence with Deep Creek to confluence with Plum Creek (Delaware Co., Section 11, T87N, R4W)	X	X		X
16.	Confluence with Plum Creek to Quaker Mills Dam (Delaware County, Section 19, T89N, R5W)	X	X		
17.	Quaker Mills Impoundment	X	X		
18.	Quaker Mills Impoundment to Forestville Dam at Backbone Lake		X		
19.	Backbone Lake Dam to boundary of Backbone State Park	X	X		
20.	Mouth of S Fr. Maquoketa R. (S16, T90N, R6W, Delaware Co.) to Rwy. 3 (N line of Section 24, T91N, R7W, Fayette Co.)			X	X
<u>Deep Cr.</u>					
21.	Mouth (Jackson Co.) to confluence with Sugar Cr. (Jackson Co.)		X		
<u>Bruen Cr.</u>					
22.	Mouth (Jackson Co.) to N line of Section 23, T85N, R3E, Jackson Co.		X		
23.	N line of Section 23, T85N, R3E to N line of Section 1, T85N, R3E, Jackson Co.			X	X
<u>Bear Cr. (aka Big Bear Cr.)</u>					
24.	Mouth (Jackson Co.) to confluence with Beer Cr. (Jackson Co.)		X		
<u>Plum Cr.</u>					
25.	Mouth (Delaware Co.) to N line of S25, T89N, R4W, Delaware Co.		X		
<u>Spring Cr.</u>					
26.	Mouth (S10, T88N, R5W, Delaware Co.) to spring source (Section 35, T89N, R5W, Delaware Co.)			X	X
<u>Fenche Cr.</u>					
27.	Mouth (S5, T90N, R6W, Delaware Co.) to Richmond Springs (center of S4, T90N, R6W, Delaware Co.)			X	X
NORTH FORK MAQUOKETA RIVER SUBBASIN					
<u>N Fr. Maquoketa R.</u>					
28.	Mouth (Jackson Co.) to confluence with White Water Cr. (Jones Co., Section 10, T86N, R1W)		X		X
29.	Confluence with White Water Cr. to confluence with Bear Cr. (Dubuque Co.)		X		
<u>Cedar Cr.</u>					
30.	Mouth (S30, T85N, R3E, Jackson Co.) to E line of Section 29, T85N, R3E, Jackson Co.)			X	X

		Water Uses							
		A	B(WM)	B(LR)	B(LM)	B(CM)	C	BQ	BQR
31.	<u>Lytle Cr.</u> Mouth (Jackson Co.) to confluence with Buncomb Cr. (Dubuque Co.)		X						
32.	<u>Unnamed Cr.</u> Mouth (S7, T86N, R2E, Jackson Co.) to W line of Section 11, T86N, R1E, Jackson Co.					X			X
33.	<u>Ozark Spring Run</u> Mouth (S5, T85N, R1E, Jackson Co.) to spring source in center of S32, T86N, R1E, Jackson Co.					X			X
34.	<u>Whitewater Cr.</u> Mouth (S10, T86N, R1W, Jones Co.) to confluence with Johns Cr. (Dubuque Co.)		X						
TURKEY RIVER SUBBASIN									
(Mississippi R. Tributaries)									
35.	<u>Pleasant Cr.</u> E line of Section 11, T85N, R4E to W line of Section 15, T85N, R4E, Jackson Co.					X			X
36.	<u>Mill Cr. (aka Big Mill Cr.)</u> Mouth (S29, T86N, R5E, Jackson Co.) to confluence with Little Mill Cr. (S13, T86N, R4E, Jackson Co.)		X						
37.	confluence with Little Mill Cr. to confluence with Unnamed Cr. (Section 1, T86N, R3E, Jackson Co.)					X			X
38.	<u>Little Mill Cr.</u> Mouth (Jackson Co.) to W. line of Section 29, T86N, R4E, Jackson Co.					X			X
39.	<u>Unnamed Cr. (aka S. Fr. Big Mill)</u> Mouth (Section 8, T86N, R4E, Jackson Co.) to west line of Section 17, T86N, R4E, Jackson Co.					X			X
40.	<u>Unnamed Cr. (aka Storybrook Hollow)</u> Mouth (Section 1, T86N, R4E, Jackson Co.) to S line of Section 12, T86N, R3E, Jackson Co.					X			X
41.	<u>Unnamed Cr.</u> Mouth (Section 1, T86N, R3E, Jackson Co.) to W line of Section 1, T86N, R3E, Jackson Co.					X			X
42.	<u>Catfish Cr.</u> Mouth (Dubuque Co.) to confluence with W Fr. Catfish Cr. (Dubuque Co.)		X						
43.	<u>Catfish Cr.</u> S line of Section 9, T85N, R2E, to W line of Section 7, T85N, R2E, Dubuque Co.					X			X
44.	<u>Little Magalloway R.</u> Mouth (Dubuque Co.) to confluence with Magans Br. (S36, T89N, R1W, Dubuque Co.)		X						

		Water Uses							
		A	B(W)	B(LR)	B(LM)	B(CM)	C	BQ	BQR
5.	<u>Boqans Br.</u> to N line of Section 5, T88N, R1W, Dubuque Co.				X				X
	<u>Bloody Run</u>								
6.	Mouth (S4, T90N, R2E, Dubuque Co.) to W line of Section 21, T90N, R2E, Dubuque Co.				X				X
	<u>Close Br.</u>								
7.	Mouth (S5, T89N, R2E, Dubuque Co.) to W line of Section 5, T89N, R2E, Dubuque Co.				X				X
	<u>Middle Fr. Little Maquoketa R.</u>								
8.	(aka Bankston Cr.) W line of Section 31, T90N, R1E to W line of Section 33, T90N, R1W, Dubuque Co.				X			X	
	<u>Boqans Br.</u>								
9.	Mouth (S35, T89N, R1W, Dubuque Co.) to W line of Section 9, T88N, R1W, Dubuque Co.				X				X
	<u>Turkey R.</u>								
0.	Mouth (Clayton Co.) to confluence with the Volga R. (Section 26, T92N, R4W, Clinton Co.)	X							
1.	Confluence with the Volga R. to W line of Section 9, T93N, R5W, Clayton Co. (two stream miles downstream from Big Springs Trout Hatchery)	X	X					X	
2.	Two stream miles downstream from Big Springs Trout Hatchery to Big Springs Trout Hatchery (S31, T94N, R5W, Clayton Co.)	X			X			X	
	<u>Turkey R.</u>								
3.	Big Springs Trout Hatchery to bridge crossing in Elgin (Section 13, T94N, R7W, Payette Co.)	X	X					X	
4.	Bridge crossing in Elgin to confluence with Bohemian Cr. (Winneshiek Co.)		X					X	
	<u>Turkey River Tributaries</u>								
	<u>Little Turkey R.</u>								
5.	Clayton-Delaware Co. Line to S line of Section 11, T90N, R3W, Delaware Co.				X			X	
	<u>Point Hollow Cr. (aka White Pine Cr.)</u>								
6.	Mouth (S3), T91N, R2W, Clayton Co.) to spring source (S3, T90N, R2W, Dubuque Co.)				X			X	
	<u>Bloody Run Cr. (aka Grimes Hollow)</u>								
7.	Mouth Section 36, T91N, R3W, Clayton Co. to spring source (S8, T90N, R2W, Dubuque Co.)				X			X	
	<u>Ran Hollow</u>								
8.	Mouth (S1), T90N, R3W, Clayton Co.) to spring source (S8, T90N, R2W, Dubuque Co.)				X			X	

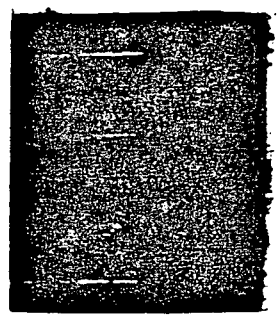


		Water Uses					
		A	B	C	D	E	F
		B:BNW	B:LR	B:LR	B:CR	C	BQ
							BQ
58.	<u>Pecks Cr.</u> Mouth (Clayton Co.) to S line of Section 15, T9:W, R3W, Clayton Co.				X		X
59.	<u>S Cedar Cr. (aka Cedar Cr.)</u> N line of S7, T92N, R3W, Clayton Co. to N line of S30, T93N, R4W, Clayton Co.				X		X
60.	<u>Elk Cr.</u> Mouth to confluence with Steeles Br. (Clayton Co.)						
61.	<u>Steeles Br.</u> Mouth (S26, T91N, R4W, Clayton Co.) to W line of Section 5, T90N, R4W, Delaware Co.	X			X		X
62.	<u>Pine Cr.</u> Mouth (S26, T91N, R4W, Clayton Co.) to confluence with Brownfield Cr. (S25, T91N, R4W, Clayton Co.)				X		X
63.	<u>Brownfield Cr.</u> Mouth (Clayton Co.) to spring source (S31, T91N, R3W, Clayton Co.)				X		X
64.	<u>Twin Springs Cr.</u> Mouth (S2, T90N, R4W, Delaware Co.) to spring source (S12, T90N, R4W, Delaware Co.)				X		X
65.	<u>Fountain Spring Cr. (aka Odell Br.)</u> Mouth (S10, T90N, R4W, Delaware Co.) to W line of Section 16, T90N, R4W, Delaware Co.				X	X	
66.	<u>S Br. Fountain Spring Cr.</u> Mouth (S16, T90N, R4W, Delaware Co.) to W line of Section 16, T90N, R4W, Delaware Co.				X		X
67.	<u>Schechtman Br.</u> Mouth (Delaware Co.) to S line of Section 14, T90N, R4W, Delaware Co.				X		X
	<u>Voiga B.</u> (See Voiga B. Subbasin)						
68.	<u>Dry Hill Cr.</u> Mouth (S25, T94N, R5W, Clayton Co.) to W line of Section 9, T93N, R4W, Clayton Co.				X		X
69.	<u>Otter Cr.</u> Mouth (Payette Co.) to Confluence with Unnamed Cr. (aka Clovers Cr., S22, T94N, R5W, Fayette Co.)				X	X	
70.	<u>Unnamed Cr.</u> Mouth to W line of S15, T94N, R5W, Fayette Co.				X		X
71.	<u>Bell Cr.</u> Mouth (S10, T94N, R7W, Fayette Co.) to W line of Section 8, T94N, R7W, Fayette Co.				X		X

		Water Uses						
		A : B1W1	B : LR	B : LR	B : LR	C	BQ	BQR
72.	<u>Little Turkey R.</u> Mouth (Fayette Co.) to Fayette-Winneshiek Co. line	X						
73.	<u>Bass Cr.</u> Mouth (S3, T95N, R9W, Fayette Co.) to W line of Section 3, T95N, R9W, Fayette Co.			X				X
73a.	<u>Rogers Cr.</u> Mouth (Winneshiek Co.) to confluence with Goddard Cr. and Krumm Cr.		X					
74.	<u>Robenian Cr.</u> Mouth (Winneshiek Co.) to Howard Co. Rd. V58 (W line of Section 2, T97N, R1W, Howard Co.)			X			X	
75.	<u>Chlank Cr.</u> Mouth (Section 1, T98N, R1W, Howard Co.) to N line of Section 36, T99N, R1W, Howard Co.			X				X
VOLGA RIVER SUBBASIN								
76.	<u>Volga R.</u> Mouth (Clayton Co.) to bridge crossing in Volga, (Section 3-10, T52N, R6W, Clayton Co.)	X	X					X
77.	Bridge crossing in Volga Fayette County, S28, T93N, R6W, (E. Corporate limit, Fayette)		X					X
78.	East corporate limit, Fayette, to confluence with Little Volga R. (Fayette Co.)		X					
79.	<u>Bear Cr.</u> S line of Section 18, T91N, R4W, to W line of Section 23, T91N, R5W, Clayton Co.			X				X
80.	<u>Nosser Glen Cr.</u> Mouth (S3, T91N, R5W, Clayton Co.) to S line of Section 10, T91N, R5W, Clayton Co.			X				X
81.	<u>Cox Cr. (aka Alderson Hollow)</u> Kleinlein Cr. to S line of Section 12, T91N, R6W, Clayton Co.			X				X
82.	<u>Kleinlein Cr. (aka Spring Cr.)</u> Mouth (Clayton Co.) to spring source (S10, T91N, R6W, Clayton Co.)			X				X
82a.	<u>Barce Spring</u> Mouth (S2, T91N, R6W, Clayton Co.) to spring source (S4, T91N, R6W, Clayton Co.)			X			X	
83.	<u>Bevett Cr.</u> Mouth (Clayton Co.) to S line of Section 29, T92N, R6W, Clayton Co.			X				X
84.	<u>Ensign Cr. (aka Ensign Hollow)</u> Mouth (Section 28, T92N, R6W, Clayton Co.) to spring source (S29, T92N, R6W, Clayton Co.)			X			X	
85.	<u>Nick Cr.</u> Mouth (S30, T93N, R6W, Clayton Co.) to W line of Section 15, T93N, R7W, Fayette Co.			X			X	
86.	<u>Irish Cr.</u> Bear Cr. to E line of Section 17, T92N, R7W, Fayette Co.			X				X

		Water Uses							
		A	B(W)	B(L)	B(LN)	B(CM)	C	BQ	BQR
87.	<u>Bear Cr.</u> Mouth (Fayette Co.) to W line of Section 6, T92N, R7W, Fayette Co.					X		X	
88.	<u>Granny Cr.</u> Mouth (S30, T95N, R7W, Fayette Co.) to W line of Section 36, T95N, R8W, Fayette Co.					X		X	
89.	<u>Little Voiga R.</u> Mouth (Fayette Co.) to Bvy 150 bridge crossing (Fayette Co.)	X							
YELLOW RIVER SUBBASIN									
(Mississippi R. Tributaries)									
90.	<u>Misere Cr.</u> Bvy 52 (SE quarter of S20, T92N, R2W, Clayton Co. to W line of Section 1, T92N, R3W, Clayton Co.)					X			X
91.	<u>Buck Cr.</u> Mouth (Clayton Co.) to W line of Section 9, T93N, R3W, Clayton Co.					X		X	
92.	<u>Sny Magill Cr. (aka Magill Cr.)</u> Mouth (S23, T94N, R3W, Clayton Co.) to W line of Section 6, T94N, R3W, Clayton Co.)					X		X	
93.	<u>N. Cedar Cr.</u> Mouth (S8, T94N, R3W, Clayton Co.) to W line of Section 24, T94N, R4W, Clayton Co.					X		X	
94.	<u>Unnamed Cr. (aka W Fr. Sny Magill Cr.)</u> Mouth (S7, T94N, R3W, Clayton Co.) to W line of Section 7, T94N, R3W, Clayton Co.					X			X
95.	<u>Bloody Run</u> Mouth (Clayton Co.) to W line of Section 22, T95N, R4W, Clayton Co.					X			X
96.	<u>Yellow R.</u> Mouth (Allamakee Co.) to Country Rd. X-26 (Section 24, T96N, R5W, Allamakee Co.)	X	X						X
97.	County Rd. X-26 (Allamakee Co.) to old Bvy. 51 (NE quarter of S11, T96N, R6W, Allamakee Co.)		X						X
98.	Old Bvy 51 to confluence with W Fr. Yellow R. (S13, T96N, R7W, Winnebago Co.)					X			X
99.	<u>Dorman Cr.</u> Mouth (S33, T96N, R3W, Allamakee Co.) to Allamakee-Clayton Co. line					X			X
100.	<u>Settle Cr.</u> Mouth (Allamakee Co.) to Allamakee-Clayton Co. Line					X			X
101.	<u>Unnamed Cr. (aka Bear Cr.)</u> Mouth (S13, T96N, R5W, Allamakee Co.) to W line of Section 12, T96N, R5W, Allamakee Co.					X			X

	A	B(MW)	B(LR)	Water Uses		C	BQ	BQR
				B(CW)	B(CM)			
<u>Bickory Cr.</u> Mouth (Allanakee Co.) to S line of Section 28, T96N, R5W, Allanakee Co.					X		X	
<u>Norfolk Cr.</u> 103. Mouth (S6, T96N, R5W, Allanakee Co.) to confluence with Teeple Cr. (S24, T97N, R6W, Allanakee Co.)					X			X
<u>Paint Cr.</u> 104. Mouth (Allanakee Co.) to confluence with Little Paint Cr. (S32, T97N, R3W, Allanakee Co.)		X						
105. Little Paint Cr. to Rd. crossing, S18, T97N, R4W, Allanakee Co.					X		X	
<u>Little Paint Cr.</u> 106. Mouth to N line of Section 30, T97N, R3W, Allanakee Co.					X		X	
<u>Cota Cr.</u> 107. Mouth (S26, T97N, R3W, Allanakee Co.) to W line of Section 10, T97N, R3W, Allanakee Co.)					X			X
<u>Mexford Cr.</u> 108. Mouth (S5, T97N, R2W, Allanakee Co.) to W line of Section 25, T98N, R3W, Allanakee Co.					X		X	
<u>Village Cr.</u> 109. Mouth (Allanakee Co.) to W line of Section 19, T98N, R4W, Allanakee Co.								
<u>Unnamed Cr.</u> 110. Mouth (S23, T98N, R4W, Allanakee Co.) to W line of Section 23, T98N, R4W, Allanakee Co.					X			X
<u>Trout Run</u> 111. Mouth (S23, T98N, R4W, Allanakee Co.) through one mile reach					X			X
<u>er Cr.</u> 112. Mouth (Allanakee Co.) to W line of Section 25, T99N, R4W, Allanakee Co.								
<u>Upper Iowa R.</u> 113. Mouth (Allanakee Co.) to Lane's Bridge at river mile 6 (NW 1/4 of S31, T100N, R4W, Allanakee Co.)	X	X						
114. Lane's Bridge to confluence with Silver Creek (Winnebago Co.)	X	X						X
<u>Irish Hollow Cr.</u> 115. Mouth (S21, T100N, R4W, Allanakee Co.) to W line of Section 17, T100N, R4W, Allanakee Co.					X			X
<u>French Cr.</u> 116. Mouth (Allanakee Co.) to E line of Section 23, T99N, R5W, Allanakee Co.					X		X	



	Water Uses							
	A	B(W)	B(L)	B(LW)	B(CW)	C	BQ	BQR
<u>Clear Cr.</u>								
117. Mouth (Allaaukee Co.) to N line of Section 15, T100N, R5W, Allaaukee Co.				X				X
<u>Silver Cr.</u>								
118. Mouth (Allaaukee Co.) to S line of Section 31, T99N, R5W, Allaaukee Co.				X			X	
<u>Bear Cr.</u>								
119. Mouth (Allaaukee Co.) to confluence with N Bear Cr. (S25, T100N, R7W, Winneshiek Co.)		X						
120. N Bear Cr. to spring source (Nestad Spring) Section 29, T100N, R7W, Winneshiek Co.				X			X	
<u>Waterloo Cr.</u>								
121. Mouth (S35, T100N, R6W, Allaaukee Co.) to Iowa-Minnesota State Line				X			X	
<u>N. Bear Cr.</u>								
122. Mouth (S25, T100N, R7W, Winneshiek Co.) to Iowa-Minnesota State Line				X			X	
<u>Middle Bear Cr.</u>								
123. Mouth (S14, T100N, R7W, Winneshiek Co.) to N line of Section 16, T100N, R7W, Winneshiek Co.				X				X
<u>Paint Cr. (aka Pipe Cr.)</u>								
124. Mouth (Section 9, T99N, R6W, Allaaukee Co.) to confluence with Unnamed Cr. (SE 1/4 of Section 11, T99N, R7W, Winneshiek Co.)				X				X
<u>Unnamed Cr.</u>								
125. Mouth (SE 1/4, S11, T99N, R7W, Winneshiek Co.) to N line of Section 12, T99N, R7W, Winneshiek Co.				X				X
<u>Patterson Cr.</u>								
126. Mouth (Allaaukee Co.) to E line of Section 3, T98N, R6W, Allaaukee Co.				X			X	
<u>Canoe Cr.</u>								
127. (aka N. Canoe Cr.) Winneshiek Co. Rd. W38 to N line of Section 8, T99N, R8W, Winneshiek Co.				X			X	
<u>Pipe Cr.</u>								
128. Mouth (S26, T99N, R7W, Winneshiek Co.) to N line of Section 21, T99N, R7W, Winneshiek Co.				X				X
<u>N. Canoe Cr.</u>								
129. Mouth (S22, T99N, R8W, Winneshiek Co.) to N line of Section 2, T99N, R8W, Winneshiek Co.				X				X
<u>Coon Cr.</u>								
130. Mouth (Winneshiek Co.) to Rd. crossing in S13, T98N, R7W, Winneshiek Co.				X			X	

Water Use

A : B(CW) : B(LR) : B(CM) : B(CM) : C : BQ : BQR

- 131. Trout Cr.
Mouth (S9, T98N, R7W, Winneshiek Co.) to
confluence with South Cr. (S21, T98N, R7W,
Winneshiek Co.)
- 132. South Cr. (aka Trout River)
Mouth (Section 21, T98N, R7W, Winneshiek Co.)
to S line of S33, T98N, R7W, Winneshiek Co.)
- 133. Trout Cr.
Mouth (S23, T98N, R8W, Winneshiek Co.) to
confluence with Unnamed Stream (aka Trout Run)
(S27, T98N, R8W, Winneshiek Co.)
- 134. Unnamed Stream (aka Trout Run)
Mouth to S line of S27, T98N, R8W,
Winneshiek Co.
- 135. Dry Run
Mouth (S17, T98N, R8W, Winneshiek Co.) to W
line of Section 36, T98N, R9W, Winneshiek Co.
- 136. Twin Springs Cr.
Mouth (S17, T98N, R8W, Winneshiek Co.) to
springs in Twin Springs Park (S20, T98N, R8W,
Winneshiek Co.)
- 137. Ten Mile Cr.
Mouth (Winneshiek Co.) to confluence with
Walnut Cr. (S18, T98N, R9W, Winneshiek Co.)
- 138. Unnamed Cr. (aka Casey Spring Cr.)
Mouth (S25, T99N, R9W, Winneshiek Co.) to W
line of Section 26, T99N, R9W, Winneshiek Co.
- 139. Silver Cr.
Mouth (S10, T99N, R9W, Winneshiek Co.) to W
line of Section 26, T100N, R9W, Winneshiek Co.
- 139a. W line of Sec. 26, T100N, R9W, Winneshiek Co.
to Hwy. 52 bridge crossing (Winneshiek Co.)
- 140. Pine Cr.
Mouth (Winneshiek Co.) to Iowa-Minnesota
State Line
- 141. E Pine Cr.
Mouth (S28, T100N, R9W, Winneshiek Co.) to
Iowa-Minnesota State Line.
- 142. Unnamed Cr. (aka Cold Water Cr.)
Mouth (S32, T100N, R9W, Winneshiek Co.) to W
line of Section 31, T100N, R9W, Winneshiek Co.
- 143. Martha Cr.
Mouth (S6, T99N, R9W, Winneshiek Co.) to W
line of Section 13, T99N, R10W, Winneshiek Co.
- 144. Nichols Cr. (aka Bigalk Cr.)
Mouth (S18, T100N, R10W, Winneshiek Co.) to W
line of Section 23, T100N, R11W, Howard Co.

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X



Beaver Cr.

145. Mouth (Boward Co.) to S line of S29, T100N,
R13W, Boward Co.

Staff Cr.

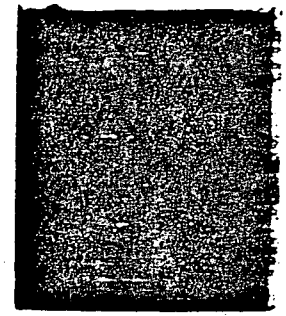
146. Mouth (Boward Co.) to W line of S27, T100N,
R14W, Boward Co.

		Water Uses						
A	B(MW)	B(LR)	B(LM)	B(CM)	C	BQ	BQR	
				X			X	
				X			X	



Iowa Water Quality Standards
Water Use Designations

County	Lake	Location			Water Uses							
		R.	T.	S.	A	B(NW)	B(LR)	B(LW)	B(CW)	C	IC	ICR
Adair	Meadow Lake	31	76	17	X			X				
	Mormon Trail Lake	33	74	3	X			X				
	Modway Lake	32	75	14	X			X		X		
	Orient Lake	31	74	20	X			X		X		
Adam	Binder Lake	34	72	25	X			X		X		
	Lake Icaria	34	72	10	X			X		X		
	West Lake Corning	34	72	36				X		X		
Appanoose	Upper Centerville Reservoir	18	68	11	X			X		X		
	Lower Centerville Reservoir	18	68	12	X			X		X		
	Mystic Reservoir	18	69	8	X			X		X		
	Nathoun Reservoir (refer to Southern Iowa River Basins)											
Audubon	Nabotna Pond	35	80	11				X				
Benton	Dudgson Lake	10	85	9				X				
	Bannon Lake	11	82	32	X			X				
	Rodgers Park Lake	11	86	1	X			X				
Black Hawk	Black Hawk Park Ponds	14	90	34				X				
	Cedar Falls Impoundment (refer to Iowa-Cedar River Basin)											
	City Park Pond (Waterloo)	13	89	15				X				
	Fisher Lake	13	89	6				X				
	George Wyth Lake	13	89	6	X			X				
	Green Belt Lake	13	89	33				X				
	Hope Martin Pond	13	89	27				X				
Weyer Lake	12	88	6	X			X					
Boone	Dickissell Lake	26	84	24				X				
	Don Williams Lake	27	84	5	X			X				
Bremer	Sweet Marsh Reservoir	12	93	34				X				
	Sweet Marsh Seq. A	12	92	2				X				
	Sweet Marsh Seq. B	12	93	35				X				
	Sweet Marsh Seq. C	12	93	34				X				
	Waverly Impoundment (refer to Iowa-Cedar River Basin)											
Buchanan	Troy Mills Marsh	8	87	25				X				
Boona Vista	Gortalsoo Lake	36	93	18	X			X				
	Marathon City Park Pond	35	93	20	X			X				
	Pickarel Lake	35	93	1	X			X				

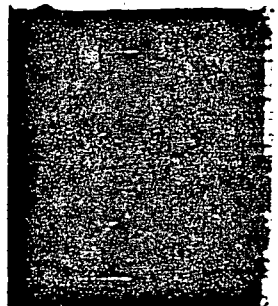


Lakes

County	Lake	Location			Water Uses								
		R.	T.	S.	A	B(W)	B(LR)	B(LW)	B(CM)	C	BQ	BQR	
	Storm Lake (including Little Storm Lake)	37	90	14	X			X					
Butler	Aplington Pita Lake	17	90	20				X					
	Lake Considine	18	91	12				X					
	Big Marsh	17	91	25				X					
	Sportsman's Pond	16	92	13				X					
Calhoun	North Twin Lake	33	88	1	X			X					
	Rockwell City City Pond	32	88	36				X					
	South Twin Lake	33	88	1				X					
Carroll	Artesian Lake	33	85	27				X					
	Swan Lake	34	83	5	X			X					
Case	Lake Anita	34	77	32	X			X					
	Cold Springs Lake	37	75	15	X			X					
	Griswold Park Pond	37	75	32				X					
	Iranistan Pond	37	75	8				X					
Cedar	Bennett Lake	1	80	11				X					
Cerro Gordo	Clear Lake	22	96	13	X			X		X		X	
	Clear Lake Marsh	21	96	6				X					
	Fin and Feather Lake	20	96	27				X					
	Lelwa Marsh	22	96	26				X					
	Mason City & Park Pond	20	96	7				X					
	Meadow Lake	20	96	14				X					
	Mcintosh Wildlife Area	22	96	16				X					
	Rockfall Pond	19	97	22				X					
	Rockfall Pond	20	94	10				X					
	Ventura Marsh	22	96	19				X					
Cherokee	Larson Lake	39	91	1				X					
	Spring Lake	40	92	28	X			X					
Chickasaw	Mashus Impoundment (refer to Iowa-Cedar River Basin)												
	Split Rock Lake	12	94	35	X			X					
Clarke	East Lake (Osceola)	25	72	16	X			X					
	Liberty Acres	24	73	8				X					
	West Lake (Osceola)	26	72	13				X		X			
Clay	Barringer Slough	35	96	14				X					
	Brugeman Park Pond	38	97	30	X			X					
	Dan Greene Slough	35	97	20				X					
	Elk Lake	35	96	36				X					X
	Scharnberg Pond	38	96	11	X			X					
	Trumbull Lake	35	97	27	X			X					
Clayton	Osborne Pond	5	92	9	X			X					

Lakes

Lake	Location			Water Uses							
	R.	T.	S.	A	B(W)	B(LR)	B(LM)	B(CM)	C	BQ	BQR
Goose Lake	4	83	29				X				
Crawford											
Neilson Park Lake	41	82	2	X			X				
Sunset Lake	39	83	16				X				
Yellow Smoke Park Lake	38	83	6	X			X				
Davis											
Drakeville Ponds	14	69	6				X				
Eldon Game Area Ponds	12	70	9				X				
Lake Fisher	13	69	19				X		X		
Lake Napello	15	70	34	X			X		X		
Decatur											
Hose Pond	27	67	3				X		X		
Lake LeShane	27	67	4	X			X		X		
Nine Eagles Lake	25	67	18	X			X		X		
Little River Watershed Lake	25	69	19	X			X				
Slip Bluff Lake	26	68	28	X			X				
Delaware											
Backbone Lake (refer to Northeastern Iowa River Basins)											
Quaker Mills Impoundment (refer to Northeastern Iowa River Basins)											
Silver Lake	4	88	16	X			X				
Des Moines											
Allen Green Refuge Marsh	1	72	29				X				
Dickinson											
Big Spirit Lake	36	100	33	X			X		X	X	
Center Lake	36	99	7	X			X				
Diamond Lake	37	100	15				X				
East Okoboji Lake	36	99	29	X			X			X	
Garlock Slough	37	99	35				X				
Grover's Marsh	36	100	12								X
Hale Slough	36	100	23				X				
Bottes Lake	36	100	18				X				
Lake Park Pond	38	100	32				X				
Lilly Lake	35	99	18				X				
Little Spirit Lake	36	100	8	X			X				
Lower Gar Lake	36	99	32	X			X			X	
Marble Lake	36	100	17				X				
Minnevashta Lake	36	99	29	X			X			X	
Pleasant Lake	35	99	7				X				
Prairie Lake	36	99	23				X				
Sandbar Slough	36	100	14				X				
Silver Lake	38	100	28	X			X		X		
Sunken Lake	36	100	17				X				
Svan Lake	35	100	23				X				
Upper Gar Lake	36	99	29	X			X			X	
Weich Lake	37	100	23				X				
West Okoboji Lake	36	99	20	X			X		X	X	
Emmett											
Burr Oak Lake	33	98	21								X
Bigh Lake	33	98	14	X			X				
Ingham Lake	33	98	12	X			X		X		
Iowa Lake	31	100	12				X				
Tuttle Lake	32	100	14	X			X				X
Twelve-Mile Lake	34	98	21				X				

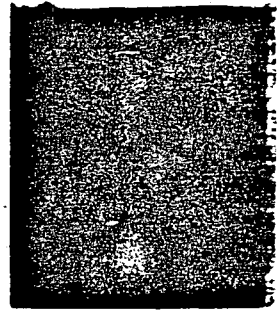


Lakes

County	Lake	Location			Water Uses								
		R.	T.	S.	A	B(W)	B(LR)	B(LW)	B(CW)	C	BQ	BQP	
Payette	Frog Hollow (aka Volga Lake)	8	93	3	X				X				
Floyd	Charles City Impoundment (refer to Iowa-Cedar River Basin)												
Franklin	Beeds Lake (refer to Iowa-Cedar River Basin)												
	Pope Joy Pond	22	90	21					X				
	Robinsons Pond	20	92	23					X				
	Toft Pit	22	91	30	X				X				
Premont	Barlett Lake 43 70 4 X X X X X X X X X X												
	Percival Lake	43	69	20					X				
	Scott Lake A	43	70	16					X				
	Scott Lake B	43	70	16					X				
	West Forney's Lake A	43	70	8					X				
	West Forney's Lake B	43	70	8					X				
Greene	Spring Lake	30	84	25	X				X				
Grundy	Bodaan Park Ponds 15 89 34 X X X X X X X X X X												
	Stoehr Lake (Weilsburg)	18	88	15					X				
Guthrie	Bays Branch 30 80 22 X X X X X X X X X X												
	Lake Panorama (refer to Des Moines River Basin)								X				
	Springbrook Lake	31	81	33	X				X				
Hamilton	Briggs Woods Lake 25 88 17 X X X X X X X X X X												
	Little Wall Lake	24	86	10	X				X				
Hancock	Crystal Lake 25 97 15 X X X X X X X X X X												
	Eagle Lake	24	96	18					X				
	East Twin Lake	24	94	29					X				
	Eldred Sherwood Lake	24	94	21	X				X				
	Pilot Knob Lake	23	97	3	X				X				
	West Twin Lake	24	94	30					X				
Hardin	Lower Pine Lake (refer to Iowa-Cedar River Basin)												
	Upper Pine Lake (refer to Iowa-Cedar River Basin)								X				
Harrison	California Bend 45 78 7 X X X X X X X X X X												
	DeSoto Bend	45	78	21	X				X				X
	DeSoto Bend Pond	45	78	20					X				
	Dunlap Pond	41	81	2					X				
	St. John's Lake	44	78	8					X				
	Schaben Pond	41	81	30					X				
	Tyson Bend	45	79	28					X				
	Willow Lake	43	80	23	X				X				

Lakes

County	Lake	Location R. T. S.	A	B(WN)	B(LR)	B(LN)	B(CN)	C	HQ	HQR
	Geode Lake	5 70 36	X			X		X		
	Oakland Mills Impoundment (refer to Skunk River Basin)									
Bovard	Lake Hendricks	14 99 19	X			X				
	Merrick Pond	14 98 5				X				
Bunboldt	Bunboldt Impoundment (Lake Makomis) (refer to Des Moines River Basin)									
Ida	Woorhead Park Pond	39 87 11								
	Crawford Creek Impoundment	41 86 10	X			X				
	School Pond	41 87 26	X							
Iowa	Amans Lilly Pond	9 81 27				X				
	Iowa Lake	11 79 19	X			X				
	Williamsburg Pond	10 79 9				X				
Jackson	Dalton Lake	58 84 34					X		X	
	Green Island Lake	68 85 20				X				
	North Sabula Lake	78 84 18	X							
	South Sabula Lake	78 84 19	X			X				
Jasper	Mariposa Lake	18 81 32	X			X				
	Rock Creek Lake	17 80 17	X			X		X		
Jefferson	Fairfield Municipal Reservoir # 1	10 72 24				X		X		
	Fairfield Municipal Reservoir # 2	10 72 24				X		X		
	Jefferson County Park Ponds	8 71 32				X				
	Walton Reservoir	9 72 30				X		X		
Johnson	Coralville Reservoir (refer to Iowa-Cedar River Basin)									
	Kent Park Lake	8 80 24	X			X				
	Lake McBride	6 81 29	X			X				
	Swan Lake	7 80 5				X				
Jones	Central Park Lake	3 84 1	X			X				
	Waukrat Slough	3 83 16				X				
Kankakee	Belvedere Park Ponds	11 76 21				X				
	Griffin Lake	13 76 15				X				
	Yemougis Pond	12 76 23	X			X				



County	Lake	Location R. T. S.	Water Uses								
			A	B(W)	B(LR)	B(LW)	B(CW)	C	BQ	BQR	
Kossuth	Burt Lake	30 100 9				X					
	Goose Lake	30 100 17				X					
	Lake Smith	29 96 36	X			X					
	Union Slough	28 98 35				X					X
	Whittemore Pit	30 95 9	X			X					
Lee	Chatfield Lake	5 65 2	X			X					
	Greenbay Lake	3 68 28				X					
	Poll Miller Park Lake	5 68 9	X			X					
	Shisek Forest Ponds	7 67 31				X					
	Wilson Park Lakes	6 68 35	X			X					
Linn	Coppon Impoundment (see Northeastern Iowa River Basin)										
	Central City Ponds	6 85 3				X					
	Pleasant Creek Lake	8 85 31	X			X					
	South Cedar Pond	5 82 28				X					
Louisa	Cone Marsh	5 76 14				X					
	Klon Lake	2 75 25				X					
	Lake Odessa	2 73 2	X			X					
Lucas	Brown's Slough	20 71 35				X					
	North Colyn Marsh	20 71 30				X					
	South Colyn Marsh	20 71 30				X					
	Ellis Lake	21 72 27				X			X		
	Morris Lake	21 72 26				X			X		
	Red Saw Lake	21 71 28	X			X			X		
	Stephen's Forest Pond #1	23 72 22				X					
	Stephen's Forest Pond #2	23 72 28				X					
	Williamson Pond	21 73 27	X			X					
Lyon	Lake Pahoja	48 99 23	X			X					
Madison	Badger Creek Lake	27 77 11	X			X					
	Cedar Lake	27 76 19				X			X		
Mahaska	Northorn Lake (aka Barnes City Lake)	14 77 10	X			X					
	Edmonson Pond	16 75 27				X					
	Lake Kewab	15 75 13	X			X			X		
	White Oak Conservation Area Lake	14 75 28	X			X					
Marion	Knowville Pond	20 75 11				X					
	Pleasantville Pond	21 76 15				X					
	Bad Rock Reservoir (refer to Des Moines River Basin)										
	Roberts Creek Lake	19 76 4	X			X					
	Tower Pond	19 76 25				X					

Lakes

County
Marshall

Lake	Location			Water Uses							
	R.	T.	S.	A	B(MM)	B(LR)	B(LM)	B(CM)	C	BQ	BQR
Green Castle Lake	17	82	8	X			X				
Marshall County Lake	18	84	31				X				
Folsom Lake	43	73	32	X			X				
Glenwood Lake	43	72	12				X				
Institutional Pond (aka Peter Pan lake)	43	72	24				X				
Keg Creek Lake	43	72	32				X				
Malvern Pond (aka Bohner Pond)	41	72	32				X				
Wile Hill Lake	43	72	26				X				
P.J. Lake	43	72	29				X				
Pony Creek Lake	43	72	4				X				
Willow Slough	40	73	29				X				

Monona

Badger Lake	46	85	29				X				
Blackbird Bend	47	85	28				X				
Blencoe Lake	45	82	31				X				
Blue Lake	46	84	35	X			X				
Decatur Lake	46	83	17	X			X				
Louisville Bend	46	83	7				X				
Lower Decatur Lake	46	83	17				X				
Middle Decatur Lake	46	83	16	X			X				
Oldham Lake	43	83	13	X			X				
Rabitt Island Lake	47	85	28				X				
Sherman Township Access Area	43	85	30				X				
Whiting Woods Pond							X				

Monroe

Albia City Reservoir	17	72	9	X			X		X		
Cottonwood Pits	17	71	2				X				
Lake Miami	17	73	20	X			X				

Montgomery

Pilot Grove Lake	36	73	1				X				
Viking Lake	36	71	6	X			X		X		

Marquette

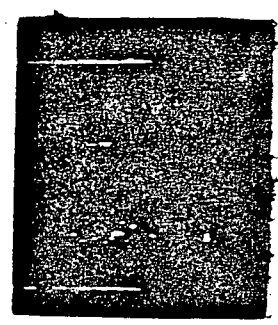
Cone Lake (refer to Iowa-Cedar River Basin)							X				
Wiese Slough	2	78	19				X				

O'Brien

Dog Creek	39	94	29	X			X				
Douma Area Pond	41	96	5	X			X				
Will Creek (Lake)	41	95	3	X			X				
Mequs. Recreation Area Pond	39	94	30				X				

Decoia

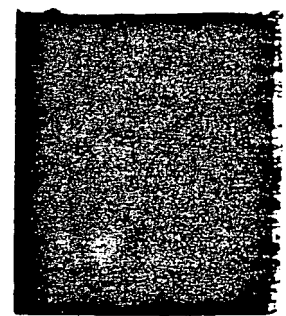
Arhton Pits	42	98	11	X			X				
Iowa Lake	39	100	9				X				
May City Pits	39	98	6	X			X				
Ocbeydan Pits	40	99	23	X			X				
Peters Pit	42	100	19				X				



County Page	Lake	Location R. T. S.	Water Uses							
			A	B(WM)	B(LR)	B(LM)	B(CM)	C	BC	BQR
	Pierce Creek Pond	39 70 29	X			X				
	Pioneer Park Pond	38 69 28				X				
	Schneck's Lake	36 69 6	X			X				
Palo Alto	Five Island Lake	32 96 18	X			X				
	Lost Island Lake	34 97 31	X			X				
	Silver Lake	34 95 20	X			X				
	Sportsman Park Pond	31 96 19	X			X				
	Virgin Lake	34 96 30				X				X
Plymouth	LeMars Pit	45 92 25	X			X				
Pocahontas	Fonda Reservoir	34 90 22				X				
	Little Clear-Lake	34 91 6				X				
	Lizard Lake	34 91 22				X				
	Sunken Grove Lake	34 90 8				X				
Polk	Big Creek Lake (refer to Des Moines River Basin)									
	Dale Maffitt Reservoir	25 78 31	X			X			X	
	Des Moines Water Works Recharge Basins	24 78 12	X			X			X	
	Easter Lake	23 78 19	X			X				
	Fort Des Moines Park Pond	24 78 33				X				
	Grays Lake	24 78 7	X			X				
	Saylorville Reservoir (refer to Des Moines River Basin)									
	Thomas Mitchell Lake	23 79 23				X				
Pottawattamie	Arrowhead Pond	41 77 29	X			X				
	Big Lake (including Gilbert's Pond)	44 75 13				X				
	Carter Lake	44 75 23	X			X				
	Lake Manava	44 74 13	X			X				
Poweshiek	Arbor Lake	16 80 20	X			X				
	Diamond Lake	15 78 2				X			X	
	Holidry Lake	14 81 23	X			X				
	Lake Ponderosa	15 78 2	X			X				
Ringgold	Lions Club Pond	29 69 31				X				
	Loch Ayr	29 69 30	X			X			X	
	Mt. Ayr Game Area Ponds	30 68 17				X				
	Mt. Ayr Old Reservoir	29 69 31				X				
	Ringgold Management Area Ponds	29 67 13				X				
	Walnut Creek Marsh	30 68 17				X				
Sec	Arrowhead lake	36 86 4	X			X				
	Black Hawk Lake	36 87 35	X			X				
	Ballet Pits	36 86 5	X			X				

Lakes

County	Lake	Location			Water Uses					BQ	BPR		
		R.	T.	S.	A	B(W)	B(LR)	B(LN)	B(CW)			C	
Shelby	Blue Grass Lake	28	78	26				X					
	Cody Lake	48	80	20				X					
	Lake of the Hills	28	78	25				X					
	Lambach Lake	28	78	25				X					
	Odetta Lake	48	80	20				X					
Shelby	Elk Horn Creek Pond	37	78	10				X					
	Little George Pond	38	79	19				X					
	Manteno Park Pond	40	81	2	X			X					
	Prairie Rose Lake	38	79	36	X			X		X			
	Schmerowski Pond	39	80	5				X					
Sioux	Fairview Area Impoundment	48	97	14				X					
	Sioux Center Pit	45	95	8				X					
	Winterfield Pond (aka Van See Pit)	46	97	19	X			X					
	Floyd Park Pit	44	94	11				X					
	Story	Dakin Lake	21	85	16				X				
Hendrickson Marsh		21	83	1				X					
Hickory Grove Lake		22	83	24	X			X					
McFarland's Pond		23	84	7				X					
Tama	Casey Lake	13	86	13	X			X					
	Otter Creek Lake	14	84	31	X			X					
	Otter Creek Marsh	14	82	3				X					
	Union Grove Lake	16	85	33	X			X					
Taylor	Bedford Impoundment	34	68	26				X		X			
	East Lake (Lenox)	32	70	6	X			X		X			
	Lake of Three Pines	34	68	12	X			X		X			
	West Lake (Lenox)	32	70	5				X		X			
	Wilson Park Lake	32	70	28	X			X					
	Windmill Lake	35	69	36	X			X					
	Taylor	Afton City Reservoir	29	72	17				X		X		
Green Valley Lake		31	73	26	X			X		X			
McKinley Lake		31	72	11	X			X					
Summitt Lake		31	72	3				X		X			
Talnadge Hill Lake/ Marsh		28	72	20	X			X					
Thayer Lake		28	72	22	X			X					
Twelve Mile Creek Lake		30	72	12	X			X		X			
Van Buren		Indian Lake	8	67	2	X			X				
		Lacey Kenoauqua Park Lake	10	68	2	X			X		X		
		Wapello	Eldon Pond	12	71	26				X			
Greater Ottumwa Central Park Ponds	14		72	25	X			X					



County	Lake	Location R. T. S.	A	Water Uses				C	BQ	BQR
				B(W)	B(LR)	B(LW)	B(CW)			
Warren	Lake Ahquabi	24 75 14	X			X		X		
	Banner Pits	23 77 30				X				
	Booper Area Pond	24 75 26				X				
Washington	Lake Darling	9 74 21	X			X		X		
	Foster Woods Pond	9 77 26				X				
	Iowa Township Pond	6 77 7				X				
	Narr Park Pond	6 75 19				X				
	Solus Ridge Pond	7 75 15				X				
Wayne	Bob White Lake	22 68 4	X			X		X		
	Corydon Reservoir	22 69 24	X			X		X		
	Bumston Reservoir	23 70 9	X			X		X		
	Limerick Reservoir	23 67 16				X		X		
	Seymour Reservoir	20 68 23	X			X		X		
Webster	Badger Lake	28 90 19	X			X				
	Lizard Creek Game Area Ponds	29 89 33	X			X				
	Lake Ole	28 86 16				X				
Winnebago	Ambroseon Pits	24 98 11	X			X				
	Lake Catherine	25 98 35	X			X				
	Florence Park Pond	25 99 26	X			X				
	Harmon Lake	24 100 21				X				
	Wyre Slough	25 98 22				X				
Winnebago	Rice Lake	23 99 13	X			X				
	Cardinal Marsh	10 98 7				X				
	Lake Meyers	9 97 34	X			X				
Woodbury	Silver Springs Pond	8 96 15				X				
	Browns Lake	47 87 32	X			X				
	Little Sioux Park Lake	42 89 12	X			X				
Woodbury	Snyder Bend Lake	47 86 17	X			X				
	Winnebago Bend Lake	47 86 28	X			X				
	Midway Park Lake	44 89 10	X			X				
North	Elk Creek Marsh	22 99 5				X				
	Hill Pond (refer to Iowa-Cedar River Basin)									
	Silver Lake	22 100 14	X			X			X	
	Silver Lake Marsh	22 100 10				X				X
North	North County Lake	20 99 26	X			X				X

Lakes

County
light

Lake	Location		Water Uses							
	R.	T. S.	A	B (W)	B (L)	B (M)	B (C)	C	NO	NO
Big Wall Lake	24	90 14								
Lake Cornelia	24	92 16	X							
Elm Lake	24	92 21								X
Morse Lake	24	93 28								X

This rule is intended to implement Iowa Code chapter 455B, division I, and division III, part 1.

61.4 Rescinded 8/16/76.

[Filed March 15, 1966; amended March 20, 1967, October 14, 1969, June 8, 1971, June 26, 1972, July 12, 1972, February 13, 1974]

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CHAPTER 62
EFFLUENT AND PRETREATMENT STANDARDS:
OTHER EFFLUENT LIMITATIONS OR PROHIBITIONS

[Prior to 7/1/86, DEQ Ch 17]
[Prior to 12/3/86, Water, Air and Waste Management(900)]

567—62.1(455B) Prohibited discharges.

62.1(1) The discharge of any pollutant from a point source into a navigable water is prohibited unless authorized by an NPDES permit. For purposes of this subrule, an NPDES permit includes an NPDES permit issued by the administrator prior to approval of the Iowa NPDES program.

62.1(2) The discharge of any radiological, chemical or biological warfare agent or high-level radioactive waste into navigable waters is prohibited.

62.1(3) Any discharge which the secretary of the army acting through the chief of engineers finds would substantially impair anchorage and navigation is prohibited.

62.1(4) Any discharge to which the regional administrator has objected in writing pursuant to any right to object provided the administrator in section 402(d) of the Act is prohibited.

62.1(5) Any discharge from a point source which is in conflict with a plan or amendment thereto approved pursuant to section 208(b) of the Act is prohibited.

62.1(6) The discharge of wastewater into a publicly owned treatment works or a privately owned domestic sewage treatment works in volumes or quantities in excess of those to which a major contributing industry is committed in the treatment agreement described in 64.3(5) is prohibited.

62.1(7) Wastes in such volumes or quantities as to exceed the design capacity of the treatment works or reduce the effluent quality below that specified in the operation permit of the treatment works are considered to be a waste which interferes with the operation or performance of a publicly owned treatment works or a privately owned domestic sewage treatment works and are prohibited.

567—62.2(455B) Exemption of adoption of certain federal rules from public participation. Iowa Code section 17A.4(2) allows an agency to exempt a "very narrowly tailored category of rules" from the notice and public participation requirements of Iowa Code section 17A.4(1) if the agency for good cause finds that notice and public participation is "unnecessary." The commission finds good cause for exempting from the notice and public participation requirements of Iowa Code section 17A.4(1) the adoption by reference of the following federal standards and guidelines and amendments thereto: An effluent limitation guideline promulgated pursuant to sections 301 and 304 of the Act; a standard of performance for a new source promulgated pursuant to section 306 of the Act; a toxic effluent standard promulgated pursuant to section 307(a) of the Act; a pretreatment standard for an existing source promulgated pursuant to section 307(b) of the Act; a pretreatment standard for a new source promulgated pursuant to section 307(c) of the Act; and information on the level of effluent quality attainable through the application of secondary treatment promulgated pursuant to section 304(d) of the Act.

Public participation would be unnecessary since the commission must adopt effluent and pretreatment standards at least as stringent as the enumerated promulgated federal standards in order to have the department's NPDES program approved by the administrator (section 402(c) of the Act), and yet must not adopt an effluent or pretreatment standard that is more stringent than the enumerated promulgated federal standards (Iowa Code section 455B.173(3)). Any such rule adopted by reference would be effective thirty-five (35) days after filing, indexing, and publication in the Iowa Administrative Code.

567—62.3(455B) Secondary treatment information: effluent standards for publicly owned treatment works and privately owned domestic sewage treatment works.

62.3(1) General. The following paragraphs describe the minimum level of effluent quality attainable by secondary treatment in terms of the pollutant measurements carbonaceous



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biochemical oxygen demand (CBOD₅), the five (5)-day measure of the pollutant parameter carbonaceous biochemical oxygen demand; suspended solids (SS), the pollutant parameter total suspended solids; and pH, the measure of the relative acidity or alkalinity. All requirements for each pollutant measurement shall be achieved by publicly owned treatment works and privately owned domestic sewage treatment works except as provided for in subrules 62.3(2) and 62.3(3).

Effluent limitations on pollutants other than carbonaceous biochemical oxygen demand (five day), suspended solids and pH may be imposed in the NPDES permit. Such limitations will reflect pretreatment requirements that may be imposed on users of the treatment works.

a. Carbonaceous biochemical oxygen demand (five (5) day) — CBOD₅.

(1) The thirty (30)-day average shall not exceed 25 mg./l.

* (2) The seven (7)-day average shall not exceed 40 mg./l.

(3) The thirty (30)-day average percent removal shall not be less than 85 percent (85%).

b. Suspended solids — SS.

(1) The thirty (30)-day average shall not exceed 30 mg/l.

(2) The seven (7)-day average shall not exceed 45 mg/l.

(3) The thirty (30)-day average percent removal shall not be less than 85 percent (85%).

c. pH: The effluent values for pH shall be maintained within the limits of 6.0 to 9.0 unless the publicly owned treatment works demonstrates that:

(1) Inorganic chemicals are not added to the waste stream as part of the treatment process, and

(2) Contributions from industrial sources do not cause the pH of the effluent to be less than 6.0 or greater than 9.0.

62.3(2) Special considerations.

a. Combined sewers. Treatment works subject to this part may not be capable of meeting the percentage removal requirements established under 62.3(1)"a"(3) and 62.3(1)"b"(3), or 62.3(3)"f"(3) and 62.3(3)"g"(3) during wet weather where the treatment works receive flows from combined sewers (i.e., sewers which are designed to transport both storm water and sanitary sewage). For such treatment works, the decision must be made on a case-by-case basis as to whether any attainable percentage removal level can be defined, and if so, what the level should be.

b. Industrial wastes. For certain industrial categories, the discharge of CBOD₅ and SS permitted (under sections 301(b)(1)(A)(i), 301(b)(2)(E) or 306 of the Act) may be less stringent than the values given in 62.3(1)"a"(1), 62.3(1)"b"(1), 62.3(3)"f"(1), and 62.3(3)"g"(1). In cases when wastes would be introduced from such an industrial category into a publicly owned treatment works, the values for CBOD₅ and SS in 62.3(1)"a"(1), 62.3(1)"b"(1), 62.3(3)"f"(1), and 62.3(3)"g"(1) may be adjusted upwards provided that:

(1) The permitted discharge of such pollutants, attributable to the industrial category, would not be greater than that which would be permitted (under sections 301(b)(1)(A)(i), 301(b)(2)(E) or 306 of the Act) if such industrial category were to discharge directly into waters of the state, and

(2) The flow or loading of such pollutants introduced by the industrial category exceeds 10 percent of the design flow or loading of the publicly owned treatment works.

When such an adjustment is made, the values for CBOD₅ or SS in 62.3(1)"a"(2), 62.3(1)"b"(2), 62.3(3)"f"(2), and 62.3(3)"g"(2) should be adjusted proportionately.

c. Waste stabilization ponds. Departmental secondary treatment standards for waste stabilization ponds are the same as those found in subrule 62.3(1) concerning secondary treatment with the exception of the standards for suspended solids which are as follows:

(1) SS, the thirty (30)-day average shall not exceed 80 mg/l.

(2) SS, the seven (7)-day average shall not exceed 120 mg/l.

d. Less concentrated influent wastewater for separate sewers. The department may substitute either a lower percent removal requirement or a mass loading limit for the percent removal requirements in 62.3(1) and 62.3(3) provided that the permittee demonstrates that:

(1) The treatment works is consistently meeting or will consistently meet, its permit effluent

concentration limits but its percent removal requirements cannot be met due to less concentrated influent wastewater.

(2) To meet the percent removal requirements, the treatment works would have to achieve significantly more stringent limitations than would otherwise be required by the concentration-based standards, and

(3) The less concentrated influent wastewater is not the result of excessive infiltration/inflow (I/I). A system is considered to have nonexcessive I/I when an average wet weather influent flow (as defined in the department's design standards 567—64.2(9) "b" Chapter 14.4.5.1.b) comprised of domestic wastewater plus infiltration plus inflow equals less than 275 gallons per day per capita.

e. Upgraded facilities designed to operate in a split flow mode. The department may substitute either a lower percent removal requirement or a mass loading limit for the percent removal requirements in 62.3(1) only (not 62.3(3) provided that the treatment works is designed to split part of the primary treated wastewater flow around the secondary treatment unit(s). The design to accommodate split flow must be approved by the department and consistent with applicable design standards for wastewater treatment facilities. The requirements of 62.3(2) "d" would apply to facilities considered under this subrule. This subrule shall not be considered for facilities eligible for treatment equivalent to secondary treatment under 62.3(3).

Any applicant requesting a permit limit adjustment must include as part of the request an analysis of the I/I sources in the system and a plan for the elimination of all inflow sources such as roof drains, manholes and storm sewer interconnections. Infiltration sources that can be economically eliminated or minimized shall be corrected.

f. Dilution. Nothing in this subrule or any other rule of the department shall be construed to encourage dilution of sewage as a means of complying with secondary treatment effluent standards. Reasonable efforts to prevent and abate infiltration of groundwater into sewers, and prevention or removal of any significant source of inflow, are required of all persons responsible for facilities subject to these standards.

62.3(3) Treatment equivalent to secondary treatment. This subrule describes the minimum level of effluent quality attainable by facilities eligible for treatment equivalent to secondary treatment in terms of the pollutant measurements CBOD₅, SS and pH. Treatment works shall be eligible at any time for consideration of effluent limitations described for treatment equivalent to secondary treatment if:

a. The CBOD₅ and SS effluent concentrations consistently achievable through proper operation and maintenance of the treatment works exceed the minimum level of the effluent quality set forth in 62.3(1) "a" and 62.3(1) "b"; and

b. A trickling filter or waste stabilization pond is used as the principal process; and

c. The treatment works provide significant biological treatment of municipal wastewater; and

d. The facility was not constructed since January 1, 1972, in order to achieve design effluent limits set forth in 62.3(1) "a," "b," and "c" or predecessor rules on secondary treatment. An eligible trickling filter or waste stabilization pond may have undergone an upgrade to achieve the effluent requirements specified in this subrule. Nothing in this subrule shall be construed to allow a facility to circumvent the design standards of chapter 64 in the replacement or construction of the individual treatment units; and

e. The treatment works is one that does not receive organic or hydraulic loadings which prevent the facilities from consistently complying with 62.3(3) "f," "g," and "h."

All requirements for the specified pollutant measurements in paragraphs "f," "g," and "h" following in this subrule shall be achieved except as provided for above in 62.3(2) or paragraph "i" of this subrule below.

f. CBOD₅ limitations:

(1) The thirty (30)-day average shall not exceed 40 mg/l.

(2) The seven (7)-day average shall not exceed 60 mg/l.

(3) The thirty (30)-day average percent removal shall not be less than 65 percent (65%).

g. SS limitations. Except where SS values have been adjusted in accordance with subrule 62.3(2), paragraph "c" above:

- (1) The thirty (30)-day average shall not exceed 45 mg/l.
- (2) The seven (7)-day average shall not exceed 65 mg/l.
- (3) The thirty (30)-day average percent removal shall not be less than 65 percent (65%).

h. pH. The requirements of above subrule 62.3(1), paragraph "c," shall be met.

i. Permit adjustments. More stringent limitations are required if the thirty (30)-day average and seven (7)-day average CBOD₅ and SS effluent values that could be achievable through proper operation and maintenance of the upgraded or existing treatment works, based on an analysis of the past performance of the treatment works, would enable the treatment works to achieve more stringent limitations. These more stringent limitations shall be maintained and not relaxed unless as specified in subrule 62.3(2)"b."

Effluent concentrations consistently achievable through proper operation and maintenance are:

- (1) The 95th percentile value of the thirty (30)-day average effluent quality achieved by the upgraded or existing treatment works in a period of at least two (2) years, excluding values attributable to upsets, bypasses, operational errors, or other unusual conditions, and
- (2) A seven (7)-day average value equal to 1.5 times the value derived for the thirty (30)-day average above.

This subrule shall only be applied when the existing or upgraded facility has achieved its design organic loading as specified in the most recent construction permit or its accompanying documentation. The determination of the effluent concentration consistently achievable through proper operation and maintenance shall only be based on the effluent quality data following the period when the design organic loading has been achieved.

567—62.4(455B) Federal effluent and pretreatment standards. The federal standards, 40 Code of Federal Regulations (CFR), revised as of July 1, 1988, are applicable to the following categories:

- 62.4(1) *General provisions.* The following is adopted by reference: 40 CFR part 401.
- 62.4(2) *Cooling water intake structures.* Reserved.
- 62.4(3) *General pretreatment regulations for existing and new sources of pollution.* The following is adopted by reference: 40 CFR 403 as amended on October 17, 1988 (53FR 40562), and January 4, 1989 (54FR 246).
- 62.4(4) *Thermal discharges.* The following is adopted by reference: 40 CFR part 125, Subpart H.
- 62.4(5) *Dairy products processing industry point source category.* The following is adopted by reference: 40 CFR part 405.
- 62.4(6) *Grain mills point source category.* The following is adopted by reference: 40 CFR part 406.
- 62.4(7) *Canned and preserved fruits and vegetables processing point source category.* The following is adopted by reference: 40 CFR part 407.
- 62.4(8) *Canned and preserved seafood processing point source category.* The following is adopted by reference: 40 CFR part 408.
- 62.4(9) *Sugar processing point source category.* The following is adopted by reference: 40 CFR part 409.
- 62.4(10) *Textile industry point source category.* The following is adopted by reference: 40 CFR part 410.
- 62.4(11) *Cement manufacturing point source category.* The following is adopted by reference: 40 CFR part 411.
- 62.4(12) *Feedlots point source category.* The following is adopted by reference: 40 CFR part 412.
- 62.4(13) *Electroplating point source category.* The following is adopted by reference: 40 CFR part 413.

62.4(14) *Organic chemicals manufacturing point source category.* The following is adopted by reference: 40 CFR part 414 as amended on June 29, 1989 (54FR 27351).

62.4(15) *Inorganic chemicals manufacturing point source category.* The following is adopted by reference: 40 CFR part 415.

62.4(16) *Plastics and synthetics point source category.* The following is adopted by reference: 40 CFR part 416.

62.4(17) *Soap and detergent manufacturing point source category.* The following is adopted by reference: 40 CFR part 417.

62.4(18) *Fertilizer manufacturing point source category.* The following is adopted by reference: 40 CFR part 418.

62.4(19) *Petroleum refining point source category.* The following is adopted by reference: 40 CFR part 419.

62.4(20) *Iron and steel manufacturing point source category.* The following is adopted by reference: 40 CFR part 420.

62.4(21) *Nonferrous metals manufacturing point source category.* The following is adopted by reference: 40 CFR part 421.

62.4(22) *Phosphate manufacturing point source category.* The following is adopted by reference: 40 CFR part 422.

62.4(23) *Steam electric power generating point source category.* The following is adopted by reference: 40 CFR part 423.

62.4(24) *Ferroalloy manufacturing point source category.* The following is adopted by reference: 40 CFR part 424.

62.4(25) *Leather tanning and finishing industry point source category.* The following is adopted by reference: 40 CFR part 425.

62.4(26) *Glass manufacturing point source category.* The following is adopted by reference: 40 CFR part 426.

62.4(27) *Asbestos manufacturing point source category.* The following is adopted by reference: 40 CFR part 427.

62.4(28) *Rubber manufacturing point source category.* The following is adopted by reference: 40 CFR part 428.

62.4(29) *Timber products processing point source category.* The following is adopted by reference: 40 CFR part 429.

62.4(30) *Pulp, paper and paperboard point source category.* The following is adopted by reference: 40 CFR part 430.

62.4(31) *Builders paper and roofing felt segment of the builders paper and board mills point source category.* The following is adopted by reference: 40 CFR part 431.

62.4(32) *Meat products point source category.* The following is adopted by reference: 40 CFR part 432.

62.4(33) *Metal finishing point source category.* The following is adopted by reference: 40 CFR part 433.

62.4(34) *Coal mining point source category.* The following is adopted by reference: 40 CFR part 434.

62.4(35) *Oil and gas extraction industry point source category.* The following is adopted by reference: 40 CFR part 435.

62.4(36) *Mineral mining and processing point source category.* The following is adopted by reference: 40 CFR part 436.

62.4(37) *Water supply point source category.* Reserved.

62.4(38) Reserved.

62.4(39) *Pharmaceutical manufacturing point source category.* The following is adopted by reference: 40 CFR part 439.

62.4(40) *Ore mining and dressing point source category.* The following is adopted by reference: 40 CFR part 440.

- 62.4(41) *Transportation point source category.* Reserved.
- 62.4(42) *Fish hatcheries and farms point source category.* Reserved.
- 62.4(43) *Paving and roofing materials (tars and asphalt) point source category.* The following is adopted by reference: 40 CFR part 443.
- 62.4(44) *Autos and other laundries point source category.* Reserved.
- 62.4(45) *Converted paper products point source category.* Reserved.
- 62.4(46) *Paint formulating point source category.* The following is adopted by reference: 40 CFR part 446.
- 62.4(47) *Ink formulating point source category.* The following is adopted by reference: 40 CFR part 447.
- 62.4(48) *Printing and publishing point source category.* Reserved.
- 62.4(49) *Steam supply and noncontact cooling water point source category.* Reserved.
- 62.4(50) Reserved.
- 62.4(51) *Clay, gypsum, refractory and ceramic products point source category.* Reserved.
- 62.4(52) *Concrete products point source category.* Reserved.
- 62.4(53) *Shore receptor and bulk terminals point source category.* Reserved.
- 62.4(54) *Gum and wood chemicals manufacturing point source category.* The following is adopted by reference: 40 CFR part 454.
- 62.4(55) *Pesticide chemicals manufacturing point source category.* The following is adopted by reference: 40 CFR part 455.
- 62.4(56) *Adhesives and sealants industry point source category.* Reserved.
- 62.4(57) *Explosives manufacturing point source category.* The following is adopted by reference: 40 CFR part 457.
- 62.4(58) *Carbon black manufacturing point source category.* The following is adopted by reference: 40 CFR part 458.
- 62.4(59) *Photographic processing point source category.* The following is adopted by reference: 40 CFR part 459.
- 62.4(60) *Hospital point source category.* The following is adopted by reference: 40 CFR part 460.
- 62.4(61) *Battery manufacturing point source category.* The following is adopted by reference: 40 CFR part 461.
- 62.4(62) Reserved.
- 62.4(63) *Plastic molding and forming point source category.* The following is adopted by reference: 40 CFR part 463.
- 62.4(64) *Metal molding and castings point source category.* The following is adopted by reference: 40 CFR part 464.
- 62.4(65) *Coil coating point source category.* The following is adopted by reference: 40 CFR part 465.
- 62.4(66) *Porcelain enameling point source category.* The following is adopted by reference: 40 CFR part 466.
- 62.4(67) *Aluminum forming point source category.* The following is adopted by reference: 40 CFR part 467 as amended on December 27, 1988 (53FR 52366).
- 62.4(68) *Copper forming point source category.* The following is adopted by reference: 40 CFR part 468.
- 62.4(69) *Electrical and electronic components point source category.* The following is adopted by reference: 40 CFR part 469.
- 62.4(70) Reserved.
- 62.4(71) *Nonferrous metals forming and metal powders.* The following is adopted by reference: 40 CFR part 471 as amended on March 17, 1989 (54FR 11346) and corrected on April 4, 1989 (54FR 13606).

567—62.5(455B) Federal toxic effluent standards. The following is adopted by reference: 40 CFR part 129, revised as of July 1, 1988.

567—62.6(455B) Effluent limitations and pretreatment requirements for sources for which there are no federal effluent or pretreatment standards.

62.6(1) Definitions. As used in this rule:

a. "Average" means the sum of the total daily discharges by weight, volume or concentration during the reporting period (as specified in the operation permit) divided by the total number of days during the reporting period when the facility was in operation. With respect to the monitoring requirements, the "daily average" discharge shall be determined by the summation of all the measured daily discharges by weight, volume or concentration divided by the number of days during the reporting period when the measurements were made.

b. "Maximum" means the total discharge by weight, volume or concentration which cannot be exceeded during a twenty-four (24) hour period.

c. "Best engineering judgment" means a judgment that considers any or all of the following:

- (1) Known state-of-the-art (i.e., demonstrated treatment that is being done or can be done);
- (2) Published technical articles and research results;
- (3) Engineering reference books;
- (4) Consultation with acknowledged experts in the field;
- (5) Availability of equipment;
- (6) Known or suspected toxicity of the pollutants;
- (7) Safety, welfare and aesthetic effects on persons who may come in contact with the discharge; and
- (8) Standards and rules of other regulatory agencies and states.

62.6(2) Time of compliance. Effluent limitations and pretreatment limitations established pursuant to this rule shall be achieved within a reasonable time after receipt of notice from the department of the applicability of these limitations.

62.6(3) Effluent limitations. This subrule establishes effluent limitations on the discharge of pollutants from sources other than publicly owned treatment works and privately owned domestic sewage treatment works that are not subject to the federal effluent standards adopted by reference in 62.4(1) and 62.4(3) to 62.4(60).

a. There shall be established an effluent limitation that represents the best engineering judgment of the department of the degree of effluent reduction consistent with the Act and Iowa Code chapter 455B.

b. The following wastes shall not be introduced into privately owned treatment works subject to this subrule:

- (1) Wastes that create a fire or explosion hazard in the treatment works.
- (2) Wastes at a flow rate or pollutant discharge rate, or both, which is excessive over relatively short time periods so that there is a treatment process upset and subsequent loss of treatment efficiency such that the effluent limitations in the permit of the treatment works are violated.

62.6(4) Pretreatment requirements for incompatible wastes. This subrule establishes pretreatment requirements for incompatible pollutants that apply to sources other than those covered by 40 CFR §128.133, (i.e. sources other than existing "major contributing industries" as defined in 40 CFR §128.124), and to sources that are new or existing major contributing industries for which there is no federal pretreatment standard (i.e. sources which do not fall within a point source category or, if they do fall within a point source category, sources for which the administrator has not yet promulgated a pretreatment standard).

a. For sources that are within a point source category adopted by reference in 62.4(455B) for which there are promulgated effluent limitation guidelines, but no promulgated pretreatment standards, the pretreatment standard for incompatible pollutants shall be the promulgated effluent limitation guideline. Provided, that if the treatment works which receives the pollutants is committed in its operation permit to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant.

b. For sources that are not subject to paragraph "a," there shall be established an effluent limitation that represents the best engineering judgment in the department of the degree of effluent reduction consistent with the Act and Iowa Code chapter 455B.

c. In no case shall a discharge into a publicly owned treatment works or a privately owned domestic sewage treatment works by a source subject to this subrule intermittently change the pH of the raw waste reaching the treatment plant by more than 0.5 pH unit or cause the pH of the waste reaching the plant to be less than 6.0 or greater than 9.0.

567—62.7(455B) Effluent limitations less stringent than the effluent limitation guidelines. An effluent limitation less stringent than the effluent limitation guideline (adopted by reference in 62.4(455B)) representing the degree of effluent reduction achievable by application of the best practicable control technology currently available may be allowed in an NPDES permit if the factors relating to the equipment or facilities involved, the process applied, or other such factors related to the discharger are fundamentally different from the factors considered by the administrator in the establishment of the guidelines. An individual discharger or other interested person may submit evidence concerning such factors to the director. On the basis of such evidence or other available information, the director will make a written finding that such factors are or are not fundamentally different from the facility compared to those specified in the development document. Any such less stringent effluent limitations must, as a condition precedent, be approved by the administrator.

567—62.8(455B) Effluent limitations or pretreatment requirements more stringent than the effluent or pretreatment standards.

62.8(1) Effluent limitations more stringent than the effluent limitation guidelines. An effluent limitation more stringent than the effluent limitation guidelines representing the degree of effluent reduction achievable by application of the best practicable control technology currently available may be required in an NPDES permit if the factors relating to the equipment or facilities involved, the process applied, or other such factors related to the discharger are fundamentally different from the factors considered by the administrator in the establishment of the guidelines. An individual discharger or other interested person may submit evidence concerning such factors to the director. On the basis of such evidence or other information available to the director, the director will make a written finding that such factors are or are not fundamentally different for the facility compared to those specified in the development document. Any such more stringent effluent limitation must, as a condition precedent, be approved by the administrator.

62.8(2) Effluent limitations necessary to meet water quality standards. No effluent, alone or in combination with the effluent of other sources, shall cause a violation of any applicable water quality standard. When it is found that a discharge that would comply with applicable effluent standards in 62.3(455B), 62.4(455B) or 62.5(455B) or effluent limitations in 62.6(455B) would cause violation of water quality standards, the discharge will be required to meet whatever effluent limitations are necessary to achieve water quality standards, including the non-degradation policy of 61.2(2). Any such effluent limitation shall be determined using a statistically based portion of the calculated waste load allocation, as described in "Supporting Document for Iowa Water Quality Management Plans" (Iowa Department of Water, Air and Waste Management, July 1976, Chapter IV, as revised on March 20, 1990). (Copy available upon request to the Department of Natural Resources, Henry A. Wallace Building, 900 East Grand, Des Moines, Iowa 50319. Copy on file with the Iowa Administrative Rules Coordinator.)

62.8(3) Pretreatment requirements more stringent than pretreatment standards or requirements. The department or the publicly owned treatment works may impose pretreatment requirements more stringent than the applicable pretreatment standard of 62.4(455B) or pretreatment requirements of 62.6(455B) if such more stringent requirements are necessary to prevent violations of water quality standards, or the permit limitations of the treatment works.

62.8(4) Effluent limitations or pretreatment requirements in approved areawide waste treatment management plans. Effluent limitations or pretreatment requirements more stringent than applicable effluent or pretreatment standards in 62.3(455B) to 62.5(455B) or effluent limitations or pretreatment requirements in 62.6(455B) may be imposed by the department if the more stringent effluent limitations or pretreatment requirements are required by an approved areawide waste treatment management (208(b)) plan.

62.8(5) Effluent limitations for pollutants not covered by effluent or pretreatment standards. An effluent limitation on a pollutant not otherwise regulated under 62.3(455B) to 62.6(455B) (e.g., polybrominated biphenyls, PBBs) may be imposed on a case-by-case basis. Such limitation shall be based on effect of the pollutant in water and the feasibility and reasonableness of treating such pollutant.

567—62.9(455B) Disposal of pollutants into wells. Commencing September 1, 1977, there shall be no disposal of a pollutant other than heat into wells within Iowa. Any disposal of heat shall be sufficiently controlled to protect the public health and welfare and to prevent pollution of ground and surface water resources. In reviewing any permits proposed to be issued for the disposal into wells, the director shall consider, among other things, any policies, technical information, or requirements specified by the administrator in regulations issued pursuant to the Act or in directives issued to EPA regional offices.

These rules are intended to implement Iowa Code chapter 455B, division III, part 1.

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**CHAPTER 63
MONITORING, ANALYTICAL AND REPORTING REQUIREMENTS**

[Prior to 7/1/83, DEQ Ch 18]
[Prior to 12/3/86, Water, Air and Waste Management(900)]

567—63.1(455B) Guidelines establishing test procedures for the analysis of pollutants. Only the procedures prescribed in this chapter shall be used to perform the measurements indicated in an application for an operation permit submitted to the department, a report required to be submitted by the terms of an operation permit, and a certification issued by the department pursuant to section 401 of the Act.

63.1(1) Identification of test procedures. Parameters or pollutants for which an effluent limitation is specified in an effluent limitation adopted by reference in chapter 62, together with test descriptions and references are named in Table VII. The parameters for which testing is required must be determined by one of the approved analytical methods described in Table VII or, under certain circumstances, by other methods that may be more advantageous to use when such other methods have been previously approved by the director pursuant to 63.1(2). Samples collected for operational testing pursuant to 63.3(4) need not be analyzed by approved analytical methods described in Table VII; however, commonly accepted test methods should be used.

63.1(2) Application for alternate test procedures.

a. Any person may apply to the EPA regional administrator through the director for approval of an alternate test procedure.

b. The application for an alternate test procedure may be made by letter and shall:

(1) Provide the name and address of the responsible person or firm holding or applying for the permit (if not the applicant) and the applicable ID number of the existing or pending permit and type of permit for which the alternate test procedure is requested and the discharge serial number, if any.

(2) Identify the pollutant or parameter for which approval of an alternate testing procedure is being requested.

(3) Provide justification for using testing procedures other than those specified in Table VII.

63.1(3) Required containers, preservation techniques and holding times. All samples collected in accordance with self-monitoring requirements as defined in an operation permit shall comply with the container, preservation techniques, and holding time requirements as specified in Table VI. Sample preservation should be performed immediately upon collection, if feasible.

567—63.2(455B) Records of monitoring activities and results.

63.2(1) The permittee shall maintain records of all information resulting from any monitoring activities required in its operation permit.

63.2(2) Any records of monitoring activities and results shall include for all samples:

a. The date, exact place and time of sampling.

b. The dates analyses were performed.

c. Who performed the analyses.

d. The analytical techniques or methods used, and

e. The results of such analyses.

63.2(3) The permittee shall retain for a minimum of three (3) years any records of monitoring activities and results including all original strip chart recordings for continuous monitoring instrumentation and calibration and maintenance records. The period of retention shall be considered to be extended during the course of any unresolved litigation or when requested by the director or the regional administrator.



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567—63.3(455B) Minimum self-monitoring requirements in permits.

63.3(1) Monitoring by organic waste dischargers. The minimum self-monitoring requirements to be incorporated in operation permits for facilities discharging organic wastes shall be the appropriate requirements in Tables I, II, and IV. Additional monitoring may be specified in the operation permit based on a case-by-case evaluation of the impact of the discharge on the receiving stream, toxic or deleterious effects of wastewaters, industrial contribution to the system, complexity of the treatment process, history of noncompliance or any other factor which requires strict operational control to meet the effluent limitations of the permit.

63.3(2) Monitoring by inorganic waste dischargers. The minimum self-monitoring requirements to be incorporated in the operation permit for an inorganic waste discharge shall be the appropriate requirement in Table V. Additional monitoring may be specified in the operation permit based on a case-by-case evaluation of the impact of the discharge on the receiving stream, toxic or deleterious effects of wastewaters, complexity of the treatment process, history of noncompliance or any other factor which requires strict control to meet the effluent limitations of the permit.

63.3(3) Monitoring of industrial contributors to publicly owned treatment works. All major contributing industries as defined in 60.2(455B) of these rules and industrial contributors that are subject to national pretreatment standards shall be monitored in accordance with the requirements in Tables I, II and V, provided that the monitoring program of a publicly owned treatment works with a pretreatment program approved by the department may be used in lieu of the tables. The results of such monitoring shall be submitted to the department in accordance with the reporting requirements in the operation permit.

63.3(4) Operational monitoring. The minimum operational monitoring to be incorporated in permits shall be the appropriate requirements in Table III. These requirements reflect minimum indicators that any adequately run system must monitor. The department recognizes that most well-run facilities will be monitored more closely by the operator as appropriate to the particular system. However the results of this monitoring need not be reported to the department. Operational monitoring requirements may be modified or reduced at the discretion of the director when adequate justification is presented by the permittee that the reduced or modified requirements will not adversely impact the operation of the facility. Additional operational monitoring may be specified in the operation permit based on a case-by-case evaluation of the impact of the discharge on the receiving stream, toxic or deleterious effects of wastewaters, complexity of the treatment process, history of noncompliance or any other factor that requires strict control to meet the effluent limitations of the permit.

567—63.4(455B) Self-monitoring and reporting for animal feeding operations.

63.4(1) The following self-monitoring requirements may be imposed on an animal-feeding operation in any operation permit issued for such an operation.

- a. Measurement of liquid level in a waste storage facility on a periodic basis.
- b. Measurement of daily precipitation, as appropriate.
- c. Sampling and analysis of groundwater as necessary to determine effects of wastewater application.

d. Other measurements necessary to evaluate the adequacy of a waste disposal system.

63.4(2) Reports of the self-monitoring results shall be submitted to the department quarterly.

567—63.5(455B) Report of by-pass.

63.5(1) Except for by-passes that occur as a result of mechanical failure or acts beyond the control of the owner, owners of waste disposal systems shall obtain written permission from the department prior to any by-passing of any sewage or wastes from the waste disposal system.

63.5(2) In the event that by-passing of sewage or waste occurs as a result of mechanical failure or acts beyond the control of the owner (other than rain or other precipitation), said owner shall notify the department by telephone of the by-passing within twelve (12) hours of the time of the discovery of the by-passing. Notification shall include the reasons for the by-pass and

expected duration. The owner shall comply with the instructions of the department calculated to minimize the effect of the by-passing on the receiving water of the state.

63.5(3) By-passes other than those described in subparagraphs (1) and (2) shall be reported in the records of operation.

567—63.6(455B) **Submission of records of operation.** Records of operation shall be submitted to the department within fifteen (15) days following the close of the reporting period specified in 63.7(455B) and in accordance with monitoring requirements derived from this chapter and incorporated in the operation permit.

567—63.7(455B) **Frequency of submitting records of operation.** Except as provided in subrule 63.1(2), records of operation required by these rules shall be submitted at monthly intervals. The department may vary the interval at which records of operation shall be submitted in certain cases. Variation from the monthly interval shall be made only under such conditions as the department may prescribe in writing to the person concerned.

567—63.8(455B) **Content of records of operation.** Records of operation shall include the results of all monitoring specified in or authorized by this chapter and incorporated in the operation permit. Monitoring performed but not specified in the operation permit shall be recorded and maintained in accordance with 63.2(455B).

567—63.9(455B) **Records of operation forms.** Records of operation forms shall be those provided by the department unless its forms are not applicable and in such case the records of operation shall be submitted on such other forms as are agreeable to the department.

567—63.10(455B) **Certification and signatory requirements in the submission of records of operation.** All records of operation as required by these rules shall include certification which attest that all information contained therein is representative and accurate. Each record of operation shall contain the signature of a duly authorized representative of the corporation, partnership or sole proprietorship, municipality, or public facility which has proprietorship of the wastewater treatment or disposal system.

Table 1 Minimum Self-Monitoring in Permits for Organic Waste Discharges
Controlled Discharge Wastewater Treatment Plants

Wastewater Parameter	Sampling Location	Sample Type ⁵	Frequency by P.E. ¹				
			< 100	101- 500	501- 1,000	1,001-3,000	> 3,000
Flow ²	Raw	24-Hr Total	1/Week	Daily	Daily	Daily	Daily
	Final	Instantaneous	2/Week	Dry During Periods of Discharge			
BOD ₅ ³	Raw	24-Hr Composite	--	--	--	1/3 Months	1/Month
	Final	Grab	1/6 Months	1/Month	1/2 Weeks	1/Week	2/Week
Suspended Solids	Raw	24-Hr Composite	--	--	--	1/3 Months	1/Month
	Final	Grab	1/6 Months	1/6 Months	1/6 Months	1/3 Months	1/Month
Ammonia Nitrogen ⁴	Final	Grab	1/6 Months	1/Month	1/2 Weeks	1/Week	2/Week
pH	Raw	Grab	--	--	--	1/3 Months	1/Month
	Final	Grab	1/6 Months	1/ Month	1/2 Weeks	1/Week	2/Week

Table 1 Minimum Self-Monitoring in Permits for Organic Waste Discharges
- Continued -

Explanation of Superscripts

- 1 - The P.E. shall be computed on the basis of the original engineering design criteria for the facility, and any modifications thereof. Where such design criteria are not available, the P.E. shall be computed using 0.167 pounds of BOD per capita per day.
- 2 - Facilities serving a population equivalent less than 100 are not required to provide continuous flow measurement but are required to provide manual flow measurement at the specified frequency. Facilities serving a population equivalent greater than 100 are required to provide continuous flow measurement of the raw waste but need only provide manual flow measurement on the final effluent. Acceptable flow measurement and recording techniques shall be those described in the "Inwa Wastewater Facilities Design Standards" Chapter 14 (14.7.2).
- 3 - In addition to the sampling required above, for controlled discharge facilities following a period of storage for more than six weeks, a grab sample of the lagoon cell contents collected near the outfall structure shall be analyzed at least two weeks prior to an anticipated discharge to demonstrate that the wastewater is of such quality to meet the effluent limitations in the permit. Where the analyses indicate that wastewater quality does not meet the effluent limitations, storage shall be continued until further analyses indicate the wastewater quality is satisfactory for discharge.
- 4 - Ammonia nitrogen monitoring is required only for facilities with an ammonia effluent limitation.
- 5 - The meanings of sample types are:

"Grab Sample" means a representative, discrete, portion of the sewage, industrial waste, other waste, surface water or groundwater taken without regard to flow rate.

"24-Hr Composite" means:

 - a. For facilities where no significant industrial waste is present, a sample made by collecting a minimum of six grab samples taken four hours apart and combined in proportion to the flow rate at the time each grab sample was collected. (Generally, grab samples should be collected at 8:00 a.m., 12:00 a.m. (noon), 4:00 p.m., 8:00 p.m., 12:00 p.m. (midnight) and 4:00 a.m. on weekdays (Monday through Friday) unless local conditions indicate another more appropriate time for sample collection.)
 - b. For facilities where significant industrial waste is present, a sample made by collecting a minimum of twelve grab samples taken two hours apart and combined in proportion to flow rate at the time each grab sample was collected. (Generally, grab samples should be collected at 8:00 a.m., 10:00 a.m., 12:00 a.m. (noon), 2:00 p.m., 4:00 p.m., 6:00 p.m., 8:00 p.m., 10:00 p.m., 12:00 p.m. (midnight), 2:00 a.m., 4:00 a.m. and 6:00 a.m. on weekdays (Monday through Friday) unless local conditions indicate another more appropriate time for sample collection).
 - c. An automatic composite sampling device may also be used for collection of flow proportioned or time proportioned composite samples.

Table 11 Minimum Self-Monitoring in Permits for Organic Waste Discharges
 Contiguous Discharge Wastewater Treatment Plants

Wastewater Parameter	Sampling Location	Sample Type ^{4,6}	Frequency by P.E. ^{1,9}						
			< 100	101- 500	501- 1,000	1,001- 3,000	3,001- 15,000	15,001-105,000	> 105,000
Flow ²	Raw or Final	24-Hr Total	1/Week	Daily	Daily	Daily	Daily	Daily	Daily
BOD ₅	Raw	24-Hr Comp.	---	---	1/Week	1/Week	2/Week	2-5/Week ⁷	7/Week
	Final	24-Hr Comp.	1/3 Months	1/Month	1/Week	1/Week	2/Week	2-5/Week ⁷	7/Week
Suspended Solids	Raw	24-Hr Comp.	---	---	1/3 Months	1/Month	1/Week	2-5/Week ⁷	7/Week
	Final	24-Hr Comp.	1/3 Months	1/3 Months	1/3 Months	1/Month	1/Week	2-5/Week ⁷	7/Week
Ammonia Nitrogen ³	Final	24-Hr Comp.	1/3 Months	1/Month	1/Week	1/Week	2/Week	2-5/Week ⁷	7/Week
pH	Raw	Grab	---	---	1/Week	1/Week	2/Week	2-5/Week ⁷	7/Week
	Final	Grab	1/3 Months	1/Month	1/Week	1/Week	2/Week	5/Week	7/Week
Fecal Coliform ⁵	Final	Grab	1/3 Months	1/3 Months	1/3 Months	1/3 Months	1/3 Months	1/3 Months	1/3 Months
Temperature	Raw	Grab	---	---	1/Week	1/Week	2/Week	2-5/Week ⁷	7/Week
	Final	Grab	1/3 Months	1/Month	1/Week	1/Week	2/Week	2-5/Week ⁷	7/Week
Settleable Solids ⁸	Final	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	7/Week

Table II Minimum Self-Monitoring in Permits for Organic Waste Discharges
Continuous Discharge Wastewater Treatment Plants
- Continued -

Explanation of Superscripts

- 1 - See Footnote #1, Table I.
- 2 - See Footnote #2, Table I.
- 3 - See Footnote #4, Table I.
- 4 - See Footnote #5, Table I.
- 5 - Analysis is required only when the effluent is being disinfected.
- 6 - For lagoons, 24-hour composite samples are not required on the final effluent, grab samples are acceptable.
- 7 - Generally, the frequency of sample collection and analysis shall be increased by 1/Week for each additional 30,000 P.E.
- 8 - Not required for industrial contributors to publicly owned treatment works.
- 9 - The requirements for industrial contributors shall be that specified for final effluent monitoring.

Table III Operational Monitoring Requirements in Permits

LAGOONS

Parameter	Sampling Location	Sample Type	Frequency by P.E. ¹						
			< 100	101- 500	501- 1,000	1,001- 3,000	3,001- 15,000	15,001-105,000	> 105,000
Cell Depth	Each Cell	Measurement	1/Week	1/Week	1/Week	2/Week	2/Week	2/Week	2/Week

AERATED LAGOONS

Dissolved Oxygen	Cell Contents	Grab	1/Month	1/2 Weeks	1/2 Weeks	1/Week	2/Week	2/Week	2/Week
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TRICKLING FILTERS

Recirculation	---	Measurement	1/Week	1/Week	1/Week	2/Week	3/Week	5/Week	7/Week
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ACTIVATED SLUDGE

MLSS	Aeration Basin Contents	Grab	1/Month	1/Week	1/Week	2/Week	3/Week	5/Week	7/Week
Dissolved Oxygen	Aeration Basin Contents	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	7/Week
Temperature	Aeration Basin Contents	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	7/Week
30-Minute Settability	Aeration Basin Contents	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	7/Week

Table III Operational Monitoring Requirements in Permits

ANAEROBIC DIGESTER

Parameter	Sampling Location	Sample Type	Frequency by P.E. ¹						
			< 100	101- 500	501- 1,000	1,001- 3,000	3,001- 15,000	15,001-105,000	> 105,000
Temperature	Digester Contents	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	7/Week
pH	Digester Contents	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	7/Week
Alkalinity	Digester Contents	Grab	---	---	---	1/Week	1/Week	2/Week	2/Week
Volatile Acids	Digester Contents	Grab	---	---	---	1/Week	1/Week	2/Week	2/Week

AEROBIC DIGESTER

Dissolved Oxygen	Digester Contents	Grab	---	---	1/Week	2/Week	3/Week	5/Week	7/Week
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CHLORINATION FACILITIES

Total Residual Chlorine	Final Effluent	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	7/Week
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Table III Operational Monitoring Requirements In Permits
- Continued -

Explanation of Superscripts

1 - See Footnote #1, Table I.

2 - Alternative test methods for operational monitoring:

Dissolved Oxygen - Pao Titration

MLSS - Spectrophotometric, Centrifuge

pH - Colorimetric Comparator

30-Minute Settleability - Standard Methods Test 213C

Alkalinity - Standard Methods Test 403

Volatile Acids - Standard Methods Test 504A

Residual Chlorine - Colorimetric Comparator

Table IV Minimum Self-Monitoring in Permits for Land Application Systems

Wastewater Parameter	Sampling Location	Sample Type ²	Flow In Million Gallons Per Day ¹		
			< 0.5	0.5 - 2.0	> 2.0
Nitrate Nitrogen	Monitoring Wells	Grab	1/3 Months	1/2 Months	1/Month
Dissolved Solids	Monitoring Wells	Grab	1/3 Months	1/2 Months	1/Month
Fecal Coliform	Monitoring Wells	Grab	1/3 Months	1/2 Months	1/Month

Volume Applied	Final ⁴	24-HR Total	Daily	Daily	Daily
Total Nitrogen	Final ⁴	24-HR Composite	1/3 Months	1/2 Months	1/Month
Total Phosphorus	Final ⁴	24-HR Composite	1/3 Months	1/2 Months	1/Month

Explanation of Superscripts

- 1 - The flow to be used for determining sample frequency shall be the original engineering design, average wet weather flow, or any modifications thereof. The design flow shall be the raw wastewater flow prior to any treatment units.
- 2 - See Footnote #5, Table I.
- 3 - Monitoring wells shall be sampled according to the procedures described in Table VI.
- 4 - Final shall be the final effluent from the storage facility prior to land application.

Table V Minimum Self-Monitoring In Permits for Inorganic Waste Discharges

Category ¹	Treatment Type, Size	Wastewater Parameter	Sample Frequency	Sample Type ²	Sample Location
I	Non-Contact Cooling Water	Flow	1/Month	24-Hr Total	Final
		Temperature	1/Month	Grab	Final
		pH	1/Month	Grab	Final
II	Mining Activities				
	A. Quarry Dewatering	Suspended Solids	1/Year	Grab	Final
		pH	1/Year	Grab	Final
	B. Rock Washing	Suspended Solids	1/Month	Grab	Final
		pH	1/Month	Grab	Final
		Settleable Solids	1/Month	Grab	Final

Table V Minimum Self-Monitoring in Permits for Inorganic Waste Discharges
 - Continued -

Category ¹	Treatment Type, Size	Wastewater Parameter	Sample Frequency	Sample Type ²	Sample Location
C.	Coal Mining	Suspended Solids	1/3 Months	Grab	Final
		pH	1/Month	Grab	Final
		Iron	1/3 Months	Grab	Final
		Manganese	1/3 Months	Grab	Final
		Settleable Solids	1/Month	Grab	Final
		Inorganic Wastes ³			
A.	Less than 0.5 MGD	Flow	1/Month	24-Hr Total	Final
		Other Pollutants	1/Month	Grab	Final

Table V Minimum Self-Monitoring in Permits for Inorganic Waste Discharges
 - Continued -

Category ¹	Treatment Type, Size	Wastewater Parameter	Sample Frequency	Sample Type ²	Sample Location
B.	Greater than 0.5 MGD	Flow	Daily	24-Hr Total	Final
		Other Pollutants	1/Week	Grab	Final
IV	Steam Electric Power Plants				
	A. Condenser Cooling	Flow	Daily	24-Hr Total	Final
		pH	1/Week	Grab	Final
		Temperature	Daily	Grab	Final
		Free Available Chlorine	1/2 Weeks	Grab	Final
B.	Coal Pile Runoff	Suspended Solids	1/Month	Grab	Final
		pH	1/Month	Grab	Final

Table V Minimum Self-Monitoring in Permits for Inorganic Waste Discharges
 - Continued -

Category ¹	Treatment Type, Size	Wastewater Parameter	Sample Frequency	Sample Type ²	Sample Location
V	C. Other Wastes	Suspended Solids	1/Month	Grab	Final
		Oil and Grease	1/Month	Grab	Final
		pH	1/Month	Grab	Final
	Toxic Waste Discharges ⁴				
	A. A permit limitation of less than 1 lb toxic discharge allowed or no mass limitations (No Treatment)	Toxics	1/Month	24-Hr Composite	Final
		Flow	1/Week	24-Hr Total	Final
	B. A permit limitation of less than 1 lb toxic discharge allowed (Lagoon)	Toxics	1/2 Weeks	24-Hr Composite	Final
		Flow	1/Week	24-Hr Total	Final

Table V Minimum Self-Monitoring In Permits for Inorganic Waste Discharges
 - Continued -

Category ¹	Treatment Type, Size	Wastewater Parameter	Sample Frequency	Sample Type ²	Sample Location
C.	A permit limitation of less than 1 lb toxic discharge allowed (Mechanical Treatment)	Toxics	1/Week	24-Hr Composite	Final
		Flow	1/Week	24-Hr Total	Raw or Final
D.	A permit limitation of 1-5 lbs toxic discharge allowed	Toxics	2/Week	24-Hr Composite	Final
		Flow	2/Week	24-Hr Total	Raw or Final
E.	A permit limitation of 5-10 lbs toxic discharge allowed	Toxics	3/Week	24-Hr Composite	Final
		Flow	Daily	24-Hr Total	Raw or Final
F.	A permit limitation of greater than 10 lbs special discharge allowed	Toxics	5-7 Week	24-Hr Composite	Final
		Flow	Daily	24-Hr Total	Raw or Final

Table V Minimum Self-Monitoring In Permits for Inorganic Waste Discharges
- Continued -

Explanation of Superscripts

- 1- The above categories are not mutually exclusive. Some facilities may fall within more than one category, in which case a combination of monitoring requirements from both categories will be used in establishing permit monitoring requirements.**
- 2- See Footnote #5, Table I.**
- 3- For Category III facilities, the size of the facility shall be based on the original engineering design, average wet weather flow, for the raw wastewater.**
- 4- Only those parameters demonstrated, or suspected, as a pollutant in the discharge shall be required to be monitored. Toxics include the 129 priority pollutants listed at 40 CFR Part 122.21, Appendix D (FR 14177) April 1, 1983.**

Table VI Required Containers, Preservation Techniques, and Holding Times

Parameter	Container ¹	Preservative ²	Maximum Holding Time ³
<u>Bacterial Tests</u>			
1. Coliform, fecal and total	P,G	Cool, 4°C 0.008% Na ₂ S ₂ O ₃ ⁴	6 hours
2. Fecal streptococci	P,G	Cool, 4°C 0.008% Na ₂ S ₂ O ₃ ⁴	6 hours
<u>Chemical Tests</u>			
3. Acidity	P,G	Cool, 4°C	14 days
4. Alkalinity	P,G	Cool, 4°C	14 days
5. Ammonia	P,G	Cool, 4°C H ₂ SO ₄ to pH < 2	28 days
6. Biochemical oxygen demand	P,G	Cool, 4°C	48 hours
7. Biochemical oxygen demand, carbonaceous	P,G	Cool, 4°C	48 hours
8. Bromide	P,G	None required	28 days
9. Chemical oxygen demand	P,G	Cool, 4°C H ₂ SO ₄ to pH < 2	28 days
10. Chloride	P,G	None required	28 days
11. Chlorine, total residual	P,G	None required	Analyze immediately
12. Color	P,G	Cool, 4°C	48 hours
13. Cyanide, total and amenable to chlorination	P,G	Cool, 4°C NaOH to pH > 12 0.6g ascorbic acid ⁴	14 days ⁵

Table VI - Required Containers, Preservation Techniques, and Holding Times
- Continued -

Parameter	Container ¹	Preservative ²	Maximum Holding Time ³
<u>Chemical Tests</u>			
14. Cyanide, free	P,G	Cool, 4°C NaOH to pH > 12 0.6g ascorbic acid ⁴	4 hours
15. Fluoride	P	None required	28 days
16. Hardness	P,G	HNO ₃ to pH < 2	6 months
17. Hydrogen Ion (pH)	P,G	None required	Analyze immediately
18. Kjeldahl and organic nitrogen	P,G	Cool, 4°C H ₂ SO ₄ to pH < 2	28 days
<u>Metals</u>			
19. Chromium VI	P,G	Cool, 4°C	24 hours
20. Mercury	P,G	HNO ₃ to pH < 2	28 days
21. Metals, except above	P,G	HNO ₃ to pH < 2	6 months
22. Nitrate	P,G	Cool, 4°C	48 hours
23. Nitrate-nitrite	P,G	Cool, 4°C H ₂ SO ₄ to pH < 2	28 days
24. Nitrite	P,G	Cool, 4°C	48 hours
25. Oil and grease	G	Cool, 4°C H ₂ SO ₄ to pH < 2	28 days

Table VI Required Containers, Preservation Techniques, and Holding Times
- Continued -

Parameter	Container ¹	Preservative ²	Maximum Holding Time ³
<u>Metals</u>			
26. Organic carbon	P,G	Cool, 4°C Cl or H ₂ SO ₄ to pH < 2	28 days
27. Orthophosphate	P,G	Filter immediately Cool, 4°C	48 hours
28. Oxygen, dissolved probe	G Bottle and top	None required	Analyze immediately
Winkler	G Bottle and top	Fix on site and store in dark	8 hours
29. Phenols	G only	Cool, 4°C H ₂ SO ₄ to pH < 2	28 days
30. Phosphorus (elemental)	G	Cool, 4°C	48 hours
31. Phosphorus, total	P,G	Cool, 4°C H ₂ SO ₄ to pH < 2	28 days
32. Residue, total	P,G	Cool, 4°C	7 days
33. Residue, filterable	P,G	Cool, 4°C	7 days
34. Residue, Nonfilterable (TSS)	P,G	Cool, 4°C	7 days
35. Residue, settleable	P,G	Cool, 4°C	48 hours
36. Residue, volatile	P,G	Cool, 4°C	7 days
37. Silica	P	Cool, 4°C	28 days

Table VI Required Containers, Preservation Techniques, and Holding Times
- Continued -

Parameter	Container ¹	Preservative ²	Maximum Holding Time ³
<u>Metals</u>			
38. Specific conductance	P,G	Cool, 4°C	28 days
39. Sulfate	P,G	Cool, 4°C	28 days
40. Sulfide	P,G	Cool, 4°C, add zinc acetate plus sodium hydroxide to pH > 9	7 days
41. Sulfite	P,G	None required	Analyze immediately
42. Surfactants	P,G	Cool, 4°C	48 hours
43. Temperature	P,G	None required	Analyze immediately
44. Turbidity	P,G	Cool, 4°C	48 hours
45. Sampling Procedures for Monitoring Wells			
A. Measure depth from top of well head casing to water table			
B. Calculate quantity of water to be flushed from well using the formula:			
Gallons to be pumped = $0.221 d^2 h$, where			
d = well diameter in inches			
h = depth in feet of standing water in well prior to pumping			
C. Pump well			
D. Measure depth from well head casing to water table after pumping			
E. Wait for well to recharge to or near static water level prior to sampling			

Table VI Notes

1. Polyethylene (P) or Glass (G).
2. Sample preservation should be performed immediately upon sample collection. For composite samples, each aliquot should be preserved at the time of collection. When use of an automated sampler makes it impossible to preserve each aliquot, then samples may be preserved by maintaining at 4°C until compositing and sample splitting is completed.
3. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid. Samples may be held for longer periods only if the permittee, or monitoring laboratory, has data on file to show that the specific types of samples under study are stable for the longer time, and has received a variance from the executive director. Some samples may not be stable for the maximum time period given in the table. A permittee, or monitoring laboratory, is obligated to hold the sample for a shorter time if knowledge exists to show this is necessary to maintain sample stability.
4. Should only be used in the presence of residual chlorine.
5. Maximum holding time is 24 hours when sulfide is present. Optionally, all samples may be tested with lead acetate paper before the pH adjustment in order to determine if sulfide is present. If sulfide is present, it can be removed by the addition of cadmium carbonate powder until a negative spot test is obtained. The sample is filtered and then NaOH is added to pH 12.
6. Samples should be filtered immediately on-site before adding preservative for dissolved metals.

Table VII List of Approved Biological Test Procedures¹

Parameter and Units	Method	Reference (Method No. or Page)			
		EPA ²	Std. Methods ³	ASTM ⁴	USGS ⁵
BACTERIA					
1. Coliform (fecal), number per 100 ml.	MPN, 5 tube membrane filter (MF).	p. 132 p. 124 ^{6,7}	908C 909C		B-0050-77
2. Coliform (fecal) in presence of chlorine, number per 100 ml.	MPN, 5 tube required. MF	p. 132 p. 124	908C 909C		
3. Coliform (total), number per 100 ml.	MPN, 5 tube single or two-step MF.	p. 114 p. 108 ⁷	908A 909A		B-0025-77
4. Coliform (total) in presence of chlorine, number per 100 ml.	MPN, 5 tube MF with enrichment.	p. 114 p. 111 ⁷	908A 908A(c)		
5. Fecal streptococci, number per 100 ml.	MPN, 5 tube MF, plate count.	p. 139 p. 136 ⁷ p. 143	910A 910B 910C		B-0055-77

Table VII List of Approved Biological Test Procedures
- Continued -

REFERENCES

- 1 - The method used must be specified.
- 2 - "Microbiological Methods for Monitoring the Environment, Water and Wastes, 1978", U.S. Environmental Protection Agency, EPA-600/8-78-017.
- 3 - "Standard Methods for the Examination of Water and Wastewater", 15th Edition.
- 4 - "Annual Book of Standards", Amer. Society for Testing and Materials, Part 31, Water.
- 5 - Greeson, P. E., et. al., Chapter 4, "Methods for Collection and Analysis of Aquatic Biological and Microbiological Samples, Techniques of Water-Resources, Investigations of the United States Geological Survey, Book 5, Laboratory Analysis, 1977", U.S. Geological Survey.
- 6 - Direct membrane filter only.
- 7 - 0.45 um membrane filter or other pore size recommended by the manufacturer. See EPA Manual, pp. 110, 2.3.17; 125, 2.2.16; and 137, 2.3.16.

Table VII List of Approved Chemical Test Procedures

Parameter and Units	Method	Reference (Method No. or Page)				Other
		EPA ¹	Std. Methods ²	ASTM ³	USGS ⁴	
6. Acidity, as CaCO ₃ , mg/l	Electrometric end point or phenolphthalein end point.	305.1	402(d)	D1067-70(E)		
		--	--	--	--	
7. Alkalinity, as CaCO ₃ , mg/l	Electrometric or colorimetric titration to pH 4.5, manual or automated.	310.1	403	D1067-70(B)	1-1030-78	Ref. 5, p. 548
		--	--	--	1-2030-78	
8. Aluminum--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration, AA furnace, inductively coupled plasma ⁷ , or colorimetric (Eriochrome cyanine R).	202.1	303C	--	1-3051-78	
		202.2	304	--	--	
		200.7	--	--	--	
		--	306B	--	--	
9. Ammonia (as N), mg/l	Manual distillation (at pH 9.5) followed by nesslerization, titration, electrode or automated phenate ⁸ .		417A			
			417B	D1426-79(A)	1-3520-78	Ref. 5, p. 555
		350.2	417D	--	--	
		350.3	--	D1426-79(D)	--	
		350.1	417F	D1426-79(C)	1-4523-78	
	Technicon Instrument Corp., automated ammonia electrode.					Ref. 19
10. Antimony--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration, AA furnace, or inductively coupled plasma ⁷ .	204.1	303A	--	--	
		204.2	304	--	--	
		200.7	--	--	--	
11. Arsenic--Total ⁶ , mg/l	Digestion ⁶ followed by hydride, AA furnace, inductively coupled plasma ⁷ , or colorimetric (SDDC).	206.5	--			
		206.3	303E	D2972-78(B)	1-3062-78	
		206.2	304	--	--	
		200.7	--	--	--	
		206.4	307B	D2972-78(A)	1-3060-78	

Table VII - List of Approved Chemical Test Procedures
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Parameter and Units	Method	Reference (Method No. or Page)				Other
		EPA ¹	Std. Methods ²	ASTM ³	USGS ⁴	
12. Barium--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration, AA furnace, or Inductively coupled plasma ⁷ .	208.1	303C	--	1-3084-78	
		208.2	304	--	--	
		200.7	--	--	--	
13. Beryllium--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration, AA furnace, Inductively coupled plasma ⁷ , or colorimetric (aluminon).	210.1	303C	D5645-78	1-3095-78	
		210.2	304	--	--	
		200.7	--	--	--	
		--	309B	--	--	
14. Biochemical oxygen demand (BOD ₅), mg/l	Winkler (Azide modification) or electrode method.	405.1	507	--	1-1578-78	Ref. 9, p. 17
		--	--	--	--	Ref. 5, p. 548
15. Biochemical oxygen demand (BOD ₅), carbonaceous, mg/l	DO, with nitrification inhibitor.	405.2	507(a6)	--	--	
16. Boron--Total, mg/l	Colorimetric (curcumin) or Inductively coupled plasma ⁷ .	212.3	404A	--	1-3112-78	
		200.7	--	--	--	
17. Bromide, mg/l.	Titrimetric.	320.1	--	D1246-77(C)	1-1125-78	
18. Cadmium--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration, AA furnace, Inductively coupled plasma ⁷ , voltametry ¹⁰ , or colorimetric (Dithizone).				1-3136-78	
		213.1	303A or B	D3557-78(A or B)	1-3135-78	Ref. 5, p. 557 & Ref. 9, p. 37
		213.2	304	--	--	
		200.7	--	--	--	
		--	--	D3557-78(C)	--	Ref. 11
		--	310B	--	--	

Table VII - List of Approved Chemical Test Procedures
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Parameter and Units	Method	Reference (Method No. or Page)				Other
		EPA ¹	Std. Methods ²	ASTM ³	USGS ⁴	
19. Calcium--Total ⁶ , mg/l	Digestion ⁶ followed by atomic absorption, inductively coupled plasma ⁷ , or EDTA titration.	215.1	303A	D511-77(C)	1-3152-78	
		200.7	--	--	--	
		215.2	311C	D511-77(B)	--	
20. Chemical oxygen demand (COD), mg/l	Titrimetric; colorimetric, manual or automated.	410.1	508A	D1252-78	1-3560-78	Ref. 5, p. 550 & Ref. 9, p. 17
		410.2			1-3562-78	
		410.3			1-3561-78	
		410.4				
	Oceanography International Corp., COD ampule test method.					Ref. 20
Hach Chemical Company, COD test procedures.					Ref. 21	
21. Chloride, mg/l	Titrimetric (silver nitrate) or (mercuric nitrate); colorimetric (ferricyanide), manual or automated.	--	--	D512-67(B)	1-1183-78	Ref. 5, p. 554
		325.3	407B	D512-67(A)	1-1184-78	
		325.1	407D	D512-67(C)	1-1187-78	
		325.2	--	--	1-2187-78	
22. Chlorine--Total residual, mg/l	Amperometric Titration Iodometric ¹² -amperometric or starch endpoint; Iodometric; DPD-FAS titrimetric; DPD Spectrophotometric	330.1	408C	D1253-76(A)	--	Ref. 22
		330.2	408B	--	--	
		330.3	408A	D1253-76(B)	--	
		330.4	408D	--	--	
		330.5	408E	--	--	
		Orion Research Inc., Residual Chlorine Electrode Model 97-90.				

Table VII List of Approved Chemical Test Procedures
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Parameter and Units	Method	Reference (Method No. or Page)				Other
		EPA ¹	Std. Methods ²	ASTM ³	USGS ⁴	
23. Chromium VI--Total ⁶ , mg/l	Extraction followed by atomic absorption, or colorimetric (diphenylcarbazide).	218.4	303B	--	1-1232-78	
		--	312B	--	1-1230-78	
24. Chromium--Total ⁶ , mg/l	Digestion ⁶ (optional extraction) followed by AA direct aspiration, AA furnace, inductively coupled plasma ⁷ , or colorimetric (diphenylcarbazide).	218.3				
		218.1	303A or B	D1687-77(D)	1-3236-78	Ref. 5, p. 557
		218.2	304	--	--	
		200.7	--	--	--	
		--	312B	D1687-77(A)	--	
25. Cobalt--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration, AA furnace, or inductively coupled plasma ⁷ .	219.1	303A or B	D3558-77(A or B)	1-3420-78 or 1-3259-78	Ref. 9, p. 37
		19.2	304	--	--	
		200.7	--	--	--	
26. Color, platinum cobalt units or dominant wavelength, hue, luminance, purity	Colorimetric, ADM1 or platinum cobalt; spectrophotometric.	110.1	204D	--	--	Ref. 15
		110.2	204A	--	1-1250-78	
		110.3	204B	--	--	
27. Copper--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration, AA furnace, inductively coupled plasma ⁷ , or colorimetric (neocuproine).				1-3271-78	
		220.1	303A or B	D1688-77(D or E)	or 1-3270-78	Ref. 5, p. 557 & Ref. 9, p. 57
		220.2	304	--	--	
		200.7	--	--	--	
		--	315B	D1688-77(A)	--	
	Hach Chemical Company, Bicinchoninate Test Method #8506.					Ref. 23

Table VII List of Approved Chemical Test Procedures
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Parameter and Units	Method	Reference (Method No. or Page)				Other
		EPA ¹	Std. Methods ²	ASTM ³	USGS ⁴	
28. Cyanide--Total, mg/l	Manual distillation with MgCl ₂ followed by titrimetric, manual or automated ¹⁴ spectrophotometric.	--	412B	--	--	Ref. 9, p. 22
		335.2	412C 412D	D2036-75(A) D2036-75(A)	-- 1-3300-78	
29. Cyanide amenable to chlorination, mg/l	DO.	335.1	412F	D2036-75(B)	--	
30. Fluoride--Total, mg/l	Manual distillation ⁸ followed by manual or automated electrode, SPADNS, or automated complexone.	--	413A	--	--	1-4327-78
		340.2	413B	D1179-72(B)	--	
		--	--	--	--	
		340.1 340.3	413C --	D1179-72(A) --	-- --	
31. Gold--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration or AA furnace.	231.1	303A	--	--	
		231.2	304	--	--	
32. Hardness--Total, as CaCO ₃ , mg/l	Automated colorimetric, EDTA titration, inductively coupled plasma ⁷ , or atomic absorption (sum of Ca and Mg as their respective carbonates).	130.1	--	--	--	Ref. 5, p. 556
		130.2	314B	D1126-67(B)	1-1338-78	
		200.7	--	--	--	
		215.1 242.1	303A --	-- --	1-3153-78 +3448-78	
33. Hydrogen Ion (pH), pH units	Electrometric measurement.	150.1	423	D1293-78(A) or D1293-78(B)	1-1586-78	Ref. 5, p. 547
	Technicon Instrument Corp., automated pH electrode.					Ref. 19

Table VII List of Approved Chemical Test Procedures
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Parameter and Units	Method	Reference (Method No. or Page)				Other
		EPA ¹	Std. Methods ²	ASTM ³	USGS ⁴	
34. Iridium--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration or AA furnace.	235.1	303A	--	--	
		235.2	304	--	--	
35. Iron--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration, AA furnace, Inductively coupled plasma ⁷ , or colorimetric (phenanthroline).	236.1	303A or B	D1068-77(C or D)	1-3381-78	Ref. 5, p. 557
		236.2	304	--	--	
		200.7	--	--	--	
		--	315B	D1068-77(A)	--	
	Hach Chemical Company, 1,10-phenanthroline method #8008.					Ref. 24
36. Kjeldahl nitrogen--Total (as N), mg/l	Digestion and distillation followed by titration nesslerization or electrode; colorimetric, semi-automated block digester.	--	--	D3590-77	--	Ref. 5, p. 552
		351.3	420	--	--	
		--	--	--	1-4551-78	
		351.4	--	--	--	
		351.2	--	--	1-4552-78	
37. Lead--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration, AA furnace, Inductively coupled plasma ⁷ , voltametry ¹⁰ or colorimetric (Dithizone).	239.1	303A or B	D3559-78(A or B)	1-3399-78	Ref. 5, p. 557
		239.2	304	--	--	
		200.7	--	--	--	
		--	--	D3559-78(C)	--	Ref. 11
		--	316B	--	--	
38. Magnesium--Total ⁶ , mg/l	Digestion ⁶ followed by atomic absorption, Inductively coupled plasma ⁷ , or gravimetric.	242.1	303A	D511-77(B)	1-3447-78	Ref. 5, p. 557
		200.7	--	--	--	
		--	316B	D511-77(A)	--	

Table VII List of Approved Chemical Test Procedures
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Parameter and Units	Method	Reference (Method No. or Page)				Other
		EPA ¹	Std. Methods ²	ASTM ³	USGS ⁴	
39. Manganese--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration, AA furnace, Inductively coupled plasma ⁷ , or colorimetric (persulfate).	243.1	303A or B	D858-77(B or C)	1-3454-78	Ref. 5, p. 557
		243.2	304	--	--	
		200.7	--	--	--	Ref. 5, p. 564
		--	319B	D858-77(A)	--	
	Hach Chemical Company, colorimetric test procedure.					Ref. 25
40. Mercury--Total ⁶ , mg/l	Cold vapor, manual or automated.	245.1	303F	D3223-79	1-3462-78	Ref. 5, p. 559
		245.2	--	--	--	
41. Molybdenum--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration, AA furnace, or Inductively coupled plasma ⁷ .	246.1	303C	--	1-3490-78	
		246.2	304	--	--	
		200.7	--	--	--	
42. Nickel--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration, AA furnace, Inductively coupled plasma ⁷ , or colorimetric (heptoxime).	249.1	303A or B	D1886-77(C or D)	1-3499-78	
		249.2	304	--	--	
		200.7	--	--	--	
		--	321B	--	--	
43. Nitrate (as N), mg/l	Brucine sulfate.	352.1		D992-71	--	Ref. 5, p. 554 Ref. 9, p. 28
44. Nitrate-nitrite (as N), mg/l	Cadmium reduction, manual or automated.	353.3	418C	D3867-79(B)	--	
		353.2	418F	D3867-79(A)	1-4545-78	

Table VII List of Approved Chemical Test Procedures
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Parameter and Units	Method	Reference (Method No. or Page)				Other
		EPA ¹	Std. Methods ²	ASTM ³	USGS ⁴	
45. Nitrite (as N), mg/l	Spectrophotometric, manual or automated (diazotization).	354.1 --	419 --	D1254-67 --	-- 1-4540-78	Ref. 26
	Hach Chemical Company, Nitri Ver III diazotization method.					
46. Oil and grease--Total recoverable, mg/l	Gravimetric (extraction). Soxhlet (extraction).	415.1	503A 503C	--	--	
47. Organic carbon--Total (TOC), mg/l	Combustion or oxidation.	415.1	505	D2579-78(A)	Ref. 15	Ref. 5, p. 551
48. Organic nitrogen (as N), mg/l	Total Kjeldahl N minus ammonia N.	see 37 and 9	420A	D3590-77 minus D1426-79(A)	see 37 and 9	Ref. 5 pp. 552 & 553
49. Orthophosphate (as P), mg/l	Ascorbic acid method, automated or manual.	365.1	424G	--	1-4601-78	Ref. 5, p. 561
		365.2	424F	D515-78(A)	--	
50. Osmium--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration or AA furnace.	252.1	303C	--	--	
		252.2	304	--	--	
51. Oxygen, dissolved, mg/l	Winkler (azide modification) or electrode.	360.2	421B	D1589-60(A)	1-1575-78	Ref. 5, p. 550
		360.1	421F	--	1-1576-78	
52. Palladium--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration or AA furnace.	253.1	--	--	--	
		253.2	--	--	--	

Table VII List of Approved Chemical Test Procedures
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Parameter and Units	Method	Reference (Method No. or Page)				Other
		EPA ¹	Std. Methods ²	ASTM ³	USGS ⁴	
53. Phenols, mg/l	Manual distillation followed by manual or automated ¹⁴ colorimetric (4AAP).	420.1	510A+	D1783-70(A or B)	--	
		420.2	510B or C	--	--	
54. Phosphorus (elemental), mg/l	Gas chromatography ¹⁶ .	--	--	--	--	
55. Phosphorus--Total, mg/l	Persulfate digestion followed by manual or automated ascorbic acid reduction, semi-automated block digester.		424C(III)	--	--	Ref. 5, p. 561
		365.2	424F	D515-78(A)	--	
		365.1	424G	--	1-4600-78	
		365.3	--	--	--	
56. Platinum--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration or AA furnace.	255.1	303A	--	--	
		255.2	304	--	--	
57. Potassium--Total ⁶ , mg/l	Digestion ⁶ followed by atomic absorption, inductively coupled plasma ⁷ , or flame photometric.	258.1	303A	--	1-3630-78	Ref. 5, p. 560
		200.7	--	--	--	
		--	322B	D1428-64(A)	--	
58. Residue--Total, mg/l	Gravimetric, 103-105°C.	160.3	209A	--	1-3750-78	
59. Residue--Filterable, mg/l	Gravimetric, 180°C.	160.1	209B	--	1-1750-78	
60. Residue--Nonfilterable, mg/l	Gravimetric, 103-105°C.	160.2	209D	--	1-3765-78	
61. Residue--Settleable, mg/l	Volumetric (Imhoff cone) or gravimetric.	160.5	209F(3a)	--	--	
		--	--	--	--	

Table VII List of Approved Chemical Test Procedures
- Continued -

Parameter and Units	Method	Reference (Method No. or Page)				Other
		EPA ¹	Std. Methods ²	ASTM ³	USGS ⁴	
62. Residue--Volatile, mg/l	Gravimetric, 550°C.	160.4	209E	--	1-3755-78	
63. Rhodium--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration or AA furnace.	265.1	303A	--	--	
		265.2	304	--	--	
64. Ruthenium--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration or AA furnace.	267.1	303A	--	--	
		267.2	304	--	--	
65. Selenium--Total ⁶ , mg/l	Digestion ⁶ followed by AA furnace, inductively coupled plasma ⁷ , or hydride.	270.2	304	--	--	
		200.7	--	--	--	
		270.3	303E	D3859-79	1-3667-78	
66. Silica--Dissolved, mg/l	0.45 micron filtration followed by manual or automated colorimetric (molybdosilicate), or inductively coupled plasma ⁷ .	370.1	425C	D859-68(B)	1-1700-78	
		--	--	--	1-2700-78	
		200.7	--	--	--	
67. Silver--Total ¹⁷ , mg/l	Digestion ⁶ followed by AA direct aspiration, AA furnace, or inductively coupled plasma ⁷ .	272.1	303A or B	--	1-3720-78	Ref. 5, p. 557
		272.2	304	--	--	& Ref. 9, p. 37
		200.7	--	--	--	
68. Sodium--Total ⁶ , mg/l	Digestion ⁶ followed by atomic absorption, inductively coupled plasma ⁷ , or flame photometric.	273.1	303A	--	1-3735-78	Ref. 5, p. 561
		200.7	--	--	--	
		--	--	D1428-64(A)	--	

Table VII List of Approved Chemical Test Procedures
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Parameter and Units	Method	Reference (Method No. or Page)				Other
		EPA ¹	Std. Methods ²	ASTM ³	USGS ⁴	
69. Specific conductance, umhos/cm	Wheatstone bridge.	120.1	205	D1125-77(A)	1-1780-78	Ref. 5, p. 547
70. Sulfate (as SO ₄), mg/l	Automated methylthymol, gravimetric, or turbidimetric.	375.2	--	--	1-2822-78	
		375.3	426A or B	D516-68(A)	--	Ref. 5, pp. 562 & 563
		375.4	426C	D516-68(B)	--	
71. Sulfide (as S), mg/l	Titrimetric (Iodine) or colorimetric (methylene blue).	376.1	427D	--	1-3840-78	
		376.2	427C	--	--	
72. Sulfite (as SO ₃), mg/l	Titrimetric (Iodine-Iodate).	377.1	428	D1339-78(C)	--	
73. Surfactants, mg/l	Colorimetric (methylene blue).	425.1	512A	D2330-68(A)	REF 15	
74. Temperature, °C	Thermometric.	170.1	212	--		Ref. 18
75. Thallium--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration, AA furnace, or Inductively coupled plasma ⁷ .	279.1	303A	--	--	
		279.2	304	--	--	
		200.7	--	--	--	
76. Tin--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration or AA furnace.	282.1	303A	--	1-3850-78	
		282.2	304	--	--	
77. Titanium--Total ⁶ , mg/l	Digestion ⁶ followed by AA direct aspiration or AA furnace.	283.1	303C	--	--	
		283.2	304	--	--	
78. Turbidity, NTU	Nephelometric.	180.1	214A	D1889-71	1-3860-78	

Table VII List of Approved Chemical Test Procedures
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Parameter and Units	Method	Reference (Method No. or Page)				Other
		EPA ¹	Std. Methods ²	ASTM ³	USGS ⁴	
79. Vanadium--Total ⁶ , mg/l	Digestion ⁶ followed by					
	AA direct aspiration,	286.1	303C	--	--	
	AA furnace,	286.2	304	--	--	
	Inductively coupled plasma ⁷ , or colorimetric (gallic acid).	200.7	--	--	--	
		--	--	D3573-75	--	
80. Zinc--Total ⁶ , mg/l	Digestion ⁶ followed by	289.1	303A or B	D1691-77(D)	I-3900-78	Ref. 5, p. 557
	AA direct aspiration,	289.2	304	D1691-77(C)	--	& Ref. 9, p. 57
	AA furnace, or	200.7	--	--	--	
	Inductively coupled plasma ⁷ .					
	Hach Chemical Company, Zincon Method #8009.					Ref. 23

Table VII List of Approved Chemical Test Procedures
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1. "Methods for Chemical Analysis of Water and Wastes, 1979", U.S. Environmental Protection Agency, EPA-600/4-79/020.
2. "Standard Methods for the Examination of Water and Wastewater", 15 Edition.
3. "Annual Book of Standards", Amer. Society for Testing and Materials, Part 31, Water.
4. "Methods for Analysis of Inorganic Substances in Water and Fluvial Sediments", U.S. Department of the Interior, Geological Survey, Open-File Report 78-679 unless otherwise stated.
5. "Official Methods of Analysis of the Association of Official Analytical Chemists", Methods Manual, 13th Edition (1980).
6. For the determination of total metals, the sample is not filtered before processing. A digestion procedure is required to solubilize suspended material and to destroy possible organic-metal complexes. Two digestion procedures are given in "Methods for Chemical Analysis of Water and Wastes, 1979". One (4.1.3), is a vigorous digestion procedure employing nitric acid. A less vigorous digestion using nitric and hydrochloric acids (4.1.4) is preferred; however, the analyst should be cautioned that this mild digestion may not suffice for all sample types. Particularly, if a colorimetric procedure is to be employed, it is necessary to ensure that all organo-metallic bonds be broken so that the metal is in a reactive state. In those situations, the vigorous digestion is to be preferred making certain that at no time does the sample go to dryness. Samples containing large amounts of organic materials would also benefit by this vigorous digestion. Use of the graphite furnace technique, as well as determinations for certain elements such as arsenic, the noble metals, mercury, selenium, and titanium require a modified digestion and in all cases the method write-up should be consulted for specific instruction and/or cautions.

Note: If the digestion included in one of the other approved references is different than the above, the EPA procedure must be used.

Dissolved metals are defined as those constituents which will pass through a 0.45 micron membrane filter. Following filtration of the sample, the referenced procedure for total metals must be followed. Sample digestion for dissolved metals may be omitted for AA (direct aspiration or graphite furnace) and ICP analyses provided the sample has a low COD and the filtrate meets the following criteria:

- a) is visibly transparent,
 - b) has no perceptible odor, and
 - c) is free of particulate or suspended matter following acidification.
7. Appendix IV - Inductively Coupled Plasma Optical Emission Spectrometric Method (ICP) for Trace Element Analysis of Water and Wastes, Interim, Federal Register, Vol. 44, No. 253, Monday, December 3, 1979, p. 69559-69564.
 8. Manual distillation is not required if comparability data on representative effluent samples are on company file to show that this preliminary distillation step is not necessary; however, manual distillation will be required to resolve any controversies.

Table VII List of Approved Chemical Test Procedures
- Continued -

REFERENCES

9. American National Standard on Photographic Processing Effluents, April 2, 1975. Available from ANSI, 1430 Broadway, New York, NY 10018.
10. The use of normal and differential pulse voltage ramps to increase sensitivity and resolution is acceptable.
11. J. Gardner and M. J. Stiff, "The Determination of Cadmium, Lead, Copper and Zinc in Groundwater, Estuarine Water, Sewage and Sewage Effluent by Anodic Stripping Voltametry", "Water Research", Vol. 9, p. 517 (1975).
12. The back titration method will be used to resolve controversy.
13. National Council of the Paper Industry for Air and Stream Improvement, (Inc.) Technical Bulletin 253, December 1971.
14. After the manual distillation is completed, the autoanalyzer manifolds in method 335.3 (CN) or 420.2 (phenol) are simplified by connecting the re-sample line directly to the sampler.
15. Goerlitz, D., Brown, E., "Methods for Analysis of Organic Substances in Water", U.S. Geological Survey, Techniques of Water-Resources Inv., Book 5, Ch. A3, p. 4 (1972).
16. R. F. Addison and R. G. Ackman, "Direct Determination of Elemental Phosphorus by Gas-Liquid Chromatography", "Journal of Chromatography", Vol. 47, No. 3, pp. 421-426, 1970.
17. Recommended methods for the analysis of silver in industrial wastewaters at concentrations of 1 mg/l and above are inadequate where silver exists as an inorganic halide. Silver halides such as the bromide and chloride are relatively insoluble in reagents such as nitric acid but are readily soluble in an aqueous buffer of sodium thiosulfate and sodium hydroxide to a pH of 12. Therefore, for levels of silver above 1 mg/l, 20 ml of sample should be diluted to 100 ml by adding 40 ml each of 2 M $\text{Na}_2\text{S}_2\text{O}_3$ and 2 M NaOH. Standards should be prepared in the same manner. For levels of silver below 1 mg/l, the recommended method is satisfactory.
18. Stevens, M. M., Ficke, J. F., and Smoot, G. F., "Water Temperature - Influential Factors, Field Measurement and Data Presentation", U.S. Geological Survey Techniques of Water Resources Inv., Book 1, p. 31 (1975).
19. Approved alternate test procedure for the determination of hydrogen ion (pH) and ammonia as presented in the Federal Register, Vol. 43, No. 168, p. 38618 (August 29, 1978).
20. Approved alternate test procedure for the determination of chemical oxygen demand (COD) as presented in the Federal Register, Vol. 43, No. 45, p. 9341 (March 7, 1978).

Table VII List of Approved Chemical Test Procedures
- Continued -

REFERENCES

21. Approved alternate test procedure for the determination of chemical oxygen demand (COD) as presented in the Federal Register, Vol. 45, No. 78, p. 26811 (April 21, 1980).
22. Approved alternate test procedure for the determination of total residual chlorine as presented in the Federal Register, Vol. 46, No. 231, p. 58489 (December 2, 1981).
23. Approved alternate test procedure for the determination of total and dissolved zinc and copper as presented in the Federal Register, Vol. 45, No. 105, p. 36167 (May 29, 1980).
24. Approved alternate test procedure for the determination of total and dissolved iron as presented in the Federal Register, Vol. 45, No. 126, p. 43459 (June 27, 1980).
25. Approved alternate test procedure for the determination of total manganese as presented in the Federal Register, Vol. 44, No. 116, p. 34193 (June 14, 1979).
26. Approved alternate test procedure for the determination of nitrite nitrogen as presented in the Federal Register, Vol. 44, No. 85, p. 25505 (May 1, 1979).

These rules are intended to implement Iowa Code section 455B.173.

[Filed 12/21/72]

[Filed 7/1/77, Notice 3/23/77—published 7/27/77, effective 8/31/77]

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

[Filed 4/20/84, Notice 2/15/84—published 5/9/84, effective 6/13/84]

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

CHAPTER 64
WASTEWATER CONSTRUCTION AND OPERATION PERMITS

(Prior to 7/1/83, DEQ Ch 19)
(Prior to 12/3/86, Water, Air and Waste Management(900))

567—64.1(455B) Definitions. In addition to the definitions in Iowa Code sections 455B.101 and 455B.171, the following definitions shall apply to this chapter.

64.1(1) "Application for construction permit" means the engineering report, plans and specifications and other data deemed necessary by the department for the construction of a proposed wastewater disposal system or part thereof.

64.1(2) "Construction permit" means a written approval of the director to construct a wastewater disposal system or part thereof in accordance with the plans and specifications approved by the department.

64.1(3) "Application for operation permit" means an application for a written operation permit made on a form provided by the department.

64.1(4) "Operation permit" means a written permit by the director authorizing the operation of a wastewater disposal system or part thereof or discharge source, and, if applicable, the discharge of wastes from said disposal system or part thereof or discharge source to waters of the state.

64.1(5) "Private sewage disposal system" means a system which provides for the treatment of disposal of domestic sewage from four (4) or fewer dwelling units or the equivalent of less than sixteen (16) individuals on a continuing basis.

64.1(6) "Semipublic sewage disposal system" means a system for the treatment or disposal of domestic sewage which is not a private sewage disposal system and which is not owned by a city, a sanitary sewer district, or a designated and approved management agency under section 208 of the Act (33 U.S.C. 1288).

567—64.2(455B) Permit to construct.

64.2(1) No person shall construct, install or modify any wastewater disposal system or part thereof or extension or addition thereto without, or contrary to any condition of, a construction permit issued by the director or by a local public works department authorized to issue such permits under 567—chapter 9, nor shall any connection to a sewer extension in violation of any special limitation specified in a construction permit pursuant to 64.2(10), paragraph "a," "b," or "f" be allowed by any person subject to the conditions of the permit.

64.2(2) The site for each new wastewater treatment plant or expansion or upgrading of existing facilities must be inspected and approved by the department prior to submission of plans and specifications. Applications must be submitted in accordance with 60.4(455B).

64.2(3) Site approval under 64.2(2) shall be based on the criteria contained in the Ten States Standards, design manuals published by the department, applicable federal guidelines and standards, standard textbooks, current technical literature and applicable safety standards. To the extent that separation distances of this subrule conflict with the separation distances of 23.5(1) or 23.5(2), the greater distance shall prevail. The following separation distances from treatment or lagoon water surface shall apply:

a. 1000 feet from the nearest inhabitable residence, commercial building, or other inhabitable structure. If the inhabitable or commercial building is the property of the owner of the proposed treatment facility, or there is written agreement with the owner of the building, the separation criteria shall not apply. Any such written agreement shall be filed with the county recorder and recorded for abstract of title purposes, and a copy submitted to the department.

b. 1000 feet from public shallow wells.

c. 400 feet from public deep wells.

d. 400 feet from private wells.

e. 400 feet from lakes and public impoundments.

f. 25 feet from property lines and rights-of-way.



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When the above separation distances cannot be maintained for the expansion, upgrading or replacement of existing facilities, the separation distances shall be maintained at no less than ninety percent (90%) of the existing separation distance on the site, providing no data is available indicating that a problem has existed or will be created.

64.2(4) Applications for a construction permit must be submitted to the director in accordance with 60.4(455B) at least one hundred twenty (120) days in advance of the date of start of construction.

64.2(5) The director shall act upon the application within sixty (60) days of receipt of a complete application by either issuing a construction permit or denying the construction permit in writing unless a longer review period is required and the applicant is so notified in writing. Notwithstanding the one hundred twenty (120)-day requirement in 64.2(4), construction of the approved system may commence immediately after the issuance of a construction permit.

64.2(6) The construction permit shall expire if construction thereunder is not commenced within one (1) year of the date of issuance thereof. The director may grant an extension of time to commence construction if it is necessary or justified, upon showing of such necessity or justification to the director.

64.2(7) The director may modify or revoke a construction permit for cause which shall include but not be limited to the following:

- a. Failure to construct said waste water disposal system or part thereof in accordance with the approved plans and specifications.
- b. Violation of any term or condition of the permit.
- c. Obtaining a permit by misrepresentation of facts or failure to disclose fully all material facts.
- d. Any change during construction that requires material changes in the approved plans and specifications.

64.2(8) A construction permit shall not be required for the following:

- a. Storm sewers that transport only surface water runoff.
- b. Any new disposal system or extension or addition to any existing disposal system that receives only domestic or sanitary sewage from a building, housing or occupied by fifteen (15) persons or less.

64.2(9) Review of applications.

a. Review of applications for construction permits shall be based on the criteria contained in the "Iowa Wastewater Facilities Design Standards", the Ten States Standards, applicable federal guidelines and standards, standard textbooks, current technical literature and applicable safety standards. To the extent of any conflict between the above criteria the "Iowa Wastewater Facilities Design Standards" standards shall prevail.

b. The chapters of the "Iowa Wastewater Facilities Design Standards"* that apply to wastewater facilities projects, and the date of adoption of those chapters are:

<u>Chapter</u>	<u>Date of Adoption</u>
11. Project submittals	April 25, 1979
12. Iowa Standards for Sewer Systems	September 6, 1978 (Amended March 28, 1979 and May 20, 1987)
13. Wastewater pumping stations and force mains	March 19, 1985
14. Wastewater treatment works	March 22, 1984 (Amended May 20, 1987)
15. Screening and grit removal	February 18, 1986
16. Settling	March 22, 1984 (Amended May 20, 1987)
17. Sludge handling & disposal	March 26, 1980

*The design manual as adopted and amended is available upon request to department, also filed with administrative rules coordinator.

- 18. Biological treatment
 - A. Fixed film media treatment
 - B. Activated sludge
 - C. Wastewater treatment ponds (Lagoons)
 - 19. Supplemental treatment processes
 - 20. Disinfection
 - 21. Land application of wastewater
- October 21, 1985
March 22, 1984
April 25, 1979
(Amended May 20, 1986
and May 20, 1987)
November 13, 1986
February 18, 1986
April 25, 1979

c. **Variances from the design standards and siting criteria which provide in the judgment of the department for substantially equivalent or improved effectiveness may be requested when there are unique circumstances not found in most projects. The director may issue variances when circumstances are appropriate. The denial of a variance may be appealed to the commission.

d. When reviewing the variance request the director may consider the unique circumstances of the project, direct or indirect environmental impacts, the durability and reliability of the alternative, and the purpose and intent of the rule or standard in question.

e. Circumstances that would warrant consideration of a variance (which provides for substantially equivalent or improved effectiveness) may include the following:

(1) The utilization of new equipment or new process technology that is not explicitly covered by the current design standards.

(2) The application of established and acceptable technologies in an innovative manner not covered by current standards.

(3) It is reasonably clear that the conditions and circumstances which were considered in the adoption of the rule or standard are not applicable for the project in question and therefore the effective purpose of the rule will not be compromised if a variance is granted.

64.2(10) Applications for sewer extension construction permits shall conform to the Iowa Standards for Sewer Systems, and approval shall be subject to the following:

a. In no case will construction permits be granted when the department determines that:

(1) The requested extension would be tributary to a sewer, lift station or sewage treatment facility which bypasses wastewater even though there was no rainfall or surface run-off due to melting snow within 48 hours prior to the bypassing.

(2) The treatment works' effluent has exceeded 150 mg/l BOD₅ at least once per month for four (4) months within the last twelve (12) months, when discharge occurred; or

(3) The treatment works' efficiency is less than twenty-five percent (25%) at least once per month for four (4) months within the last twelve (12) months when discharge occurred.

b. A sanitary sewer extension construction permit for a public treatment system constructed with grants offered before January 1, 1973, or under a construction permit issued before January 1, 1973, will be denied if, at the time of application:

(1) The treatment works' effluent has exceeded 100 mg/l BOD₅ at least once per month for four (4) months within the last twelve (12) months when discharge occurred; or

(2) The treatment works efficiency is less than fifty percent (50%) at least once per month for four (4) months within the last twelve (12) months when discharge occurred.

If the system is operating under a compliance schedule which is being adhered to, or the applicant can demonstrate that the problem has been identified, the planning completed, and corrective measures initiated, construction permits may be granted to serve not more than a cumulative total ten percent (10%) increase in population equivalent over the load existing at the time the violations of 64.2(10)"b"(1) or (2) were identified.

c. A sanitary sewer extension construction permit for a treatment system constructed with grant funds offered after December 31, 1972 or a public nongrant treatment system constructed under a construction permit issued after December 31, 1972 will be denied if, at the time of application, either of the following operation permit violations exist:

(1) Flow limitations have been exceeded at least once per month for more than four (4) months within the last twelve (12) months; or

(2) BOD₅ limitations have been exceeded at least once per month for more than four (4) months within the last twelve (12) months when discharge occurred.

If the applicant can show that the influent dry weather flow and influent dry weather BOD₅ do not exceed the plant design capacity and the system is operating under a compliance schedule which is being adhered to or the applicant can demonstrate that the problem has been identified, the planning completed, and corrective measures initiated, con-

**Effective date, 7/23/86, delayed seventy days by the administrative rules review committee. The seventy-day delay of effective date (7/23/86) was lifted by the administrative rules review committee on 7/31/86.

struction permits may be granted to increase the total load to not more than the design organic and dry weather hydraulic capacity of the treatment works.

d. A sanitary sewer extension construction permit for any public treatment system will be denied if bypassing has occurred at the treatment plant, except when any of the following conditions are being met:

- (1) The bypassing is due to a combined sewer system.
- (2) The bypassing occurs as a result of a storm with an intensity or duration greater than that of a storm with a return period of five years. (See App. A)*
- (3) The department determines that timely actions are being taken to correct the bypassing.

e. A sanitary sewer extension construction permit for any private treatment system will be denied if the effluent quality does not comply with chapter 62, unless the owner of the system agrees to a schedule which requires the treatment facility to be upgraded so that the effluent quality limitations will be met by the time the proposed sewer extension is connected.

f. A sanitary sewer extension construction permit will be denied if an existing downstream sewer is or will be overloaded or surcharged, resulting in bypassing, flooded basements, or overflowing manholes, unless:

- (1) The bypassing or flooding is the result of a precipitation event with an intensity or duration greater than that of a storm with a return period of two (2) years. (See App. A*); or
- (2) The system is under full-scale facility planning (I/I and SSES) or the applicant provides an acceptable schedule for rehabilitating the system to the extent necessary to handle the additional loadings.

g. Potential loads—Construction permits may be granted for sanitary sewer extensions that are sized to serve future loads that would exceed the capacity of the existing treatment works. However, initial connections shall be limited to the load that can be handled by the existing treatment works. The department will determine this load and advise the applicant of the limit. This limitation will be in effect until additional treatment capacity has been constructed.

64.2(11) Certification of completion. Within thirty (30) days after completion of construction, installation or modification of any wastewater disposal system or part thereof or extension or addition thereto, the permit holder shall submit a certification by a registered professional engineer that the project was completed in accordance with the approved plans and specifications.

567—64.3(455B) Permit to operate.

64.3(1) Except as provided otherwise in this subrule and in chapter 65, no person shall operate any wastewater disposal system or part thereof without, or contrary to any condition of, an operation permit issued by the director; nor shall the permittee of a system to which a sewer extension has been made under a construction permit limited pursuant to 64.2(10), paragraph "a," "b" or "f," allow a connection to such sewer extension in violation of any special limitation in such construction permit. An operation permit is not required for the following:

- a.* Private sewage disposal system which does not discharge into a water of the state.
- b.* A semipublic sewage disposal system, the construction of which has been approved by the department and which does not discharge into a water of the state.
- c.* Any discharge of sewage from vessels, effluent from properly functioning marine engines, laundry, shower, and galley sink wastes, or any other discharge incidental to the normal operation of a vessel: Provided, that this exclusion shall not be construed to apply to rubbish, trash, garbage, or other such materials discharged overboard; nor to discharges when the vessel is being used in a capacity other than as a means of transportation.

*See end of chapter for Appendix A.

d. Discharges to aquaculture projects as defined in 40 CFR §122.25(eff. 12-18-84).

e. Discharges of dredged or fill material into navigable waters which are regulated under section 404 of the Act.

f. Any discharge of pollutants directly to another waste disposal system for final treatment and disposal. (This exclusion applies only to the actual addition of materials into the subsequent treatment works. Plans or agreement to make such additions in the future do not relieve dischargers of the obligation to apply for and receive permits until the discharges of pollutants to navigable waters are actually eliminated. It also should be noted that, in all appropriate cases, pretreatment standards promulgated by the administrator pursuant to section 307(b) of the Act and adopted by reference by the commission and other pretreatment standards and requirements must be complied with.)

g. Any discharge in compliance with the instruction of an On-Scene Coordinator pursuant to 40 CFR Part 300 [The National Oil and Hazardous Substances Pollution Plan] or 33 CFR §153.10(e) [Pollution by Oil and Hazardous Substances].

h. Water pollution from agricultural and silvicultural activities, runoff from orchards, cultivated crops, pastures, range-lands, and forest lands, except that this exclusion shall not apply to the following:

(1) Discharges from concentrated aquatic animal production facilities as defined in 40 CFR §122.24 (eff. 12-18-84);

(2) Discharges from concentrated animal feeding operations as defined in 40 CFR §122.23 (eff. 12-18-84);

(3) Discharges from silvicultural point sources as defined in 40 CFR §122.27 (eff. 12-18-84).

i. Return flows from irrigated agriculture.

64.3(2) Rescinded, effective 2/20/85.

64.3(3) The owner of any disposal system or part thereof in existence before August 21, 1973 for which a permit has been previously granted by the Iowa department of health or the Iowa department of environmental quality shall submit such information as the director may require to determine the conformity of such system and its operation with the rules of the department by no later than sixty (60) days after the receipt of a request for such information from the director.

64.3(4) Applications for operation permits required under 64.3(1) and 64.3(2) must be made on forms provided by the department. The application for an operation permit under 64.3(1) shall be filed at least one hundred eighty (180) days prior to the date operation is scheduled to begin unless a shorter period of time is approved by the director. The director shall issue operation permits for applications filed pursuant to 64.3(1) within ninety (90) days of the receipt of a complete application unless the application is for an NPDES permit or unless a longer period of time is required and the applicant is so notified. The director may require the submission of additional information deemed necessary to evaluate the application. If the application is incomplete or otherwise deficient, processing of the application shall not be completed until such time as the applicant has supplied the missing information or otherwise corrected the deficiency.

64.3(5) *Requirements for industries that discharge to another disposal system.*

a. The director may require any person discharging wastes to a publicly or privately owned disposal system to submit information similar to that required in an application for an operation permit, but no operation permit is required for such discharge.

Major contributing industries must submit a treatment agreement which meets the following criteria:

(1) The agreement must be on a form provided by the department; and

(2) Must identify and limit the monthly average and the daily maximum quantity of compatible and incompatible pollutants discharged to the disposal system and the variations in daily flow; and

(3) Be signed by the industrial contributor and the owner of the disposal system accepting the wastewater; and

(4) Provide that the quantities to be discharged to the disposal system must be in accordance with the applicable standards and requirements in chapter 62.

b. A major contributing industry should submit a new treatment agreement form sixty (60) days in advance of a proposed expansion, production increase or process modification that may result in discharges of sewage, industrial waste, or other waste in excess of the discharge stated in the existing treatment agreement. An industry that would become a major contributing industry as a result of a proposed expansion, production increase or process modification should submit a treatment agreement form sixty (60) days in advance of the proposed expansion, production increase or process modification.

c. A treatment agreement form must be submitted at least one hundred eighty (180) days before a new major contributing industry proposes to discharge into a wastewater disposal system. The owner of a wastewater disposal system shall notify the director by submitting a complete treatment agreement to be received at least ten (10) days prior to making any commitment to accept waste from a proposed new major contributing industry. However, the department may notify the owner that verification of the data in the treatment agreement may take longer than ten (10) days and advise that the owner should not enter a commitment until the data is verified.

d. A treatment agreement form for each major contributing industry must be submitted with the facility plan or preliminary engineering report for the construction or modification of a wastewater disposal system. These agreements will be used in determining the design basis of the new or upgraded system.

e. Treatment agreement forms from major contributing industries shall be required as a part of the application for a permit to operate the wastewater disposal system receiving the wastes from the major contributing industry.

64.3(6) Rescinded, effective 7/23/86.

64.3(7) Operation permits may be granted for any period of time not to exceed five (5) years. Applications for renewal of an operation permit must be submitted to the department one hundred eighty (180) days in advance of the date the permit expires. Each permit to be renewed shall be subject to the provisions of all rules of the department in effect at the time of the renewal.

64.3(8) *Identity of signatories of operation permit applications.* The person who signs the application for an operation permit shall be:

a. *Corporations.* In the case of corporations, a principal executive officer of at least the level of vice-president.

b. *Partnerships.* In the case of a partnership, a general partner.

c. *Sole proprietorships.* In the case of a sole proprietorship, the proprietor.

d. *Public facilities.* In the case of a municipal, state, or other public facility, by either the principal executive officer, or the ranking elected official.

The person who signs NPDES reports shall be the same, except that in the case of a corporation or a public body, monitoring reports required under the terms of the permit may be submitted by the person who is responsible for the overall operation of the facility from which the discharge originates.

64.3(9) When necessary to comply with present standards which must be met at a future date, an operation permit shall include a schedule for the alteration of the permitted facility to meet said standards. Such schedules shall not relieve the permittee of the duty to obtain a construction permit pursuant to 64.2(455B). When necessary to comply with a pretreatment standard or requirement which must be met at a future date, a major contributing industry will be given a compliance schedule for meeting those requirements.

64.3(10) Operation permits shall contain such conditions as are deemed necessary by the director to assure compliance with all applicable rules of the department, including monitoring and reporting conditions, to protect the public health and beneficial uses of state waters, and to prevent water pollution from waste storage or disposal operations.

64.3(11) The director may modify, suspend or revoke in whole or in part any operation permit for cause. Cause for modification, suspension or revocation of a permit includes the following:

- a. Violation of any term or condition of the permit.
- b. Obtaining a permit by misrepresentation of fact or failure to disclose fully all material facts.
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.
- d. Failure to submit such records and information as the director shall require both generally and as a condition of the operation permit in order to assure compliance with the discharge conditions specified in the permit.
- e. Failure or refusal of an NPDES permittee to carry out the requirements of 64.6(5)“c.”

567—64.4(455B) Issuance of NPDES permits. If the administrator has approved the department's NPDES program, the director shall, when an operation permit expires and upon proper application, issue an NPDES permit in accordance with 64.5(455B) to 64.8(455B).

567—64.5(455B) Notice and public participation in the NPDES permit process.

64.5(1) Formulation of tentative determination and draft NPDES permit. The department shall make a tentative determination to issue or deny an NPDES permit for the discharge described in a Refuse Act or NPDES application in advance of the public notice of 64.5(2). If the tentative determination is to issue the NPDES permit, the department shall prepare a draft NPDES permit. The draft permit shall include the following:

- a. Effluent limitations identified pursuant to 64.6(2) and 64.6(3), for those pollutants proposed to be limited.
- b. If necessary, a proposed schedule of compliance, including interim dates and requirements, identified pursuant to 64.6(4), for meeting the effluent limitations and other permit requirements.
- c. Any other special conditions (other than those required in 64.6(5)) which will have a significant impact upon the discharge described in the NPDES application.

64.5(2) Public notice.

a. Prior to the issuance of an NPDES permit, public notice shall be circulated in a manner designed to inform interested and potentially interested persons of the proposed discharge and of the tentative determination to issue or deny an NPDES permit for the proposed discharge. Procedures for the circulation of public notice shall include at least the procedures of subparagraphs (1) to (3).

(1) The public notice shall be circulated by the applicant within the geographical areas of the proposed discharge by posting the public notice in the post office and public places of the city nearest the premises of the applicant in which the effluent source is located; by posting the public notice near the entrance to the applicant's premises and in nearby places; and by publishing the public notice in local newspapers and periodicals, or, if appropriate, in a newspaper of general circulation.

(2) The public notice shall be mailed by the department to any person upon request.

(3) Upon request the department shall add the name of any person or group to the mailing list, described in 4.2(455B), to receive copies of all public notices concerning proposed NPDES permits within the state or within a certain geographical area and shall mail a copy of all public notices to such persons.

b. The department shall provide a period of not less than thirty (30) days following the date of the public notice during which time interested persons may submit their written views on the tentative determinations with respect to the NPDES application. All written comments submitted during the thirty (30)-day comment period shall be retained by the department and considered by the director in the formulation of the director's final determinations with respect to the NPDES application. The period for comment may be extended at the discretion of the department.

c. The contents of the public notice of a proposed NPDES permit shall include at least the following:

- (1) The name, address, and phone number of the department.

- (2) The name and address of each applicant.
- (3) A brief description of each applicant's activities or operations which result in the discharge described in the NPDES application (e.g., municipal waste treatment plant, corn wet milling plant, or meat packing plant).
- (4) The name of the waterway to which each discharge of the applicant is made and a short description of the location of each discharge of the applicant on the waterway indicating whether such discharge is a new or an existing discharge.
- (5) A statement of the department's tentative determination to issue or deny an NPDES permit for the discharge or discharges described in the NPDES application.
- (6) A brief description of the procedures for the formulation of final determinations, including the thirty (30)-day comment period required by paragraph "b" of this subrule and any other means by which interested persons may influence or comment upon those determinations.
- (7) The address and phone number of places at which interested persons may obtain further information, request a copy of the draft permit prepared pursuant to 64.5(1), request a copy of the fact sheet, if any, described in 64.5(3) and inspect and copy NPDES forms and related documents.

64.5(3) Fact sheets.

a. For every discharge which has a total volume of more than 500,000 gallons on any day of the year, the department shall prepare and, upon request, shall send to any person a fact sheet with respect to the application described in the public notice. The contents of such fact sheets shall include at least the following information:

- (1) A sketch or detailed description of the location of the discharge described in the NPDES application.
- (2) A quantitative description of the discharge described in the NPDES application which includes at least the following: The rate or frequency of the proposed discharge (if the discharge is continuous, the average daily flow in gallons per day or million gallons per day.); For thermal discharges subject to limitation under the Act, the average summer and winter discharge temperatures in degrees Fahrenheit; the average daily discharge in pounds per day of any pollutants which are present in significant quantities or which are subject to limitations or prohibition under sections 301, 302, 306 or 307 of the Act and regulations published thereunder.

(3) The tentative determinations required under 64.5(1).

(4) A brief citation, including a brief identification of the uses for which the receiving waters have been classified, of the water quality standards applicable to the receiving waters and effluent standards and limitations applicable to the proposed discharge.

(5) A fuller description of the procedures for the formulation of final determinations than that given in the public notice including: The thirty (30)-day comment period required by 64.5(2); procedures for requesting a public hearing and the nature thereof; any other procedures by which the public may participate in the formulation of the final determinations.

b. Upon request the department shall add the name of any person or group to a mailing list, described in 4.2(455B), to receive copies of fact sheets and shall mail a copy of all fact sheets to such person.

64.5(4) Notice to other government agencies. Prior to the issuance of an NPDES permit, the department shall notify other appropriate government agencies of each complete application for an NPDES permit and shall provide such agencies an opportunity to submit their written views and recommendations. Procedures for such notification shall include the procedures of paragraphs "a" to "d."

a. At the time of issuance of public notice pursuant to 64.5(2), the department shall transmit the fact sheet, if any, to any other state whose waters may be affected by the issuance of the NPDES permit and, upon request, the department shall provide such state with a copy of the NPDES application and a copy of the proposed permit prepared pursuant to 64.5(1). Each affected state shall be afforded an opportunity to submit written recommen-

dations to the department and to the regional administrator which the director may incorporate into the permit if issued. Should the director fail to incorporate any written recommendation thus received, the director shall provide to the affected state or states and to the regional administrator a written explanation of the reasons for failing to accept any written recommendation.

b. At the time of issuance of public notice pursuant to 64.5(2), the department shall mail the public notice for proposed discharges (other than minor discharges) into navigable waters and the fact sheet, if any, to the appropriate district engineer of the army corps of engineers.

(1) The department and the district engineer for each corps of engineers district within the state may arrange for: Notice to the district engineer of minor discharges; waiver by the district engineer of the right to receive fact sheets with respect to classes, types, and sizes within any category of point sources and with respect to discharges to particular navigable waters or parts thereof; and any procedures for the transmission of forms, period of comment by the district engineer (e.g., thirty (30) days), and for objections of the district engineer.

(2) A copy of any written agreement between the department and a district engineer shall be forwarded to the regional administrator and shall be available to the public for inspection and copying in accordance with chapter 4.

c. Upon request the department shall mail the public notice and fact sheet, if any, to any other federal, state, or local agency or any affected country, and provide such agencies an opportunity to respond, comment, or request a public hearing pursuant to 64.5(6).

d. The department shall mail the public notice and fact sheet, if any, for any proposed NPDES permit within the geographical area of a designated and approved management agency under section 208 of the Act (33 U.S.C.1288).

e. The department shall mail the public notice and fact sheet, if any, to the local board of health for the purpose of assisting the applicant in coordinating the applicable requirements of the Act and chapter 455B of the Code with any applicable requirements of the local board of health.

64.5(5) Public access to NPDES information. The records of the department connected with NPDES permits are available for public inspection and copying to the extent provided in chapter 4.

64.5(6) Public hearings on proposed NPDES permits. The applicant, any affected state, the regional administrator, or any interested agency, person or group of persons may request or petition for a public hearing with respect to an NPDES application. Any such request shall clearly state issues and topics to be addressed at the hearing. Any such request or petition for public hearing must be filed with the director within the thirty (30)-day period prescribed in 64.5(2)"b" and shall indicate the interest of the party filing such request and the reasons why a hearing is warranted. The director shall hold an informal and noncontested case hearing if there is a significant public interest (including the filing of requests or petitions for such hearing) in holding such a hearing. Frivolous or insubstantial requests for hearing may be denied by the director. Instances of doubt should be resolved in favor of holding the hearing. Any hearing held pursuant to this subrule shall be held in the geographical area of the proposed discharge, or other appropriate area in the discretion of the director, and may, as appropriate, consider related groups of permit applications.

64.5(7) Public notice of public hearings.

a. Public notice of any hearing held pursuant to 64.5(6) shall be circulated at least as widely as was the notice of the NPDES application.

(1) Notice shall be published in at least one newspaper of general circulation within the geographical area of the discharge;

(2) Notice shall be sent to all persons and government agencies which received a copy of the notice or the fact sheet for the NPDES application;

(3) Notice shall be mailed to any person or group upon request; and

(4) Notice pursuant to subparagraphs (1) and (2) of this paragraph shall be made at least thirty (30) days in advance of the hearing.

b. The contents of public notice of any hearing held pursuant to 64.5(6) shall include at least the following:

- (1) The name, address, and phone number of the department;
- (2) The name and address of each applicant whose application will be considered at the hearing;
- (3) The name of the waterway to which each discharge is made and a short description of the location of each discharge on the waterway;
- (4) A brief reference to the public notice issued for each NPDES application, including identification number and date of issuance;
- (5) Information regarding the time and location for the hearing;
- (6) The purpose of the hearing;
- (7) A concise statement of the issues raised by the person requesting the hearing;
- (8) The address and phone number of the premises where interested persons may obtain further information, request a copy of the draft NPDES permit prepared pursuant to 64.5(1), request a copy of the fact sheet, if any, prepared pursuant to 64.5(3), and inspect and copy NPDES forms and related documents; and
- (9) A brief description of the nature of the hearing, including the rules and procedures to be followed.

567—64.6(455B) Terms and conditions of NPDES permits.

64.6(1) Prohibited discharges. No NPDES permit may authorize any of the discharges prohibited by 62.1(455B).

64.6(2) Application of effluent, pretreatment and water quality standards and other requirements. Each NPDES permit shall include any of the following that is applicable:

a. An effluent limitation guideline promulgated by the administrator under sections 301 and 304 of the Act and adopted by reference by the commission in 62.4(455B).

b. A standard of performance for a new source promulgated by the administrator under section 306 of the Act and adopted by reference by the commission in 62.4(455B).

c. An effluent standard, effluent prohibition or pretreatment standard promulgated by the administrator under section 307 of the Act and adopted by reference by the commission in 62.4(455B) or 62.5(455B).

d. A water quality related effluent limitation established by the administrator pursuant to section 302 of the Act.

e. Prior to promulgation by the administrator of applicable effluent and pretreatment standards under sections 301, 302, 306, and 307 of the Act, such conditions as the director determines are necessary to carry out the provisions of the Act.

f. Any other limitation, including those:

(1) Necessary to meet water quality standards, treatment or pretreatment standards, or schedules of compliance established pursuant to any Iowa law or regulation, or to implement the policy of nondegradation in 61.2(2); or

(2) Necessary to meet any other federal law or regulation; or

(3) Required to implement any applicable water quality standards; or

(4) Any legally applicable requirement necessary to implement total maximum daily loads established pursuant to section 303(d) of the Act and incorporated in the continuing planning process approved under section 303(e) of the Act and any regulations and guidelines issued pursuant thereto.

g. Any more stringent legally applicable requirements necessary to comply with a plan approved pursuant to section 208(b) of the Act.

In any case where a NPDES permit applies to effluent standards and limitations described in paragraphs "a," "b," "c," "d," "e," "f," or "g," the director must state that the dis-

charge authorized by the permit will not violate applicable water quality standards and must have prepared some verification of that statement. In any case where a NPDES permit applies any more stringent effluent limitation, described in subparagraph "f"(1), based upon applicable water quality standards, a waste load allocation must be prepared to ensure that the discharge authorized by the permit is consistent with applicable water quality standards.

64.6(3) Effluent limitations in issued NPDES permits. In the application of effluent standards, and limitations, water quality standards, and other legally applicable requirements, pursuant to 64.6(2), the director shall, for each issued NPDES permit, specify average and maximum daily quantitative limitations for the level of pollutants in the authorized discharge in terms of weight (except pH, temperature, radiation, and any other pollutants not appropriately expressed by weight). The director may, in addition to the specification of daily quantitative limitations by weight, specify other limitations such as average or maximum concentration limits, for the level of pollutants authorized in the discharge.

[COMMENT. The manner in which effluent limitations are expressed will depend upon the nature of the discharge. Continuous discharges shall be limited by daily loading figures and, where appropriate, may be limited as to concentration or discharge rate (e.g., for toxic or highly variable continuous discharges). Batch discharges should be more particularly described and limited in terms of (i) frequency (e.g., to occur not more than once every three weeks), (ii) total weight (e.g., not to exceed three hundred pounds per batch discharge), (iii) maximum rate of discharge of pollutants during the batch discharge (e.g., not to exceed two pounds per minute), and (iv) prohibition or limitation by weight, concentration, or other appropriate measure of specified pollutants (e.g., shall not contain at any time more than 0.1 ppm zinc or more than one-fourth pound of zinc in any batch discharge). Other intermittent discharges, such as recirculation blowdown, should be particularly limited to comply with any applicable water quality standards and effluent standards and limitations.]

64.6(4) Schedules of compliance in issued NPDES permits. The director shall follow the following procedure in setting schedules in NPDES permit conditions to achieve compliance with applicable effluent standards and limitations, water quality standards, and other legally applicable requirements:

a. With respect to any discharge which is not in compliance with applicable effluent standards and limitations, applicable water quality standards, or other legally applicable requirements listed in 64.6(2)"f" and 64.6(2)"g," the permittee shall be required to take specific steps to achieve compliance with: Applicable effluent standards and limitations; if more stringent, water quality standards; or if more stringent, legally applicable requirements listed in 64.6(2)"f" and 64.6(2)"g." In the absence of any legally applicable schedule of compliance, such steps shall be achieved in the shortest, reasonable period of time, such period to be consistent with the guidelines and requirements of the Act.

b. In any case where the period of time for compliance specified in paragraph "a" of this subrule exceeds nine (9) months, a schedule of compliance shall be specified in the permit which will set forth interim requirements and the dates for their achievement; in no event shall more than nine (9) months elapse between interim dates. If the time necessary for completion of the interim requirements (such as the construction of a treatment facility) is more than nine (9) months and is not readily divided into stages for completion, interim dates shall be specified for the submission of reports of progress towards completion of the interim requirement.

[COMMENT. Certain interim requirements such as the submission of preliminary or final plans often require less than 9 months and thus a shorter interval should be specified. Other requirements such as the construction of treatment facilities may require several years for completion and may not readily subdivide into nine-month intervals. Long-term interim requirements should nonetheless be subdivided into intervals not longer than nine months at which the permittee is required to report his progress to the director pursuant to 64.6(4)"c".]

c. Either before or up to fourteen (14) days following each interim date and the final date of compliance the permittee shall provide the department with written notice of the permittee's compliance or noncompliance with the interim or final requirement.

d. On the last day of the months of February, May, August, and November the director shall transmit to the regional administrator a list of all instances, as of thirty (30) days prior to the date of such report, of failure or refusal of a permittee to comply with an interim or final requirement or to notify the department of compliance or noncompliance with each interim or final requirement (as required pursuant to paragraph "b" of this subrule). Such list shall be available to the public for inspection and copying and shall contain at least the following information with respect to each instance of noncompliance:

(1) Name and address of each noncomplying permittee.

(2) A short description of each instance of noncompliance (e.g., failure to submit preliminary plans, two (2)-week delay in commencement of construction of treatment facility; failure to notify of compliance with interim requirement to complete construction by June 30th).

(3) A short description of any actions or proposed actions by the permittee to comply or by the director to enforce compliance with the interim or final requirement.

(4) Any details which tend to explain or mitigate an instance of noncompliance with an interim or final requirement (e.g., construction delayed due to materials shortage, plan approval delayed by objections).

e. If a permittee fails or refuses to comply with an interim or final requirement in an NPDES permit such noncompliance shall constitute a violation of the permit for which the director may, pursuant to chapters 7 and 60, modify, suspend or revoke the permit or take direct enforcement action.

64.6(5) Other terms and conditions of issued NPDES permits. Each issued NPDES permit shall provide for and assure the following:

a. That all discharges authorized by the NPDES permit shall be consistent with the terms and conditions of the permit; that facility expansions, production increases, or process modifications which result in new or increased discharges of pollutants must be reported by submission of a new NPDES application or, if such discharge does not violate effluent limitations specified in the NPDES permit, by submission to the director of notice of such new or increased discharges of pollutants; that the discharge of any pollutant more frequently than or at a level in excess of that identified and authorized by the permit shall constitute a violation of the terms and conditions of the permit;

b. That the permit may be modified, suspended or revoked in whole or in part for the causes provided in 64.3(11).

c. That the permittee shall permit the director or the director's authorized representative upon the presentation of credentials:

(1) To enter upon permittee's premises in which an effluent source is located or in which any records are required to be kept under terms and conditions of the permit;

(2) To have access to and copy any records required to be kept under terms and conditions of the permit;

(3) To inspect any monitoring equipment or method required in the permit; or.

(4) To sample any discharge of pollutants.

d. That, if the permit is for a discharge from a publicly owned treatment works, the permittee shall provide notice to the director of the following:

(1) One hundred and eighty (180) days in advance of any new introduction of pollutants into such treatment works from a source which would be a new source as defined in section 306 of the Act if such source were discharging pollutants;

(2) Except as specified below, one hundred and eighty (180) days in advance of any new introduction of pollutants into such treatment works from a source which would be subject to section 301 of the Act if such source were discharging pollutants. However, the connection of such a source need not be reported if the source contributes less than 50,000 gallons of wastewater per day at the maximum discharge, or less than five percent (5%) of the organic or hydraulic loading of the treatment facility, or does not contribute toxic materials that may

adversely affect the treatment process or any waste that may have an adverse or deleterious impact on the treatment process; and,

(3) Sixty (60) days in advance of any substantial change in volume or character of pollutants being introduced into such treatment works by a source introducing pollutants into such works at the time of issuance of the permit.

Such notice shall include information on the quality and quantity of effluent to be introduced into such treatment works and any anticipated impact of such change in the quantity or quality of effluent to be discharged from such publicly owned treatment works.

e. That, if the permit is for a discharge from a publicly owned treatment works, the permittee shall require any industrial user of such treatment works to comply with the requirements of sections 204(b), 307, and 308 of the Act. As a means of insuring such compliance, the permittee shall require that each industrial user subject to the requirements of section 307 of the Act give to the permittee periodic notice (over intervals not to exceed six (6) months) of progress towards full compliance with section 307 requirements. The permittee shall forward a copy of the notice to the director.

f. That the permittee at all times shall maintain in good working order and operate as efficiently as possible any facilities or systems of control to achieve compliance with the terms and conditions of the permit.

g. That if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under section 307(a) of the Act for a toxic pollutant which is present in the permittee's discharge and such standard or prohibition is more stringent than any limitation upon such pollutant in the NPDES permit, the director shall revise or modify the permit in accordance with the toxic effluent standard or prohibition and so notify the permittee.

h. If an applicant for an NPDES permit proposes to dispose of pollutants into wells as part of a program to meet the proposed terms and conditions of an NPDES permit, the director shall specify additional terms and conditions of the issued NPDES permit which shall prohibit the proposed disposal or control the proposed disposal in order to prevent pollution of ground and surface water resources and to protect the public health and welfare. (See rule 62.9(455B) which prohibits the disposal of pollutants, other than heat, into wells within Iowa.)

i. That the permittee shall take all reasonable steps to minimize or prevent any discharge in violation of the permit which has a reasonable likelihood of adversely affecting human health or the environment.

j. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the terms of this permit.

64.6(6) POTW compliance—plan of action required. The owner of a publicly owned treatment works (POTW) must prepare and implement a plan of action to achieve and maintain compliance with final effluent limitations in its NPDES permit, as specified below:

a. The director shall notify the owner of a POTW of the plan of action requirement, and of an opportunity to meet with department staff to discuss the plan of action requirements. The POTW owner shall submit a plan of action within six (6) months of such notice, unless a longer time is needed and is authorized in writing by the director.

b. The plan of action will vary in length and complexity depending on the compliance history and physical status of the particular POTW. It must identify the deficiencies and needs of the system, describe the causes of such deficiencies or needs, propose specific measures (including an implementation schedule) that will be taken to correct the deficiencies or meet the needs, and discuss the method of financing the improvements proposed in the plan of action.

The plan may provide for a phased construction approach to meet interim and final limitations, where financing is such that a long-term project is necessary to meet final limitations, and shorter-term projects may provide incremental benefits to water quality in the interim.

Information on the purpose and preparation of the plan can be found in the departmental

document entitled "Guidance on Preparing a Plan of Action", available through the records center of the department.

c. Upon submission of a complete plan of action to the department, the plan should be reviewed and approved or disapproved within sixty (60) days unless a longer time is required and the POTW owner is so notified.

d. The NPDES permit for the facility shall be amended to include the implementation schedule or other actions developed through the plan to achieve and maintain compliance.

This rule is intended to implement Iowa Code chapter 455B, division III, part 1, (455B.171 to 455B.187).

567—64.7(455B) Reissuance of NPDES permits.

64.7(1) Any state NPDES permittee who wishes to continue to discharge after the expiration date of the permit shall file an application for reissuance of the permit at least one hundred eighty (180) days prior to the expiration of the permit. The application may be a simple written request. However, the applicant for reissuance must submit or have submitted information to show:

a. That the permittee is in compliance or has substantially complied with all the terms, conditions, requirements and schedules of compliance of the expiring NPDES permit.

b. Up-to-date information on the permittee's production levels, permittee's waste treatment practices, nature, contents, and frequency of permittee's discharge.

c. That the discharge is consistent with applicable effluent standards and limitations, water quality standards and other legally applicable requirements listed in 64.6(2), including any additions to, or revision or modifications of such effluent standards and limitations, water quality standards, or other legally applicable requirements during the term of the permit.

64.7(2) The director shall follow the notice and public participation procedures specified in 64.5(455B) in connection with each request for reissuance of an NPDES permit.

64.7(3) Notwithstanding any other provision in these rules, any new point source the construction of which is commenced after the date of enactment of the Federal Water Pollution Control Act Amendments of 1972 (October 18, 1972) and which is so constructed as to meet all applicable standards of performance for new sources shall not be subject to any more stringent standard of performance during a ten (10)-year period beginning on the date of completion of such construction or during the period of depreciation or amortization of such facility for the purposes of section 167 or 169 (or both) of the Internal Revenue Code of 1954, as amended through December 31, 1976, whichever period ends first.

567—64.8(455B) Monitoring, recordkeeping and reporting by operation permit holders. Operation permit holders are subject to any applicable requirements specified in chapter 63 of these rules.

567—64.9(455B) Silvicultural activities. The following is adopted by reference: 40 CFR 122.27 as promulgated April 1, 1983 (48 FR 14153).

64.10 Rescinded, effective 7/23/86.

64.11 Rescinded, effective 11/16/83.

567—64.12(455B) Separate storm sewers. The following is adopted by reference: 40 CFR 122.26 as promulgated September 26, 1984 (49 FR 38050).

567—64.13(455B) Transfer of title. If title to any disposal system or part thereof for which a permit has been issued under 64.2(455B) or 64.3(455B) is transferred, the new owners shall be subject to all terms and conditions of said permit. Whenever title to a disposal system or part

thereof is changed, the department shall be notified of such change within thirty (30) days.

Rules 64.3 to 64.13 are intended to implement Iowa Code section 455B.173.

567—64.14(455B) Validity of rules. If any section, paragraph, sentence, clause, phrase or word of these rules, or any part thereof, be declared unconstitutional or invalid for any reason, the remainder of said rules shall not be affected thereby and shall remain in full force and effect.

567—64.15(455B) Applicability. This chapter shall apply to all waste disposal systems treating or intending to treat sewage, industrial waste, or other waste except waste resulting from livestock or poultry operations. All livestock and poultry operations constituting animal feeding operations as defined in chapter 65 of these rules shall be governed by the requirements contained in chapter 65. However, if an animal feeding operation is required to apply for and obtain an NPDES permit, the provisions of this chapter relating to notice and public participation, to the terms and conditions of the permit, to the reissuance of the permit and to monitoring, reporting and recordkeeping activities shall apply.

These rules are intended to implement Iowa Code chapter 455B, division III, part I.

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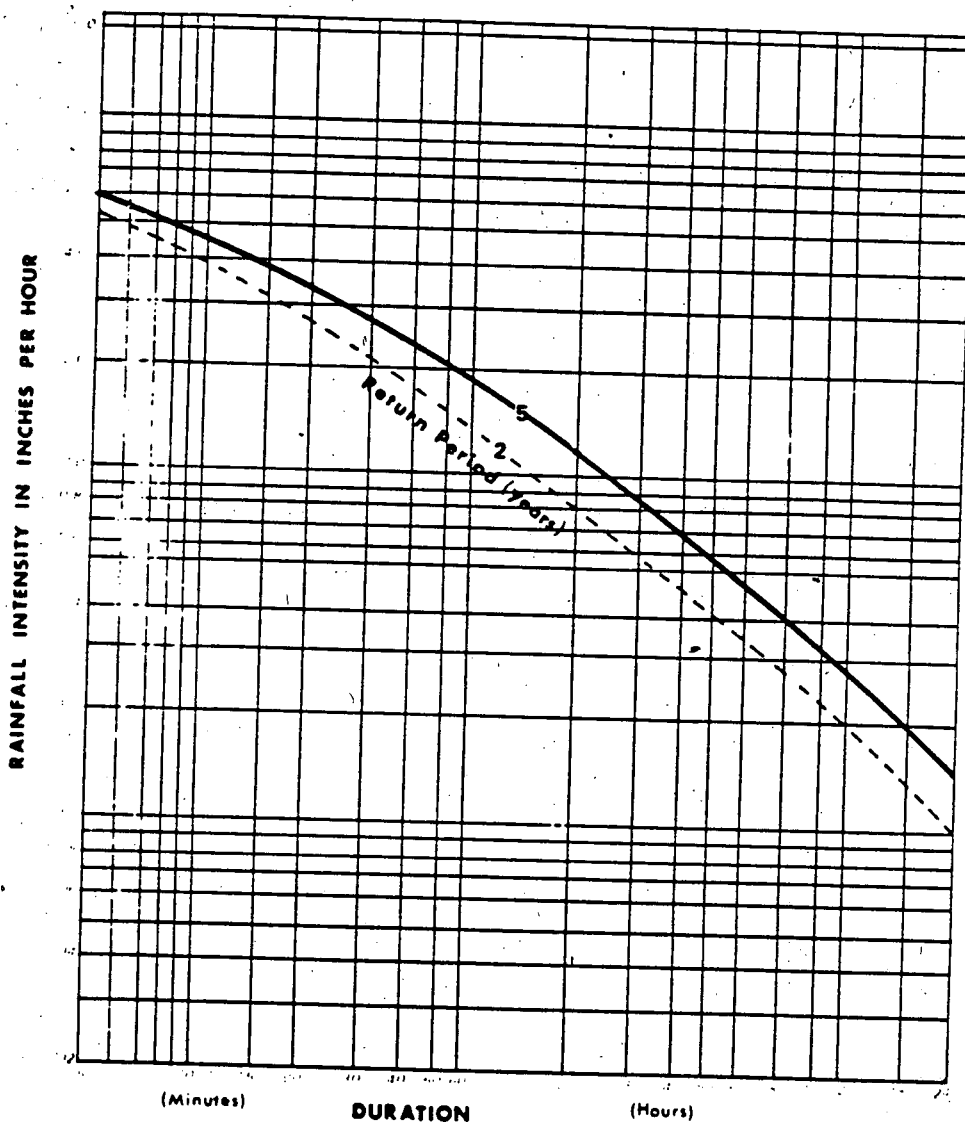
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*Effective date of 64.2(9)"c" delayed seventy days by the administrative rules committee. The seventy-day delay of effective date of 64.2(9)"c" was lifted by the administrative rules review committee on 7/31/86.

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Appendix A



TITLE VIII
SOLID WASTE MANAGEMENT AND DISPOSAL

CHAPTER 100

SCOPE OF TITLE — DEFINITIONS — FORMS — RULES OF PRACTICE

(Prior to 12/3/86, Water, Air and Waste Management(900))

567—100.1(455B,455D) **Scope of title.** The department has jurisdiction over the management, dumping, depositing, and disposal of solid waste by establishing standards for sanitary disposal projects and by regulating solid waste through a system of general rules and specific permits. The construction and operation of any sanitary disposal project requires a specific permit from the department.

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

Chapter 101 contains the general requirements relating to solid waste management and disposal. Chapter 102 pertains to the permits which must be obtained in order to construct and operate a sanitary disposal project. Chapter 103 details the plan and operating requirements for all sanitary landfills. Chapter 104 details the requirements for sanitary disposal projects with processing facilities. Chapter 105 sets forth the requirements for the planning and operation of all composting facilities. Chapter 106 pertains to design and operating requirements for recycling operations. Chapter 107 sets forth the rules pertaining to beverage container deposits and approval of redemption centers. Chapter 108 pertains to the reuse of solid waste. Chapter 109 contains the procedure for the assessment and collection of fees for the disposal of solid waste at sanitary landfills. Chapter 110 contains design, construction, and operation standards for solid waste management facilities. Chapter 118 governs removal and disposal of PCBs from white goods. Chapter 119 provides requirements for collection and disposal of waste oil. Title IX, Chapters 120 and 121 govern land application of sludge and other solid waste.

This rule is intended to implement Iowa Code section 455B.304 and Iowa Code Supplement chapter 455D.

567—100.2(455B,455D) **Definitions.** For the purpose of this title, the following terms shall have the meaning indicated in this chapter. The definitions set out in Iowa Code section 455B.301, shall be considered to be incorporated verbatim in these rules.

"Annular space" means the open space formed between the borehole and the well casing.

"Aquifer" means a saturated geologic formation or combination of formations which has appreciably greater ability to transmit water than do adjacent formations. Typically, an aquifer is capable of yielding usable quantities of water to a well.

"Attendant" means an employee of a sanitary disposal project who is not employed or assigned to operate the equipment used on the site.

"Commission" means the environmental protection commission.

"Compost" means organic material resulting from biological decomposition of waste which can be used as a soil conditioner or soil amendment.

"Composting" means the controlled, biological decomposition of selected solid organic waste materials under aerobic conditions resulting in an innocuous final product.

"Confined aquifer" means an aquifer with a confining bed above and below. Water in a confined aquifer is under pressure such that water rises above the top of the aquifer in a well which penetrates the aquifer.

"Confining bed" means a geologic formation exhibiting relatively low ability to transmit water compared to adjacent formations. Confining beds are typically not capable of yielding usable quantities of water to a well.

"Construction and demolition waste" means waste building materials including wood, metals and rubble which result from construction or demolition of structures. Such waste shall also include trees.



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"Construction and demolition waste disposal site" means a sanitary landfill which accepts only construction and demolition wastes.

"Department" means the Iowa department of natural resources.

"Downgradient" means direction of decreasing hydraulic head.

"Downgradient well" means a well which has been installed downgradient of the site and is capable of detecting the migration of contaminants from the site.

"FAA certified airport" means an airport serving air carriers certified by the Civil Aeronautics Board that has been issued an airport operating certificate from the Administrator of the Federal Aviation Administration pursuant to section 612 of the Federal Aviation Act, 49 U.S.C. §1432, and 49 C.F.R. part 139. (Note: This definition includes the municipal airports in or near Iowa as follows: Moline, Illinois; Omaha, Nebraska; and Burlington, Cedar Rapids, Des Moines, Dubuque, Fort Dodge, Mason City, Ottumwa, Sioux City, and Waterloo, Iowa.)

"Firewood processing facilities" means facilities which process or allow the public to process trees into firewood.

"Flood plain" means the area adjoining a river or stream which has been or may be hereafter covered by flood water.

"Free liquid" means the liquid produced when a 100-milliliter or 100-gram representative sample is placed on a standard mesh number 60 (fine mesh size) conical paint filter for five minutes. Method 9095 EPA SW 846.

"Garbage" means all solid and semisolid, putrescible animal and vegetable wastes resulting from the handling, preparing, cooking, storing, serving and consuming of food or of material intended for use as food, and all offal, excluding useful industrial byproducts, and shall include all such substances from all public and private establishments and from all residences.

"Geologic cross section" means a drawing of a subsurface profile showing the various strata encountered based on at least three soil borings.

"Groundwater flow path" means the route of water (and contaminant) travel within the groundwater system.

"High water table" is the position of the water table which occurs in the spring in years of normal or above normal precipitation.

"Hydraulic head" means the energy contained at a point in the groundwater system. Hydraulic head is measured as the elevation to which water rises in a piezometer.

"Incineration" means the processing and burning of waste for the purpose of volume and weight reduction in facilities designed for such use.

"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.

"Landfill property" means the entire area of the landfill including the disposal site and any other contiguous property proposed for actual landfill use.

"Land pollution" means the presence in or on the land of any solid waste in such quantity, of such nature and for such duration and under such condition as would affect injuriously any waters of the state, cause air pollution or create a nuisance.

"Leachate" means a liquid that has percolated through or drained from a solid waste landfill.

"Local governments" means those counties or municipalities using the sanitary disposal project.

"Mean" is the sum of all the measurements divided by the number of measurements.

"Monitoring well" means any well installed solely for the sampling of groundwater quality at a given location and depth and constructed in a manner approved by the department.

"Open burning" means any burning of combustible materials where the products of combustion are emitted into the open air without passing through a chimney or stack.

"Open dump" means any exposed accumulation of solid waste at a site other than a sanitary disposal project operating under a permit from the department.

"Open dumping" means the depositing of solid wastes on the surface of the ground or into a body or stream of water.

"Operating area" means the immediate portion of a sanitary disposal project used for unloading and handling of solid waste to prepare it for processing or final disposal.

"Operator" means an employee of the sanitary disposal project who is employed assigned to operate the equipment used on the site.

"Perched saturated zone" is a localized saturated zone occurring above the regional zone of saturation. The perched saturated zone's presence is caused by a lens of relatively impermeable material within the unsaturated zone that impedes the downward movement of water toward the zone of saturation.

"Piezometers" are devices used to measure hydraulic head at a specific point in the ground-water system. Piezometers are generally small diameter wells sealed along the entire length and open to water only at the bottom through a short section of well screen, which is the point where hydraulic head is measured. A piezometer may be constructed similar to a monitoring well or may be a driven well point.

"Planning area" means the localities and facilities involved in any aspect of the sanitary disposal project(s) management of waste, including out-of-state localities and facilities, if applicable. A planning area may include one or more sanitary disposal projects.

"Potentiometric surface" is the imaginary surface that represents the level to which water from an aquifer (confined or unconfined) will rise in wells.

"Private agency" is defined in Iowa Code section 28E.2.

"Processing facility" means the site and equipment for the preliminary and incomplete disposal of solid waste, including but not limited to transfer, open burning, incomplete land disposal, incineration, composting, reduction, shredding and compression.

"Public agency" is defined in Iowa Code section 28E.2.

"Public water supply system" means a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Such term includes: (1) Any collection, treatment, storage, and distribution facilities under control of the supplier of water and used primarily in connection with such system, and (2) any collection (including wells) or pretreatment storage facilities not under such control which are used primarily in connection with such supply system. A public water supply system is either a "community water system" or a "noncommunity water system."

a. **"Community water system"** means a public water supply system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

b. **"Noncommunity water system"** means a public water supply system that is not a community water system.

"Recycling" means any process by which waste or materials which otherwise become waste are collected, separated, or processed and reused or returned to use in the form of raw materials or products. Recycling includes, but is not limited to, the composting of yard waste which has been previously separated from other waste and collected by the sanitary facility, but does not include any form of energy recovery.

"Refuse" means putrescible and nonputrescible wastes including but not limited to garbage, rubbish, ashes, incinerator ash, incinerator residues, street cleanings, market and industrial solid wastes and sewage treatment wastes in dry or semisolid form.

"Refuse collection service" means a publicly or privately operated agency, business or service engaged in the collecting and transporting of solid waste for disposal purposes.

"Rubbish" means nonputrescible solid waste consisting of combustible and noncombustible wastes, such as ashes, paper, cardboard, tin cans, yard clippings, wood, glass, bedding, crockery or litter of any kind.

"Rubble" means stone, brick or similar inorganic material.

"Salvageable material" means discarded material no longer of value for its original purpose but which has value if reclaimed.

"*Salvaging*" means the systematic removal of salvageable material in a formal and orderly manner as a part of the normal operating procedure of a sanitary disposal project.

"*Sanitary disposal*" means a method of treating solid waste so that it does not produce a hazard to the public health or safety or create a nuisance.

"*Sanitary disposal project*" is defined in Iowa Code section 455B.301.

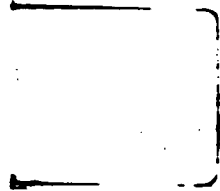
"*Sanitary landfill*" means a method of disposing of solid waste on land by utilizing the principles of engineering to confine the solid waste to the smallest practical volume and to cover it with a layer of earth so that no nuisance or hazard to the public health is created.

"*Sanitary landfill operator*" means an individual having active, daily, on-site responsibility for day-to-day operation of a department-permitted sanitary landfill. This individual must also have the authority to turn waste away at the gate when the waste is considered unacceptable.

"*Scavenging*" means the uncontrolled removal of materials from the unloading or working area of a sanitary disposal project.

"*Shelby tube*" is a thin-walled, seamless steel tube with a sharp cutting edge which is used to obtain undisturbed samples of cohesive or moderately cohesive soils (silts and clays).

"*Shoreland*" means land within 300 feet of the high water mark of any natural or artificial, publicly or privately owned lake or any impoundment of water used as a source of public water supply.



"Site" means any location, place or tract of land used for collection, storage, conversion, utilization, incineration or landfilling of solid waste, to include the landfill area, nonfill work areas, borrow areas plus a 100-foot wide perimeter surrounding the working areas or the property line if it is closer than 100 feet to the working areas.

"Sludge" means any solid, semisolid, or liquid waste generated from a municipal, 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.

"Soil boring" means a hole drilled or driven into the subsurface for the purpose of determining subsurface characteristics.

"Solid waste" is defined in Iowa Code section 455B.301.

"Solid waste collection" means the gathering of solid waste from public and private places.

"Solid waste incinerator operator" means an individual with active, daily, on-site responsibility for day-to-day operation of a department-permitted solid waste incinerator. This individual must also have the authority to turn waste away when it has been determined to be unacceptable.

"Solid waste storage" means the holding of solid waste pending intermediate or final disposal.

"Solid waste transportation" means the conveying of solid waste from one place to another by means of vehicle, rail car, water vessel, conveyor or other means.

"Specific yield" is the ratio of the volume of water that a given mass of saturated rock or soil will yield by gravity to the volume of that mass. This ratio is stated as a percentage.

"Split spoon sampler" means a device used in conjunction with a drilling rig to obtain core samples from unconsolidated strata.

"Stabilized sewage sludge" means sludge from wastewater treatment facilities 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.)

"Standard deviation" means the square root of the variance.

"Storage coefficient" is the volume of water an aquifer releases from or takes into storage per unit surface area of aquifer per unit change in head.

"Toxic and hazardous wastes" means waste materials, including but not limited to poisons, pesticides, herbicides, acids, caustics, pathological wastes, flammable or explosive materials and similar harmful wastes which require special handling and which must be disposed of in such a manner as to conserve the environment and protect the public health and safety.

"Transfer station" means a fixed or mobile intermediate solid waste disposal facility transferring loads of solid waste, with or without reduction of volume, to another transportation unit.

"Transmissivity" is the rate at which water is transmitted through a unit width of an aquifer under a unit hydraulic gradient.

"Tree chipping facilities" means facilities which chip trees and brush for the purpose of mulch production.

"Trees" means trunks, limbs, stumps, or branches from trees or shrubs and untreated, uncoated, chemically unchanged wood wastes. This shall not include wood products which are part of an otherwise defined waste or have been contaminated by coatings, treatments or metals.

"Tremie tube" means a pipe used to fill the annular space in a well from the bottom up.

"Unconfined aquifer" means an aquifer which does not have a confining bed above it. The level of water in a well in an unconfined aquifer is below the top of the aquifer formation.

"Unsaturated zone" is the subsurface zone above the water table in which the interstitial spaces are only partially filled with water.

"Unstabilized sewage sludge" means sludge from wastewater treatment facilities which is not treated to remove pathogens.

"*Upgradient*" means direction of increasing hydraulic head.

"*Upgradient well*" means a well which is capable of yielding groundwater samples that are representative of regional conditions and are not affected by the landfill site. Such a well is typically placed upgradient of the site, if possible, and, if not, is placed in an upgradient direction and as near the site as feasible.

"*Variance*" means the sum of the squared differences between the actual measurement and the mean divided by one less than the number of measurements.

"*Waste reduction*" means practices which reduce, avoid, or eliminate both the generation of solid waste and the use of toxic materials so as to reduce risks to health and the environment and to avoid, reduce or eliminate the generation of wastes or environmental pollution at the source and not merely achieved by shifting a waste output or waste stream from one environmental medium to another environmental medium. Waste reduction includes, but is not limited to, home yard waste composting, which prevents yard waste from entering the waste stream.

"*Water table*" means the water surface below the ground at which the unsaturated zone ends and the saturated zone begins.

"*Yard waste*" means debris such as grass clippings, leaves, garden waste, brush and trees. Yard waste does not include tree stumps.

"*Zone of saturation*" is the subsurface zone below the water table in which the interstitial spaces are completely filled with water.

This rule is intended to implement Iowa Code section 455B.304 and Iowa Code Supplement chapter 455D.

567—100.3(17A.455B) Forms and rules of practice.

100.3(1) Applications for permits and renewals. Any private or public person or agency desiring to secure any permit or renewal of a permit provided for in Iowa Code chapter 455B, division IV, part I, or the rules promulgated pursuant thereto, shall file a properly completed application with the program operations division of the department.

a. 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 solid waste disposal rules. Application forms may be obtained from:

Administrative Support Station
Environmental Protection 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 on the form. Where not specified in the instructions, forms should be submitted to the Solid Waste Section.

b. Application for the following permits or renewals shall be made in triplicate on the forms indicated:

- (1) A sanitary disposal project permit pursuant to Iowa Code section 455B.305 — Form 43. 542-3199
- (2) A temporary permit pursuant to Iowa Code subsection 455B.307(1) — Form 44. 542-1012
- (3) A renewal of a sanitary disposal project permit pursuant to subrule 102.2(1) — Form 45. 542-3208

c. It is strongly recommended that applicants contact the department before engineering plans are drafted, to ensure that the requirements of the rules are understood and to discuss any special problems of the proposed project.

100.3(2) *Industrial sludge and toxic and hazardous waste disposal instructions.* Requests for special waste authorizations instructions for the disposal of hazardous or toxic waste, as required by 102.14(2) shall be submitted to:

Administrative Support Station
Environmental Protection Division
Iowa Department of Natural Resources
Henry A. Wallace Building
900 East Grand
Des Moines, Iowa 50319

a. Requests shall be made by submitting Form 46 (542-3216) "Request for Special Waste Authorization" accompanied by supporting data as deemed necessary by the department. In case of emergency, instructions may be obtained by telephone by calling 515/281-8692. In those limited circumstances when the waste is unused commercial product in the original container which has attached legible labels and there is a reasonable certainty that the label accurately represents the contents of the container the owner of this waste need only submit a Waste Disposal of Commercial Products Only form, Form 47 (542-3148).

b. Requests, whether written or oral, shall include the following information: Chemical composition of the waste, physical form of the waste, volume of the waste to be disposed, any problems associated with any toxic or hazardous component of the waste, and any other information deemed necessary by the department.

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[Filed 2/19/88, Notice 11/18/87—published 3/9/88, effective 4/13/88]

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**CHAPTER 101
GENERAL REQUIREMENTS RELATING TO SOLID WASTE MANAGEMENT
AND DISPOSAL**

(Prior to 7-1-83, DEO Ch 26)

(Prior to 12-3-86, Water, Air and Waste Management (900))

567—101.1(455B.455D) Compliance. All solid waste shall be stored, collected, transported, utilized, processed, reclaimed or disposed of in a manner consistent with requirements of Chapters 100 to 129.

This rule is intended to implement Iowa Code section 455B.304 and Iowa Code Supplement chapter 455D.

567—101.2(455B) Variances. The director may issue, modify, or deny variances from the rules in this title. The applicant may appeal the decision of the director to the commission.

This rule is intended to implement Iowa Code section 455B.303.

567—101.3(455B) General conditions of solid waste disposal. Except as provided otherwise in Chapters 100 to 121, a private or public agency shall not dump or deposit or permit the dumping or depositing of any solid waste at any place other than a sanitary disposal project approved by the director, or pursuant to a permit granted by the department which allows the disposal of solid waste on land owned or leased by the agency.

101.3(1) Special requirements for farm waste, farm buildings, and dead animals. For the purposes of this subrule:

"Farm animals" means cattle, swine, sheep or lambs, horses, turkeys, chickens and other domestic animals;

"Farm buildings" means barns, machine sheds, storage cribs, animal confinement buildings, and homes located on the premises and used in conjunction with crop production, livestock or poultry raising and feeding operations; and

"Farm waste" means machinery, vehicles and equipment used in conjunction with crop production, livestock or poultry raising and feeding operations, trees, brush and grubbed stumps generated on the same property, or the ashes from the burning thereof, but specifically does not include agricultural chemicals, fertilizers or manures, or domestic household wastes.

a. A private agency may dispose of farm waste and farm buildings without first having obtained a sanitary disposal project permit, in accordance with paragraph 101.3(1)"c," provided that:

(1) The farm waste was owned by the private agency and was used on the premises where disposal occurs.

(2) Prior to disposal of vehicles, machinery, and equipment, all fluids shall be drained, including motor oils, motor fuels, lubricating fluids, coolants and solvents, and agricultural chemicals; and all batteries and rubber tires shall be removed.

(3) Prior to disposal of storage or feeding equipment, the equipment shall be emptied of all contents not otherwise authorized for burial pursuant to these rules.

(4) Farm buildings have been emptied of contents not otherwise authorized for burial pursuant to these rules and have been buried on the premises where they were located.

(5) All materials drained or removed from farm waste or farm buildings prior to disposal shall be recycled, reused or disposed of in accordance with Iowa Code chapter 455B and rules implementing that chapter.

(6) The farm waste and farm buildings are buried in soils listed in tables contained in the county soil surveys and soil interpretation records (published by the U.S. Soil Conservation Service) as being moderately well drained, well drained, somewhat excessively drained, and excessively drained soils. Other soils may be used if artificial drainage is installed to obtain a water level depth more than two feet below the burial depth of the waste.

(7) The lowest elevation of the burial pit is 6 feet or less below the surface.

(8) The farm waste and farm buildings are immediately covered with a minimum of 6 inches of soil and finally covered with a total minimum of 24 inches of soil.

b. A private agency may dispose of dead farm animals without first having obtained a sanitary disposal project permit, provided that the disposal is in accordance with paragraph 101.3(1)"c," rules of the department of agriculture and land stewardship, and

(1) The dead animals result from operations located on the premises where disposal occurs.

(2) A maximum loading rate of 7 slaughter and feeder cattle, 44 swine, butcher and breeding, 73 sheep or lambs or 400 poultry carcasses on any given acre per year. All other species will be limited to 2 carcasses per acre. Animals which die within two months of birth may be buried without regard to number.

(3) The dead animals are buried in soils listed in tables contained in the county soil surveys and soil interpretation records (published by the U.S. Soil Conservation Service) as being moderately well drained, well drained, somewhat excessively drained, and excessively drained soils. Other soils may be used if artificial drainage is installed to obtain a water level depth more than two feet below the burial depth of carcasses.

(4) The lowest elevation of the burial pit is 6 feet or less below the surface.

(5) The dead animals are immediately covered with a minimum of 6 inches of soil and finally covered with a minimum of 30 inches of soil.

c. Farm waste, farm buildings, and dead farm animals must be disposed of in accordance with the following separation distances:

(1) At least 100 feet from any private and 200 feet from any public well which is being used or would be used without major renovation for domestic purposes.

(2) At least 50 feet from adjacent property line.

(3) At least 500 feet from existing neighboring residence.

(4) More than 100 feet from any body of surface water such as a stream, lake, pond, or intermittent stream, except as provided in (6) below.

(5) Outside the boundaries of a flood plain, wetland, or shoreline area, except as provided in (6) below.

(6) Trees, brush and grubbed stumps generated as a result of clearing, snagging, maintenance or repair of drainage ditches or outlets may be buried within 100 feet of a surface water, and within a floodplain or shoreline area.

101.3(2) Reserved.

This rule is intended to implement Iowa Code section 455B.304.

567—101.4(455B,455D) Duties of cities and counties. Every city and county of this state shall provide for the establishment and operation of a comprehensive solid waste reduction program consistent with the waste management hierarchy under 101.5(5)"a" and a sanitary disposal project for final disposal of solid waste by its residents. Comprehensive programs and sanitary disposal projects may be established separately or through cooperative efforts, including Iowa Code chapter 28E agreements and interstate efforts, for the joint use of participating public agencies as provided by law.

All cities and counties or Iowa Code chapter 28E agencies representing cities and counties shall file with the director a comprehensive plan detailing the method by which the city or county or 28E agency will comply with the requirements to establish and implement a comprehensive solid waste reduction program for its residents. If the city or county or 28E agency does not participate in the preparation of a regional comprehensive plan, then the city or county or 28E agency must file a comprehensive plan separately.

If a city or county facility refuses any particular solid waste type, with the exception of special waste authorizations, it must identify another waste management facility for that waste within that planning area. If no other waste management facility for the waste type exists within the planning area, the city or county must establish one or arrange by contract to establish access to one.

This rule is intended to implement Iowa Code section 455B.304 and Iowa Code Supplement chapter 455D.

567—101.5(455B,455D) Comprehensive plans. Cities, counties and private agencies operating or planning to operate a sanitary disposal project after July 1, 1988, shall, in conjunction with all local governments using the sanitary disposal project, file a comprehensive plan with the director either prior to or at the time of application for issuance, renewal or reissuance of a sanitary disposal project permit. At a minimum, the plan shall be updated and refiled with the department at the time of each subsequent application for issuance, renewal, or reissuance of a sanitary disposal project permit. The department may require filing and updating a plan at other times. The department shall act to coordinate and expedite planning activities for multicounty areas where feasible.

101.5(1) Comprehensive planning purpose. The purpose of a comprehensive plan submitted according to subrules 101.5(2), 101.5(5), 101.5(6), and 101.5(7) is the development of a specific plan and schedule for implementing technically and economically feasible solid waste management methods that will prevent or minimize adverse environmental impacts.

101.5(2) State volume reduction and recycling goals. The goal of the comprehensive plan of each planning area of the state is to reduce the amount of materials in the waste stream, existing as of July 1, 1988, 25 percent by July 1, 1994, and 50 percent by July 1, 2000, through the practice of waste volume reduction at the source and through recycling.

101.5(3) Evidence of cooperation. When a comprehensive plan is submitted to the department, it must be accompanied by a letter or letters from all local governments using or planning to use the sanitary disposal project. The letter shall include a statement that the governmental body has reviewed the plan and will adopt the implementation plan and schedule contained in the plan. The letter shall briefly summarize the implementation plan and schedule.

If a local government included in the planning area refuses to provide a letter, then that local government must prepare its own plan and is no longer considered to be in the original planning area. In such cases, the original plan may still be approved, but it must include a brief addendum stating the effect of the change on the waste stream.

101.5(4) Content of a comprehensive plan. In fulfillment of the requirements of Iowa Code sections 455B.306(3), 455B.301A, and Iowa Code Supplement chapter 455D, a comprehensive plan or revision to a comprehensive plan shall include the following information:

a. A description of the planning area and the public and private agencies involved, including a description of each agency's role in managing solid waste generated in the area. Prior to waste being received from, disposed of, or otherwise managed on an ongoing basis outside of the delineated planning area, an amendment to the plan is required before the waste may be managed. All out-of-state localities that use permitted facilities in any Iowa planning area are subject to the same comprehensive planning rules (IAC Chapter 101) as Iowa localities;

b. A description of past local and regional planning activities;

c. A report of the waste stream as of July 1, 1988, in total tons per year and in per capita tons per year. The information may be based on tonnage figures as reported in surcharge tax reports, plus any incinerated waste. This baseline data will be used to demonstrate progress toward meeting the state volume reduction and recycling goals pursuant to subrule 101.5(2). Changes in population, employment, or industrial production shall not be used to demonstrate progress or to justify lack of progress toward meeting state volume reduction and recycling goals. Any such changes shall be documented in the plan;

d. A description of the current and projected 20-year waste composition and waste generation rates, including a listing of industrial and commercial generators in the area;

e. A description of the existing waste management system, its capacity, disposal costs per ton, projected 20-year disposal costs, and any financial assurance that may be required by the department, pursuant to Iowa Code section 455B.304;

f. An analysis of alternative waste management systems according to the state's waste management hierarchy;

g. A description of the proposed waste management system for the planning area based upon the results of the alternatives analysis;

h. A specific plan and schedule for fully implementing the comprehensive plan no later than July 1, 1997; and

i. A description of the methods of financing to be used.

A guidance document describing in more detail the content of a comprehensive plan, part I, is available from the records center of the department at (515) 281-8860. The document title is "Guidelines for Solid Waste Comprehensive Plans, Part I: Waste Management Alternatives" July 1, 1990.

101.5(5) Alternatives analysis.

a. Alternative solid waste management systems shall be evaluated according to the following waste management hierarchy, listed in descending order of preference:

- (1) Volume reduction at the source,
- (2) Recycling and reuse,
- (3) Combustion with energy recovery,
- (4) Combustion for volume reduction,
- (5) Landfilling.

b. A complete analysis of alternatives shall include at a minimum:

(1) A detailed description of a public participation and education program for source reduction and recycling by residences, farms, businesses, and industries. The waste management authority division of the Iowa department of natural resources may be contacted for assistance with public education strategies and materials. The public education program must address, at a minimum, household hazardous materials, tires, motor oil, lead-acid batteries, backyard composting, and methods of materials separation and recycling. Public education strategies, estimated costs, and materials must be described fully in the plan. Strategies must include, but not be limited to, public meetings during the planning and implementation stages and other forms of information dissemination, such as workshops and advertisements. Timelines and a budget for public education activities must be included in the plan.

(2) Details of a local recycling program which shall contain a specific methodology for meeting the state volume reduction and recycling goals pursuant to subrule 101.5(2) and a methodology for implementing a program of separation of wastes including, but not limited to, glass, plastic, paper, and metal. The methodologies must include, but not be limited to:

1. Public education strategies;
2. Public education materials;
3. A specific description of recycling activities already in place, including the names of groups conducting the activities;
4. The names of any local groups that will be involved in any recycling programs in the planning area;
5. Letters from those local groups stating the nature of their present or planned involvement in the recycling program(s) described in the plan;
6. Identification of possible markets and estimated prices for each material including, but not limited to, glass, plastic, paper, and metal;
7. A detailed timeline which identifies yearly waste reduction and recycling goals and milestones for each phase of the program(s): planning, implementation, and evaluation.

(3) An examination of the following waste items for their existing and potential recyclability, including an identification of available markets: motor oil, waste tires, lead-acid batteries, household batteries, plastics, newspapers, corrugated cardboard, textiles, office paper, construction materials, aluminum and steel cans, colored and clear glass, yard waste, animal wastes and other organic wastes, and white goods.

1. For motor oil, the examination shall also include:

- Specific locations of collection sites in the planning area for those who change their own oil. If no sites exist within the planning area, the plan must identify the nearest collection site(s) to the planning area.

- A description of public education strategies.

- Other requirements as specified in Chapter 119.

2. For lead-acid batteries, the examination shall also include a description of public education strategies, as detailed in 101.5(5) "b"(1).
3. For white goods, the examination shall also include a methodology for recycling the metal they contain. If capacitors are removed from white goods at a sanitary disposal project, the materials must be handled in accordance with Chapter 118.
4. For waste tires, the examination shall also include:
 - The number and geographic distribution of waste tires generated and existing in the planning area, including identification of stockpiles containing over 1,000 waste tires.
 - The identification of any management methods for waste tires in the planning area.
 - If a sanitary disposal project in the planning area accepts tires, then the plan must include a methodology for processing the tires in a manner established by the department.
- (4) Detailed descriptions of programs developed to encourage backyard composting of yard waste, to investigate the feasibility of central composting facilities that will, at a minimum, include yard waste composting, and to investigate the use of land application of yard waste or the use of yard waste as a soil conditioning material. These programs must include public education elements as detailed in subrule 101.5(5) "b"(2) and identification of markets or outlets for any compost generated at a central composting facility. In addition, any compost generated at a centralized facility must be produced in accordance with standards established by the department.
- (5) Investigation of market potential for energy recovery from waste incineration. If incineration for energy recovery or volume reduction is an alternative, then the plan must include methodologies for the separation of recyclable and reusable materials, materials which result in uncontrolled toxic or hazardous air emissions when burned, and hazardous or toxic materials which are not rendered nonhazardous or nontoxic by incineration. Separation of waste includes, but is not limited to, magnetic separation. The removed materials shall be recycled, reused or treated and disposed of in a manner that is consistent with the waste management hierarchy as described in subrule 101.5(5).
- (6) Description of expected environmental impacts from the alternative waste management systems including any negative impacts on water, groundwater, air quality, plant life, animal life, and human health.
- (7) All new sanitary landfills or expansions that require a new permit or a permit amendment shall include:
 1. A comprehensive listing of plant and animal species. In preparing the listing the permit applicant shall contact the department's preserves and ecological services bureau with a request to search its records to determine the presence of or habitat for any threatened or endangered species or communities and any forests, prairies or wetlands. In the event that the department's preserves and ecological services bureau does not contain records of rare species or community but their presence is suspected, the permit applicant may be required to conduct an approved site survey.
 2. A determination of the presence of and assessment of the impact on any archaeological, historical, or architecturally significant properties on the proposed site. To assess the impact, the permit applicant must consult with the historic preservation bureau of the Iowa state historical society.
 3. An assurance that soil boring samples have been taken at the site. The soil boring samples must be kept by the permit applicant until the permit is issued and must be made available to the department if the department requests them.
- (8) Inclusion of established and anticipated regulatory requirements regarding the future siting, operation, closure and postclosure of solid waste facilities, and
- (9) Completion of the cost analysis worksheets contained in the "Guidelines For Solid Waste Comprehensive Plans, Part I: Waste Management Alternatives." This document is available upon request from the department. Refer to "Guidelines for Solid Waste Comprehensive Plans, Part I: Waste Management Alternatives" for the comprehensive planning

requirements that apply to composting, recycling, processing, and medical waste incineration facilities. Because these operations are specialized, some requirements contained in these rules may not apply to these operations.

101.5(6) Plan review. A plan submitted according to rule 101.5(455B,455D) shall be reviewed by the department for its accuracy, completeness, and appropriateness of baseline data and alternatives analysis, for the environmental and economic feasibility of selected waste management systems, for the plan's adherence to the state's waste management hierarchy, for compliance with statutory deadlines, and for the agency's commitment to public education and adequate financing. The director may reject, suggest modification, or approve a plan based upon these criteria.

101.5(7) Subsequent plans. After the initial plan has been approved, all subsequent plans must include all elements in rule 101.5(455B,455D) and a thorough evaluation of progress toward meeting the state volume reduction and recycling goals as detailed in subrule 101.5(2). The solid waste abatement table included in the "Guidelines for Solid Waste Comprehensive Plans, Part I: Waste Management Alternatives" shall be used for this evaluation of progress. If a new facility requests to be included in a planning area after completion of a plan but before a subsequent plan is due, and the planning area agrees to include the facility, the following procedure is required:

a. A letter is submitted to the department by the facility operator describing the facility's operation and the amount of waste to be managed.

b. A letter is submitted to the department by the planning area's responsible agency agreeing to accept the facility in its planning area and stating how the facility will affect the planning area's waste stream.

c. The subsequent plan submitted by the planning area will include the facility.

This rule is intended to implement Iowa Code section 455B.304 and Iowa Code Supplement chapter 455D.

567—101.6(455B) Contracts with permitted agencies.

101.6(1) Every city, county, and other public agency which complies with the requirements of Iowa Code chapter 455B for the disposal of solid waste by means of a contract with an agency holding a sanitary disposal project permit or by means of a contract with a hauler who has a contract with an agency holding a sanitary disposal project permit shall submit to the department a photostatic copy of that executed contract. All such agencies shall have on file at the department at all times a valid contract. When the term of the contract expires, a renewal of the contract or a new contract shall be submitted.

101.6(2) All public agencies which contract with a hauler to comply with the requirements of part I of division IV of chapter 455B shall include as terms of that contract that all solid waste collected by the hauler for that agency shall be disposed of or deposited at a sanitary disposal project permitted by the department, or otherwise managed in accordance with the rules of the department.

567—101.7(455B) Disruption and excavation of sanitary landfills or closed dumps. No persons shall excavate, disrupt, or remove any deposited material from any active or discontinued sanitary landfill or closed dump without having first notified the department in writing.

101.7(1) Notification shall include an operational plan stating the area involved, lines and grades defining limits of excavation, estimated number of cubic yards of material to be excavated, sanitary disposal project where excavated material is to be disposed and estimated time required for excavation procedures.

101.7(2) An excavation shall be confined to an area consistent with the number of pieces of digging equipment and trucks used for haulage.

101.7(3) Adequate measures shall be taken during excavation to control dust, odors, fires, rodents, insects, and blowing litter.

101.7(4) The disposal of all solid waste resulting from excavation shall be in conformity with chapter 455B and these rules.

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CHAPTER 102
PERMITS

(Prior to 7/1/83, DEO Ch 27)
(Prior to 12/3/86, Water, Air and Waste Management (900))

567—102.1(455B) Permit required. No public or private agency shall construct or operate a sanitary disposal project without first obtaining a permit from the director.

567—102.2(455B) Types of permits. There are four types of permits issued by the director. These are described in this rule.

102.2(1) Sanitary disposal project permit. This permit is issued by the director under the authority of Iowa Code section 455B.305 for sanitary disposal projects which comply with the requirements described in chapters 103 to 106 of these rules. Such permits are issued for a term of three (3) years, and are renewable for similar terms.

a. Applications for renewal to be timely filed must be received at the department's office at least ninety (90) days before the expiration date of the existing permit. For application forms, see 100.3.

b. The department shall conduct an inspection of the sanitary disposal project following receipt of the application for renewal. Following the inspection, the permit holder shall be notified of all measures needed to bring the sanitary disposal project into conformance with chapter 455B and these rules.

c. A permit shall be renewed when a properly completed application has been received and all corrective measures required under 102.2(1)"b" have been completed.

102.2(2) Temporary permit. This permit is issued by the director under the authority of Iowa Code subsection 455B.307(1) for solid waste disposal sites which do not comply with the requirements of Iowa Code chapter 455B and these rules. Such permits are issued for a term of one year, and are renewable. Temporary permits may be renewed if the director finds that the public interest will be best served by granting a renewal and the terms of the previous temporary permit have been complied with.

a. Temporary permits shall incorporate as a condition a compliance schedule specifying how and when the applicant will meet the requirements of Iowa Code chapter 455B and these rules.

b. The decision of the director whether to issue a temporary permit, being discretionary, shall be a final decision. Once a temporary permit has been issued, it may be suspended or revoked only as provided in Iowa Code section 455B.305 and chapter 7 of these rules.

102.2(3) Developmental permit. The director may issue a developmental permit for construction and operation of a sanitary disposal project which is not specifically described in these rules if the permit applicant demonstrates at a public hearing that the proposed project can provide satisfactory disposal of solid waste without adverse health related or environmental effects.

a. No such permit shall be issued until the director, after public hearing, considers and approves the proposed project.

b. Developmental permits shall be issued for a term no less than one (1) year and no more than three (3) years.

c. Developmental permits may be renewed if the director finds, following public hearing, that the sanitary disposal project provided satisfactory disposal of solid waste without adverse health related or environmental effects over the term of the prior permit.

102.2(4) Closure permit. This permit is issued by the director under the authority of Iowa Code section 455B.305 for sanitary disposal projects which no longer accept solid waste. Such permits are issued for a term of 30 years. The term of subsequent renewal of the permit, if the postclosure period is extended, will be determined on a site specific basis. A sanitary disposal project shall require a closure permit until the department determines that postclosure maintenance, postclosure monitoring, and operation of required leachate control system are no longer necessary.

- a. Application shall be filed at the time of departmental notification of intended closure as required by this rule.
- b. The application for issuance of this permit shall be based on a previously approved comprehensive plan and other rules adopted pursuant to the authority of 455B.306.
- c. This permit shall require submission of an annual audit report detailing the status of the financial instrument and other funds as required to guarantee completion of postclosure and monitoring requirements.
- d. This permit may be modified by the issuance of an amendment by the department. Requests for permit amendments may be initiated by the department or by the permit holder.
- e. At the end of the applicable postclosure period, and upon satisfactory completion of all required postclosure activities as established by Iowa Code chapter 455B, written notification shall be issued by the director stating that a permit is no longer required for the facility. This rule is intended to implement Iowa Code section 455B.304.

567—102.3(455B) Applications for permits.

102.3(1) *Application requirements for permits and renewals.* See 100.3.

102.3(2) *Time limit on submittal of information.*

a. Sanitary disposal project permit applications. If an application for a sanitary disposal project permit is found to be incomplete by the department, the applicant will be notified of that fact and of the specific deficiencies. Thirty (30) days following such notification, the application may be returned by the department as incomplete without prejudice to the applicant's right to reapply. The applicant may be granted, upon request, an additional thirty (30) days to complete the application.

b. Applications for renewal or amendment of a sanitary disposal project. If an application for a sanitary disposal project permit renewal or amendment is found to be incomplete by the department, the applicant will be notified of that fact and of the specific deficiencies. Thirty (30) days following such notification, the application may be denied by the department.

This rule is intended to implement Iowa Code section 455B.304.

567—102.4(455B) Preparation of plans. All plans and specifications submitted in the application for a sanitary disposal project permit or a developmental permit shall be prepared in conformance with Iowa Code chapter 114 and shall be submitted in triplicate.

567—102.5(455B) Construction and operation. All sanitary disposal projects shall be constructed and operated according to the plans and specifications as approved by the department and the terms of the permit. The approved plans and specifications shall constitute a term of the permit.

567—102.6(455B) Compliance with rule changes.

102.6(1) *Design and construction.* Sanitary disposal projects designed and constructed in accordance with rules in effect at the time of construction shall not be required to be redesigned or reconstructed due to subsequent rule changes unless the department finds that such facilities are causing pollution. Such facilities shall be brought into compliance with rules in effect at the time of reconstruction, enlarging, or otherwise modifying the sanitary disposal project, or at the time of permit renewal.

102.6(2) *Operation.* If any new rule conflicts with an operating procedure prescribed in the engineering plans or the permit of a sanitary disposal project the operation shall conform with the new rule.

567—102.7(455B) Amendments. Sanitary disposal project permits, temporary permits, and developmental permits may be modified by the issuance of an amendment by the department, except as provided in 102.6(1).

567—102.8(455B) Transfer of title and permit. If title to an operational sanitary disposal project is transferred, and the transferee desires to continue operation of the project, the transferee shall apply in writing to the department within thirty (30) days of the transfer for a transfer of the permit.

102.8(1) The department shall transfer the permit when it determines that the sanitary disposal project is in compliance with Iowa Code chapter 455B and these rules and the terms of the permit, and that the transferee possesses the equipment and personnel to operate the project in conformance with chapter 455B and these rules and the terms of the permit.

102.8(2) No permit is valid after sixty (60) days following transfer of title, unless the permit has been transferred by the department to the new title holder pursuant to this rule.

567—102.9(455B) Permit conditions. Any permit may be issued subject to conditions specified in writing which are necessary to ensure the sanitary disposal project can be constructed and operated in compliance with these rules.

567—102.10(455B) Effect of revocation. If a permit held by any public or private agency for a sanitary disposal project is revoked by the director, no new permit shall be issued to that agency for that disposal project for a period of one year from the date of revocation. This shall not prohibit the issuance of a permit for the disposal project to another public or private agency.

This rule is intended to implement Iowa Code section 455B.305.

567—102.11(455B) Inspection prior to start-up. The department shall be notified when the initial construction of a sanitary disposal project has been completed, in order that an inspection may be made to determine that the project is constructed as designed. No solid waste shall be accepted by a sanitary disposal project until that project has been inspected and approved by the department.

567—102.12(455B) Primary plan requirements for all sanitary disposal projects. Every application for any permit issued by the department shall include the following. In addition, every application shall include the particular information required by the chapter describing the type of project to be constructed.

102.12(1) The name, address and telephone number of:

- a. Owner of site where project will be located.
- b. Permit applicant.
- c. Official responsible for operation of project.
- d. Design engineer.
- e. Agency to be served by the project, if any.
- f. Responsible official of agency served, if any.

102.12(2) A legal description of the site.

102.12(3) A map or aerial photograph locating the boundaries of the site and identifying:

- a. North or other principal compass points.
- b. Zoning and land use within one-half mile.
- c. Haul routes to and from the site with load limits or other restrictions.
- d. Homes and buildings within one-half mile.
- e. Section lines or other legal boundaries.
- f. Any nearby runway used or planned to be used by turbojet or piston-type aircraft at FAA certificated airports.

102.12(4) Type, source, and expected volume or weight of waste to be handled per day, week or year.

102.12(5) An organizational chart.

102.12(6) A detailed description of the disposal process to be used.

102.12(7) A table listing the equipment to be used, its design capacities and expected loads.

102.12(8) A contingency plan detailing specific procedures to be followed in case of equipment breakdown, maintenance downtime, or fire in equipment or vehicles, including methods to be used to remove or dispose of accumulated waste.

102.12(9) Proof of the applicant's ownership of the site or legal entitlement to use the site for the disposal of solid waste for the term of the permit for which application is made.

102.12(10) Closure/postclosure plan. A closure/postclosure plan shall be submitted which:

- a. Details how and when the facility will be closed in accordance with applicable requirements of 567—Chapters 103 to 110.

- b. Describes the proposed groundwater monitoring plan, leachate control system, and site inspection and maintenance activities necessary to comply with 567—Chapters 103 to 110.

- c. States the name, address and telephone number of the person or office to serve as a contact with regard to the facility during the postclosure period.

- d. The closure/postclosure plan shall be submitted at the time of the first permit renewal after enactment of this rule, but not less than 180 days prior to closure.

102.12(11) Such other information as may be required by the director.

This rule is intended to implement Iowa Code section 455B.305.

567—102.13(455B) Operator certification. Sanitary landfill operators and solid waste incinerator operators shall be trained, tested, and certified by a department-approved certification program.

102.13(1) A sanitary landfill operator or a solid waste incinerator operator will be on duty during all hours of operation of a sanitary landfill or solid waste incinerator, consistent with their respective certification.

102.13(2) An individual desiring to become a certified operator shall complete a basic operator training course that has been approved by the department or an alternative, equivalent training approved by the department and pass a departmental examination as specified by this rule. An operator certified by another state may have reciprocity subject to approval by the department.

102.13(3) A sanitary landfill operator certification or solid waste incinerator operator certification is valid until June 30 of the following even-numbered year.

102.13(4) Basic operator training course.

- a. The required basic operator training course for a certified sanitary landfill operator will have at least 25 contact hours and will address the following areas, at a minimum:

1. Description of types of wastes
2. Interpreting and using engineering plans
3. Construction surveying techniques
4. Waste decomposition processes
5. Geology and hydrology
6. Landfill design
7. Landfill operation
8. Environmental monitoring
9. Applicable laws and regulations
10. Permitting processes
11. Leachate control and treatment

- b. The required basic operator training course for a certified solid waste incinerator operator will have at least 12 contact hours and will address the following areas, at a minimum:

1. Description of types of wastes
2. Incinerator design
3. Interpreting and using engineering plans
4. Incinerator operations

5. Environmental monitoring
6. Applicable laws and regulations
7. Permitting processes
8. Incinerator maintenance
9. Ash and residue disposal

102.13(5) Alternate basic operator training must be approved by the department. It shall be the applicant's responsibility to submit any documentation the department may require to evaluate the equivalency of alternate training.

102.13(6) Fees.

- a. The examination fee for each examination shall be \$20.
- b. The initial certification fee shall be \$8 for each one-half year of a two-year period from the date of issuance to June 30 of the even-numbered years.
- c. The certification renewal shall be \$24.
- d. The penalty fee shall be \$12.

102.13(7) Examinations.

- a. The operator certification examinations will be based on the basic operator training course curriculum.
- b. All persons wishing to take the examination required to become a certified operator of a sanitary landfill or a solid waste incinerator shall complete the "Operator Certification Examination Application," Form 542-1354. A listing of dates and locations of examinations is available from the department upon request. The application form requires the applicant to indicate the basic operator training course taken. Evidence of training course completion must be submitted with the application for certification issued after July 1, 1991. The completed application and the application fee shall be sent to the director and addressed to the central office in Des Moines. Application for examination must be received by the department at least 30 days prior to the date of examination.
- c. A properly completed application for examination will be valid for one year from the date the application is approved by the department.
- d. Upon failure of the first examination, the applicant may be reexamined at the next scheduled examination. Upon failure of the second examination, the applicant shall be required to wait a period of 180 days between each subsequent examination.
- e. Upon each reexamination when a valid application is on file, the applicant shall submit to the department the examination fee at least ten days prior to the date of examination.
- f. Failure to successfully complete the examination within one year from the date of approval of the application shall invalidate the application.
- g. Completed examinations will be retained by the director for a period of one year after which they will be destroyed.
- h. Oral examinations may be given at the discretion of the department.

102.13(8) Certification.

- a. All operators who can pass the operator certification examination by July 1, 1991, are exempt from taking the required operator training course. Beginning July 1, 1991, all operators will be required to take the basic operator training course and pass the examination to become certified.
- b. Application for certification must be received by the department within 30 days of the date the applicant receives notification of successful completion of the examination. All applications for certification shall be made on a form provided by the department and shall be accompanied by the certification fee.
- c. Applications for certification by examination which are received more than 30 days but less than 60 days after notification of successful completion of the examination shall be accompanied by the certification fee and the penalty fee. Applicants who do not apply for certification within 60 days of notice of successful completion of the examination will not be certified on the basis of that examination.

d. For applicants who have been certified under other state mandatory certification programs, the equivalency of which has been previously reviewed and accepted by the department, certification without examination will be recommended.

e. For applicants who have been certified under voluntary certification programs in other states, certification will be considered. The applicant must have successfully completed a basic operator training course and an examination generally equivalent to the Iowa examination. The director may require the applicant to successfully complete the Iowa examination.

f. Applicants who seek Iowa certification pursuant to 102.13(8) "d" or "e" shall submit an application for examination accompanied by a letter requesting certification pursuant to those paragraphs. Application for certification pursuant to those paragraphs shall be received by the director in accordance with 102.13(8) "a" and "b."

102.13(9) Renewals. All certificates shall expire every two years, on even-numbered years, and must be renewed every two years to maintain certification. Application and fee are due prior to expiration of certification.

a. Late application for renewal of a certificate may be made provided that such late application shall be received by the director or postmarked within 30 days of the expiration of the certificate on forms provided by the department. Such late application shall be accompanied by the penalty fee and the certification renewal fee.

b. If a certificate holder fails to apply for renewal within 30 days following expiration of the certificate, the right to renew the certificate automatically terminates. Certification may be allowed at any time following such termination, provided that the applicant successfully completes an examination. The applicant must then apply for certification in accordance with subrule 102.13(8).

c. An operator may not continue to operate a sanitary landfill or solid waste incinerator after expiration of a certificate without renewal thereof.

d. Continuing education must be earned during the two-year license period. All certified operators must earn ten contact hours per certificate during each two-year period. The two-year period will begin upon issuance of certification.

e. Only those operators fulfilling the continuing education requirements before the end of each two-year period will be allowed to renew their certificates. The certificates of operators not fulfilling the continuing education requirements shall be void upon expiration, unless an extension is granted.

f. All activities for which continuing education credit will be granted must be related to the subject matter of the particular certificate to which the credit is being applied.

g. The director may, in individual cases involving hardship or extenuating circumstances, grant an extension of time of up to three months within which to fulfill the minimum continuing education requirements. Hardship or extenuating circumstances include documented health-related confinement or other circumstances beyond the control of the certified operator which prevent attendance at the required activities. All requests for extensions must be made 60 days prior to expiration of certification.

h. It is the certified operator's responsibility to notify the department of the continuing education credit earned during the period. The continuing education credits earned during the period shall be shown on the application for renewal.

i. A certified operator shall be deemed to have complied with the continuing education requirements of this rule during periods that the operator serves honorably on active duty in the military services, or for periods that the operator is a resident of another state or district having a continuing education requirement for operators and meets all the requirements of that state or district for practice there, or for periods that the person is a government employee working as an operator and assigned to duty outside of the United States, or for other periods of active practice and absence from the state approved by the department.

102.13(10) Discipline of certified operators.

a. Disciplinary action may be taken on any of the following grounds:

(1) Failure to use reasonable care or judgment or to apply knowledge or ability in performing the duties of a certified operator. Duties of certified operators include compliance with rules and permit conditions applicable to landfill or incinerator operation.

(2) Failure to submit required records of operation or other reports required under applicable permits or rules of the department, including failure to submit complete records or reports.

(3) Knowingly making any false statement, representation, or certification on any application, record, report or document required to be maintained or submitted under any applicable permit or rule of the department.

b. Disciplinary sanctions allowable are:

(1) Revocation of a certificate.

(2) Probation under specified conditions relevant to the specific grounds for disciplinary action. Additional education or training or reexamination may be required as a condition of probation.

c. The procedure for discipline is:

(1) The director shall initiate disciplinary action. The commission may direct that the director investigate any alleged factual situation that may be grounds for disciplinary action under 102.13(11)"a" and report the results of the investigation to the commission.

(2) A disciplinary action may be prosecuted by the director.

(3) Written notice shall be given to an operator against whom disciplinary action is being considered. The notice shall state the informal and formal procedures available for determining the matter. The operator shall be given 20 days to present any relevant facts and indicate the operator's position in the matter and to indicate whether informal resolution of the matter may be reached.

(4) An operator who receives notice shall communicate verbally, in writing, or in person with the director, and efforts shall be made to clarify the respective positions of the operator and director.

(5) Failure to communicate facts and position relevant to the matter by the required date may be considered when determining appropriate disciplinary action.

(6) If agreement as to appropriate disciplinary sanction, if any, can be reached with the operator and the commission concurs, a written stipulation and settlement between the department and the operator shall be entered. The stipulation and settlement shall recite the basic facts and violations alleged, any facts brought forth by the operator, and the reasons for the particular sanctions imposed.

(7) If an agreement as to appropriate disciplinary action, if any, cannot be reached, the director may initiate formal hearing procedures. Notice and formal hearing shall be in accordance with Chapter 7 of the rules of the department related to contested and certain other cases pertaining to license discipline.

102.13(11) Revocation of certificates. Upon revocation of a certificate, application for certification may be allowed after two years from the date of revocation. Any such applicant must successfully complete an examination and be certified in the same manner as a new applicant.

This rule is intended to implement Iowa Code section 455B.304.

567—102.14(455B) Operating requirements for all sanitary disposal projects. Every application for any permit issued by the department shall detail the means by which the following operating requirements shall be complied with. All sanitary disposal projects shall be operated in conformance with these requirements.

102.14(1) Open burning shall be prohibited except when permitted by Chapter 23 of these rules. Any burning to be conducted at the site shall be at a location and separate and distinct from the operating area.

102.14(2) Litter shall be confined to the property on which the sanitary disposal project is located. At the conclusion of each day of operation, any litter strewn beyond the confines of the operating area shall be collected and stored in covered leakproof containers or properly disposed.

102.14(3) Scavenging shall be prohibited. Any salvaging to be conducted must be described in the permit application and all salvaged materials must be stored and removed from the sanitary disposal project site in conformance with the permit conditions.

102.14(4) Effective means shall be taken to control flies, other insects, rodents and other vermin.

102.14(5) Equipment designated in the plans and specifications or equivalent equipment shall be used to operate the site at all times.

102.14(6) The major internal roads shall be of all weather construction and maintained in good condition. Dust shall be controlled on internal roads.

102.14(7) Sites open to the public shall have a permanent sign posted at the site entrance specifying:

- a. Name of the operation.
- b. The site permit number.
- c. The hours and days the site is open to the public.
- d. The categories of waste which will be accepted for disposal or, as an alternative, identifies the categories of waste which are prohibited.
- e. Telephone number of official responsible for the operation.

102.14(8) Free liquids or waste containing free liquids. No free liquids or waste containing free liquids shall be disposed in a sanitary landfill.

102.14(9) General closure requirements.

a. The owner or operator shall notify the department in writing at least 180 days prior to closure of the facility or suspension of operations.

b. Notice of closure shall be posted at least 180 days prior to closure at the facility indicating the date of closure and alternative solid waste management facilities. Notice of closure shall also be published at least 180 days prior to closure in a newspaper of local circulation. This notice shall include the date of closure and alternative solid waste management facilities.

c. Implementation of the closure postclosure plan shall be completed within 90 days of the closure of the facility. The owner and an engineer registered in Iowa shall certify that the closure postclosure plan has been implemented in compliance with the rules, the closure postclosure plan and the permit.

d. Upon completion of closure activities, as-built plans shall be submitted showing changes from the original design plans, test results indicating compliance with final cover as applicable, waste removal, equipment decontamination, and other forms of documentation as required, to include a copy of the notation filed with the county recorder.

This rule is intended to implement Iowa Code section 455B.304.

567—102.15(455B) Disposal of special wastes.

102.15(1) *Radioactive waste.* Radioactive materials shall not be disposed of by a sanitary disposal project. Luminous time pieces are exempt.

102.15(2) *Industrial sludge and toxic and hazardous waste.* No industrial sludge or toxic and hazardous waste shall be delivered to nor disposed by a sanitary disposal project unless explicit instructions are first obtained from the department.

a. For procedure see rule 100.3(2).

b. Prior to the issuance of any such instructions, the department may require that a proposal for disposal of such waste in conformance with these rules, with supporting data as may be deemed necessary, be submitted by the originator of such waste for evaluation by the department. The prohibition of such waste shall continue in effect until an acceptable procedure for processing or disposal has been developed and approved.

c. All toxic or hazardous waste or industrial sludge for which instructions have been received shall be disposed according to those instructions.

102.15(3) *Sewage sludge.*

a. Unstabilized sewage sludge, including unstabilized septic tank pumpings, shall not be disposed in the portion of a sanitary landfill open to the public. Sewage sludge, whether stabilized or unstabilized, may be disposed of at a sanitary landfill as provided in chapter 103 or 121.

b. Stabilized and unstabilized sewage sludge may be handled at processing facilities as provided in chapter 104.

c. Stabilized and unstabilized sewage sludge may be disposed of by land application in accordance with chapter 121.

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**CHAPTER 103
SANITARY LANDFILLS**

[Prior to 7/1/83, DEQ Ch 28]

[Prior to 12/3/86, Water, Air and Waste Management (900)]

567—103.1(455B) Scope and applicability. This chapter details the plan and operating requirements for all sanitary landfills. There are general requirements applicable to any type of sanitary landfill, and specific requirements for each of the types of sanitary landfills classified by the department. All sanitary landfills must conform with the provisions of chapter 102 of these rules, the general requirements set out in 103.2(455B), and the specific requirements set out in this chapter for the type of sanitary landfill to be established.

567—103.2(455B) General requirements for all sanitary landfills.

103.2(1) Plan requirements. The plans for all sanitary landfills shall include the following:

a. The map and aerial photograph required in 102.12(3) 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 shall be identified on the map or aerial photograph and a bench mark shall be indicated.

b. A plot drawing in appropriate scale of the site and the immediately adjacent area showing dimensions, topography with appropriate contour intervals, drainage patterns, known existing drainage tiles, locations where any geologic samples were taken, all water wells with their uses, and present and planned pertinent features including but not limited to roads, fencing, and cover stockpiles.

c. Detailed engineering drawing of the site showing all initial and permanent roads, buildings and equipment to be installed; unloading and holding areas; fences and gates; landscaping and screening devices; personnel and maintenance facilities; sewer and water lines.

d. The description, source and volume of the material to be used for the landfill liner, including the method of installation. The portion of the site to be filled must have a soil liner consisting of at least four feet of recompacted soil. The coefficient of permeability must be 1×10^{-7} cm/sec (0.00028 ft/day) or less as determined by appropriate laboratory analysis. The percent of standard or modified proctor density at moisture contents consistent with expected field conditions and corresponding to a measured coefficient of permeability equal to or less than 1×10^{-7} cm/sec shall be determined in the laboratory. The soil shall be placed in lifts not to exceed eight inches in thickness. A minimum of one field density test shall be performed per lift per acre to verify that the density determined by the laboratory analysis as correlated to permeability has been achieved. Results of field density tests shall be submitted to the department prior to the placement of solid waste.

e. An alternative liner system to that required in paragraph "d" of this subrule may be approved by the director if:

(1) The design of the liner system is equivalent to the soil liner required in paragraph "d" of this subrule in performance, longevity and protection of the groundwater; or

(2) Based on the specific type of waste to be disposed, the design of the liner system offers equivalent protection of the groundwater.

(3) Undisturbed soil will not be allowed for use as liner material.

f. Diversion and drainage structures designed to prevent ponding, infiltration, inundation, erosion, slope failure and washout from surface runoff due to a 25-year, 24-hour rainfall event, as shown in the Department of Agriculture publication "Climatology of Iowa Series #2-1980."

g. A leachate collection, storage and treatment and disposal system designed to protect the soils, surface water, and groundwater from leachate contamination. This system shall be designed to operate during the active life of the site and during the postclosure period required by 455B.304.

(1) The design and construction of the system must be in accordance with subrule 103.2(3) and be coordinated with the planned phase development of the site and the timing of leachate generation.

(2) The potential for leachate generation shall be evaluated in determining the design for the facility.

(3) The plan must include proposed quality assurance and quality control testing to be performed during installation and operation of the system. This shall include procedures that will be followed during installation of the leachate collection system, and during normal land-fill operations to ensure the system's integrity and design standards.

h. A drawing of the scheme of development including any excavation, trenching, and fill shown progressively with time. The methods to be used to insure compliance with the scheme and to provide vertical and horizontal controls shall be described.

i. Cross-sectional drawings showing progressively with time the original and proposed elevation of excavating, trenching, and fill.

j. Evidence that the proposed plan has been reviewed by the local soil conservation district commissioner 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 467A.42 to 467A.51.

k. An ultimate land use proposal, including intermediate stages, with time schedules indicating the total and complete land use. Final elevations, grades, permanent drainage structures, monitoring or treatment facilities and permanent improvements of the completed landfill shall be included. Any supporting drawings to the ultimate land use proposal shall be in appropriate scale.

l. Information describing:

(1) Source, volume, and characteristics of cover material

(2) Area of site in acres

(3) Areas to be used for salvaging and the burning of diseased trees.

m. A report consisting of information verifying that the portion of the site to be filled is:

(1) So situated as to obviate any predictable lateral movement of significant quantities of leachate from the site to standing or flowing surface water or to shallow aquifers that are in actual use or are deemed to be of potential use as a water resource.

(2) So situated that the base of the proposed site is at least five (5) feet above the high water table unless a greater separation is required to ensure that there will be no significant adverse effect on ground or surface waters or a lesser separation is unlikely to have a significant adverse effect on ground and surface waters.

(3) Outside a flood plain or shoreland, unless proper engineering and sealing 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.

(4) So situated to assure no adverse effect on any well within 1000 feet of the site existing at the time of application for the original permit which is being used or could be used without major renovation for human or livestock consumption or at least 1000 feet from any such well unless hydrologic conditions are such that a greater distance is required to assure there is no adverse effect on the well.

(5) So situated to assure no adverse effect on the source of any community water system in existence at the time of application for the original permit within one mile of the site or at least one mile from the source of any community water system in existence at the time of application for the original permit unless hydrologic conditions are such that a greater distance is required to assure no adverse effect on the water system.

(6) At least twenty (20) feet from the adjacent property line unless there is a written agreement with the owner of the abutting property. For new permit applications and associated report submitted after April 27, 1977, the report shall verify that the portion to be filled is at least 50 feet from the adjacent property line. The written agreement shall be filed with the county recorder and shall become a permanent record of the property.

(7) Beyond 500 feet from any existing habitable residence unless there is written agreement with the owner of the residence and the site is screened by natural objects, plantings, fences or by other appropriate means. The residence must be in existence on the date of application for the original permit from the department. The written agreement shall be filed with the county recorder and recorded for abstract of title purposes, and a copy submitted to the department.

n. Should conditions in violation of 103.2(1)(1), (2), (3), (4), or (5) exist, the original plan shall detail how the site is to be engineered to provide equivalent protection to the water resources. The applicant shall have the burden of showing that equivalent protection will be provided.

o. If sewage sludge is to be disposed at the site, the characteristics of the sludge and the method of disposal shall be described. If sludge is to be disposed by land application, it shall be in conformance with chapter 121.

p. The required soil and hydrogeologic design information specified in 567—Chapter 110.

q. Such additional data and information as may be deemed necessary by the director to evaluate a proposed sanitary landfill.

103.2(2) General operating requirements for all sanitary landfills. All sanitary landfills shall be operated in conformance with this subrule. The plan submitted shall detail how the sanitary landfill will comply with these requirements.

a. Solid waste shall be unloaded at the operating area only when an operator is on duty at that area. Solid waste may be deposited in storage containers inside the site under the supervision of an attendant or operator.

b. Access to the site shall be restricted and a gate shall be provided at the entrance to the site and kept locked when an attendant or operator is not on duty.

c. A copy of the permit, engineering plans and reports shall be kept at the site at all times unless, the applicant demonstrates to the department that, on the basis of the characteristics of the waste to be handled at the site and the times of operation of the site, such is unnecessary.

d. Sites not open to the public shall have a permanent sign posted at the site entrance specifying:

(1) Name of operation.

(2) The site permit number.

(3) That the site is not open to the public.

(4) The name and telephone number of the responsible official.

e. Solid waste shall not be deposited in such a manner that material or leaching therefrom may cause pollution of ground or surface waters.

f. Provision shall be made for an all-weather fill area which is accessible for solid waste disposal during all weather conditions under which solid waste is received and disposed of at the site. Such all-weather areas shall be operated at all times in accordance with Iowa Code chapter 455B and these rules.

g. Provisions shall be made to have cover material available for winter and wet weather operations.

h. Each site shall be graded and provided with drainage facilities to meet the requirements of 103.2(1) "f" to minimize flow of surface water onto and into the portion of the site being filled, and to prevent soil erosion and ponding of water.

i. The finished surface of the site shall be repaired as required, covered with soil, and seeded with native grasses or other suitable vegetation immediately upon completion or promptly in the spring on areas terminated during winter conditions. If necessary, seeded slopes shall be covered with straw or similar material to prevent erosion.

j. Each sanitary landfill shall be staked as necessary and inspected annually or as otherwise specified in the permit, by a professional engineer registered in Iowa. A brief report by the engineer indicating areas of conformance or nonconformance with the approved plans and specifications shall be submitted to the department by the permit holder within 30 days of the inspections. In specifying alternate inspection frequencies the department shall consider the types and quantities of waste disposed of, the rate of development of the site, the degree of control over site development inherent in the design and topography of the site and the quality of prior operation.

k. If any pockets, seams or layers of sand or other highly permeable material are encountered at the sanitary landfill, the permit holder shall promptly notify the department and shall ensure that a professional engineer registered in Iowa has certified that all sands encountered were totally excavated or sealed off properly or otherwise handled as explicitly provided for in the permit before solid waste is disposed in that area of the site.

l. The total volume of leachate collected for each month shall be recorded, and the elevation of leachate in the landfill shall be provided to the department in accordance with the schedule specified in the permit.

103.2(3) *Hydrologic monitoring system.* The owner or operator of a solid waste disposal facility shall operate and maintain a hydrologic monitoring system which includes a sufficient number of groundwater monitoring wells and surface water monitoring points to determine the impact, if any, that the sanitary disposal project is having on the adjacent water. The hydrologic monitoring systems shall enable early detection of the escape of pollutants from a sanitary landfill.

The hydrologic monitoring system shall be planned, designed and constructed in accordance with the provisions of 567—Chapter 110, and implemented in accordance with the following schedule:

a. A hydrologic monitoring system plan shall be submitted to the department for review and approval with any application for a new permit. Installation of the approved system shall be completed prior to the deposition of solid waste into the landfill.

b. A hydrologic monitoring system plan shall be submitted with applications for permit renewal, not later than the date of renewal, with completion of installation and operation within one year of approval of the plan. However, an existing landfill with a date of renewal occurring after the effective date* of these rules but prior to July 1, 1990, shall submit a hydrologic

monitoring system plan by July 1, 1990. Installation of the plan shall be completed within one year of the date of departmental approval.

c. Upon notice of the department, a hydrologic monitoring system plan may be required to be submitted within six months of such notification, with completion of installation and operation of the approved plan within one year of the date of departmental approval.

103.2(4) Hydrologic monitoring system operating requirements.

a. Operational sampling requirements. All sampling shall be conducted in accordance with an approved sampling protocol, components of which are described in rule 567—110.8(455B).

b. Groundwater levels. The elevation of water in each monitoring well shall be measured monthly and recorded to the nearest 0.01 foot. Level measurements must be made before a well is evacuated for sample collection.

c. Surface water levels. The water level or flow rate of each surface water body sampled shall be measured and recorded at the time of sample collection.

d. First-year water sampling. During the first year of operation of the hydrologic monitoring system, samples shall be collected quarterly from each groundwater monitoring well and surface water monitoring point. The purpose of this sample is to determine baseline water quality information and enable initial estimation of water quality variability. Samples shall be analyzed for the following parameters in addition to the parameters listed in paragraph "e" of this subrule, plus any additional parameter deemed necessary by the department.

1. Arsenic, dissolved.
2. Barium, dissolved.
3. Cadmium, dissolved.
4. Chromium, total dissolved.
5. Lead, dissolved.
6. Mercury, dissolved.
7. Magnesium, dissolved.
8. Zinc, dissolved.
9. Copper, dissolved.
10. Benzene.
11. Carbon tetrachloride.
12. 1,2-Dichloroethane.
13. Trichloroethylene.
14. 1,1,1-Trichloroethane.
15. 1,1-Dichloroethylene.
16. Paradichlorobenzene.

e. Routine semiannual water sampling. After the first year, each monitoring point must be sampled semiannually as specified in the facility's operation permit and analyzed for the following parameters.

1. Chloride.
2. Specific conductance (field measurement).
3. pH (field measurement).
4. Ammonia nitrogen.
5. Iron, dissolved.
6. Chemical oxygen demand.
7. Temperature (field measurement).
8. Any additional parameters deemed necessary by the department.

f. Routine annual water sampling. One sample per year from each monitoring point collected in a quarter specified in the facility's operation permit must be analyzed for the following parameters.

1. Total organic halogen.
2. Phenols.
3. Any additional parameters deemed necessary by the department.

103.2(5) *Laboratory procedures.* The owner or operator of the solid waste facility must have the groundwater and surface water samples analyzed only by laboratories that are certified by the state of Iowa. Until the department adopts rules regarding certification of laboratories, analyses shall be conducted at a laboratory that certifies to the department that the appropriate analytical procedure is utilized.

All analyses of parameters not covered in the Safe Drinking Water Act (SDWA) must be performed according to methods specified in SW-846 or approved by the United States Environmental Protection Agency. Any analytical method used on non-SDWA parameters deviating from those specified in SW-846 or approved by EPA must be approved by the department.

All analyses must be recorded on forms which, in addition to the analytical results, show the precision of the data set, bias, and limit of detection.

103.2(6) *Analysis of sampling data.* For each parameter analyzed during the first year of operation of the hydrologic monitoring system, as listed in paragraph 103.2(4)"d" above, determine the mean and standard deviation for each upgradient monitoring well using the first year of data. For routine semiannual monitoring parameters, as listed in paragraph 103.2(4)"e" above, mean and standard deviation should be recalculated annually using all available analytical data.

If the analytical results for a downgradient monitoring point do not fall within the control limits of two standard deviations above the mean parameter(s) level in a corresponding upgradient monitoring point, the owner or operator shall submit this information to the department within 30 days of receipt of the analytical results. If the analytical results from an upgradient monitoring point do not fall within two standard deviations of the mean parameter(s) level for that monitoring point, the department shall also be notified within 30 days.

103.2(7) *Additional sampling.* The department will determine if additional sampling is warranted, after receipt of information indicating a possible release as required in subrule 103.2(6) above. The department may require any additional samples to be split and analyzed to determine if the values obtained outside the control limits were the result of laboratory or sampling error. Any additional analytical results shall be submitted to the department by the owner or operator within seven days of receipt. The department will review the information and determine if additional monitoring or preparation of a groundwater quality assessment plan, in accordance with subrule 103.2(9), is necessary.

103.2(8) *Record keeping and recording.*

a. The persons conducting the sampling must record the procedures, measurements, and observations at the time of sampling. The field records must be sufficient to document whether the procedures and requirements specified in the sampling protocol have been followed. The records must also contain the names of the persons conducting the sampling, the time and date each monitoring point was sampled, the required field measurement or test result. The owner or operator must submit copies of these field records to the department if requested.

b. The owner or operator shall keep records of analyses and the associated groundwater surface elevations for the active live and postclosure period of the facility. These records shall be kept at the site or in the administrative files of the owner or operator, and shall be available for review by the department upon request in the county in which the landfill is located.

c. The owner or operator shall provide the department with copies of the quarterly monitoring analytical results by the dates specified in the facility's operation permit.

d. An annual report summarizing the effect the facility is having on groundwater and surface water quality shall be submitted to the department by November 30 each year. The summary is to be prepared by an engineer registered in the state of Iowa and incorporated in the November semiannual engineer inspection report. The contents of this summary are to include the following items:

1. Amounts and kinds of wastes accepted under Special Waste Authorizations.
2. A narrative describing the effects the facility is having on surrounding surface water and groundwater quality and any changes made or maintenance needed in the monitoring network.

3. Graphs showing concentrations versus time for all monitoring parameters for each well for as long as records exist for that parameter. Control limits (\pm two standard deviations from the initial background value) must be shown in each graph.

4. Results of activities and tests required by the well maintenance and performance reevaluation plan described in 567—110.9(455B) shall be submitted to the department.

103.2(9) Groundwater quality assessment plan.

a. If leachate migration occurs and, as required by the department, the owner or operator shall develop and submit for approval a specific plan to conduct a groundwater quality assessment study at the facility to determine the rate of migration and the extent and constituent composition of the leachate release. At a minimum, the assessment monitoring plan must contain the following elements:

1. Discussion of the hydrogeologic conditions at the site with an identification of potential contaminant pathways.

2. Description of the present detection monitoring system.

3. A description of the approach the owner or operator will take to substantiate any contention that the contamination may have been falsely indicated.

4. Description of the investigatory approach used to characterize the rate and extent of leachate migration.

5. Discussion of the number, location and depth of wells that will be initially installed as well as a strategy for installing more wells in subsequent investigatory phases.

6. Information on well design and construction.

7. Description of the sampling and analytical program used to obtain and analyze groundwater monitoring data.

8. Description of data collection and analysis procedures.

9. Schedule for the implementation of each phase of the assessment study.

b. After the plan has been approved by the department, the owner or operator shall implement the plan according to the schedule in the plan.

c. Within 90 days after the activities prescribed in the groundwater assessment plan have been completed, the owner or operator shall submit a written groundwater quality assessment report to the department.

d. If the department determines that no waste or waste constituents from the facility have entered the groundwater, the owner or operator shall reinstate the routine monitoring program.

If the department determines that waste or waste constituents have been released from the facility and have entered the groundwater, the owner or operator shall continue to make the determinations described by the assessment plan and develop a remedial action/mitigation plan to alleviate or reduce contamination to the fullest extent possible.

103.2(10) Postclosure monitoring requirements.

a. At least six months prior to closing the site, the owner or operator of a sanitary landfill shall submit a plan to the department for approval detailing a 30-year postclosure monitoring program.

b. The department will review the facility's postclosure monitoring records at five-year intervals to determine if changes in the monitoring frequencies or parameters are required.

c. The commission may adopt rules on a site-specific basis identifying additional monitoring requirements for sanitary landfills for which the postclosure monitoring period is to be extended.

103.2(11) Leachate control systems for new landfills. All new landfills must have a leachate collection, storage, and treatment and disposal system in place prior to accepting waste. This system shall be operated in conformance with the approved design during the active life of the site and during the postclosure period.

a. Leachate collection system.

(1) The leachate collection system shall be designed to allow not more than one foot of head above the top of the landfill liner. The collection system must include a method for measuring the leachate head in the landfill at the lowest area(s) of the collection system.

(2) The landfill liner must be graded toward the leachate collection pipe at a slope greater than 2 percent, but not to exceed 10 percent. The side slopes of the landfill liner must be less than 25 percent.

(3) A drainage layer must be placed immediately above the landfill liner. This drainage layer shall consist of a minimum of one foot of soil with a coefficient of permeability of 1×10^{-3} cm/sec (2.8 ft/day) or greater.

(4) Leachate collection pipe shall be placed in a trench excavated a minimum of 18 inches into the liner. Additional soil must be added beneath the trench to provide a minimum of four feet of soil liner, as required by 103.2(1)"d."

(5) Leachate collection pipe shall be surrounded by a gravel protection and drainage layer, and by either a graded filter layer or by a geotextile filter fabric.

(6) The collection pipe must be covered with a filter material to encourage flow and to prevent infiltration of fine-grained materials into the pipe. The collection pipe must be perforated or slotted, of a sufficient diameter to handle the expected flow, but not less than four inches in inside diameter, capable of being cleaned throughout the active life of the site and during the postclosure period, chemically resistant to the wastes and the expected leachate and of sufficient strength to support maximum static and dynamic loads imposed by the overlying wastes, cover materials, and equipment used during the construction and operation of the site. Documentation shall be submitted which includes methods and specifications for cleaning of the pipes, chemical compatibility of the pipes, and calculations and specifications for pipe strength.

(7) The leachate collection system shall be equipped with valves to enable the flow of leachate from the facility to be shut off during periods of maintenance.

(8) The leachate collection system shall be cleaned out once every three years, or more frequently if leachate head or the volume of leachate collected indicate cleanout is necessary. A report of the methods and results of the cleanout shall be submitted at the time of permit renewal.

b. Leachate storage system. The leachate storage system must be:

(1) Capable of storing at least seven days' accumulation of leachate based on mathematical simulated volume using average precipitation; and

(2) Constructed of materials which are compatible with the expected leachate; and

(3) Accessible at all times of the year and under all weather conditions.

c. Leachate treatment and disposal system.

(1) Leachate shall be treated by such physical, chemical or biological processes as necessary to meet the pretreatment limits, if any, imposed by a treatment agreement between the landfill and a publicly owned treatment works, or by the effluent discharge limitation established by an NPDES permit issued to the landfill.

(2) Leachate recirculation systems shall be designed to minimize detrimental effects to vegetative cover, minimize erosion and damage to the soil cover, and to promote rapid stabilization of the waste. Such systems shall not be allowed for sites which do not satisfy all of the requirements of 103.2(11).

(3) All leachate treatment systems, except as described in (2) above, shall conform to wastewater treatment design standards as established by the department.

d. Inspection prior to start-up. The department shall be notified when the initial construction of the leachate collection, storage, and treatment and discharge systems have been completed, in order that an inspection may be made to determine that the leachate control system is constructed as designed. Prior to this inspection, construction certification reports from the project engineer must be submitted discussing quality assurance and quality control testing done to ensure that all materials and equipment for the leachate control system have been placed in accordance with the approved engineering plans, reports and specifications. The results of all testing must be included, along with documentation of any failed tests, a description of the procedures used to correct the failures, and results of any retesting performed. This inspection may be incorporated with the inspection required by rule 567—102.11(455B).

103.2(12) Leachate control systems for existing landfills.

a. All existing landfills must submit a leachate control plan, as described in paragraph "b" below when any of the following occur:

- (1) At the time of permit renewal;
- (2) When requesting a change in the existing permit for expansion or modification of the waste fill area;
- (3) Within 180 days of notification by the department of the detection of any leachate seep or contamination of the groundwater or surface waters from leachate; or
- (4) At least 180 days prior to landfill closure.

The leachate control plan must be submitted no later than July 1, 1991.

b. The design of the leachate control system must include leachate collection storage, and treatment and disposal.

(1) New fill areas of a landfill that have not previously received waste must address the design standards of subrule 103.2(1) and 103.2(11).

(2) Existing fill areas must address the design standards of subrule 103.2(11), except paragraph "a," subparagraphs (1) to (4). The leachate collection system must be designed to achieve the lowest possible leachate head above the landfill liner, and must include a method of measuring the leachate head.

c. The leachate control plan must be implemented within one year of departmental approval of the leachate control plan, but no later than July 1, 1992.

103.2(13) Closure requirements. The owner or operator of the landfill must close the site in a manner that minimizes the potential for postclosure release of pollutants to the air, groundwater or surface waters.

a. A minimum of two permanent surveying monuments must be installed by a registered land surveyor from which the location and elevation of wastes, containment structures, and monitoring facilities can be determined throughout the postclosure period.

b. The final cover shall consist of:

(1) Not less than two feet of compacted soil. The permeability must be 1×10^{-7} cm/sec or less as determined by appropriate laboratory analysis. The percent of standard or modified proctor density at moisture content consistent with expected field conditions and corresponding to a measured coefficient of permeability equal to or less than 1×10^{-7} cm/sec shall be determined in the laboratory. The soil shall be placed in lifts not to exceed eight inches in thickness. A minimum of one field density test shall be performed per lift per acre to verify that the density determined by the laboratory analysis as correlated to permeability has been achieved. Results of field density tests shall be submitted to the department. The compacted soil shall be keyed into the bottom liner at the waste cell boundary.

(2) Not less than two feet of uncompacted soil, containing sufficient organic matter to support vegetation. The thickness of this soil layer must be at least the root depth of the planned vegetative cover to prevent root penetration into the underlying soil layers. This layer shall be placed as soon as possible to prevent desiccation, cracking and freezing of the compacted soil layer described in 103.2(13)"b"(1).

(3) A layer of compacted soil, incinerator ash, or similar material permitted by the department may be used to prepare the site for placement of the compacted soil layer described in 103.2(13)"b"(1). The use of such material will not serve as a replacement for the compacted soil layer described in 103.2(13)"b"(1).

(4) Alternate methods and materials may be permitted if shown to provide equal or superior performance.

(5) Those portions of existing landfills demonstrating placement of final cover in conformance with previously approved plans and specifications or regulations in effect at the time of such approval shall not be required to apply additional cover solely to achieve compliance with 103.2(13)"b"(1) and (2). Those areas of existing landfills which have not been completed in conformance with the exemption provided herein prior to the enactment of this subrule

shall complete all such areas in conformance with an approved closure plan pursuant to subrule 102.12(10) and which shall include compliance with the provisions of 103.2(13)"b"(1) and (2). This subparagraph shall not preclude a requirement to apply additional cover to such exempted areas as a result of the conclusions of a groundwater assessment or remedial action plan.

c. The final cover shall be designed and graded to meet the drainage requirements of 103.2(1)"f.". The final cover must have a minimum slope of 5 percent, and shall not exceed a slope of 25 percent. Those portions of existing landfills demonstrating placement of final cover in conformance with previously approved plans and specifications shall not be required to reconstruct the cover to meet either the minimum or maximum slope established by this subrule. Those areas which have not been completed by placement of final cover pursuant to this exemption at the time of enactment of this subrule shall complete all such areas in conformance with an approved closure plan pursuant to subrule 102.12(10) and which shall meet the minimum and maximum slope requirements stated herein. This subrule shall not preclude a requirement to modify the slope of any portion of the landfill as a result of the conclusion of a groundwater assessment or remedial action plan.

d. The final cover shall be seeded as soon as practical upon completion with native grasses or other suitable vegetation to prevent soil erosion. If seeding must be delayed due to summer or winter conditions, silt fences or other structures shall be used to minimize erosion of the final cover until the next season suitable for planting. The placement of cover in conformance with 103.2(13)"b"(1) and (2) shall not be delayed due to season and shall be placed as soon as the solid waste has reached its maximum design elevation within the cell. Vegetation type shall be based on density and root depth, nutrient availability, soil thickness, and soil type. Alternatives to vegetative cover may be considered to control erosion and promote runoff.

e. An approved groundwater monitoring system as required by the closure permit and the rules must be in place and operating.

f. An approved leachate collection and treatment system as required by the closure permit and the rules must be in place and operating.

g. An approved landfill gas monitoring and collection or ventilation system as required by the closure permit and the rules must be in place or operating unless determined not to be necessary by the director.

h. An approved financial assurance instrument, adequate to cover costs of all postclosure activities as required by the closure plan and the closure permit must be provided upon promulgation of the appropriate rules.

i. All requirements of the closure plan, the closure permit, and the rules must be satisfied.

103.2(14) Postclosure requirements for 30 years following closure of the site. The owner or operator of the site must comply with all postclosure requirements.

a. The diversion and drainage system as required in 103.2(1)"f" must be maintained to approved specifications to prevent run-on and runoff from eroding or otherwise damaging the final cover.

b. The integrity and effectiveness of the final cover must be maintained by making repairs as necessary to correct the effects of settling, subsidence, erosion, or other events. If damage to the compacted soil layer described in 103.2(11)"b"(1) occurs, repairs shall be made to correct the damage and return it to its original specifications.

c. The vegetative cover shall be reseeded as necessary to maintain good vegetative growth. Any invading vegetation whose root system could damage the compacted soil layer shall be removed or destroyed immediately.

d. The groundwater monitoring system shall be operated and maintained and shall comply with all applicable rules and closure permit requirements.

e. The leachate collection, removal and treatment systems shall be operated and maintained and shall comply with all applicable rules and closure permit requirements.

f. The landfill gas monitoring and collection systems shall be operated and maintained and shall comply with all applicable rules and closure permit requirements.

g. Semiannual reports shall be submitted to the department. These reports shall contain information concerning the general conditions at the site, groundwater monitoring results, amount of leachate collected and treated, information concerning the landfill gas monitoring and collection system, and other information as may be required by the closure permit. In addition, locations and elevations of all permanent monuments, required in subrule 103.2(11)"a," shall be determined at least once every three years or more frequently in the event of obvious disturbance of the monument. The reports are due by April 30 and October 31 for the preceding six-month period.

h. The permanent surveying monuments required in subrule 103.2(11)"a" shall be maintained.

This rule is intended to implement Iowa Code section 455B.304.

567—103.3(455B) Specific requirements for a sanitary landfill proposing to accept all solid waste except toxic or hazardous waste.

103.3(1) *Plan requirements.* The plans for sanitary landfills proposing to accept all solid waste except toxic or hazardous waste shall include the following information in addition to that required by Chapter 102 and subrule 103.2(1).

- a. Rescinded IAB 9/20/89, effective 10/25/89.
- b. Reserved.

103.3(2) *Specific operating requirements for sanitary landfills proposing to accept all solid waste except toxic or hazardous waste.* Sanitary landfills accepting all solid waste shall be operated in conformance with Chapter 102, subrule 103.2(2), and this subrule. The plan submitted shall detail how the sanitary landfill will comply with these requirements.

a. Immediately after solid waste is deposited, it shall be uniformly spread and compacted as densely as practicable in layers not exceeding two feet in depth and at an operating face slope which will permit thorough compaction into cells.

b. Solid waste at the site shall be covered after each day of operation with a compacted layer of at least six inches of earth.

c. At least one foot of intermediate cover of compacted earth shall be applied to any area of the site which will not be utilized for further disposal of solid waste for more than one week.

d. At least a two-foot cover of compacted earth shall be applied to any area of the site which will not be utilized for further disposal of solid waste for more than two months. The cover shall be graded to allow surface water runoff.

e. The final cover shall be consistent with the proposed land use, but in no event shall be less than two feet.

567—103.4(455B) Specific requirements for a sanitary landfill proposing to accept only construction and demolition waste.

103.4(1) *Plan requirements.* The plans for sanitary landfills proposing to accept only construction and demolition waste shall include the following information in addition to that required by Chapter 102 and subrule 103.2(1).

- a. Rescinded IAB 9/20/89, effective 10/25/89.
- b. Reserved.

103.4(2) *Specific operating requirements for sanitary landfills proposing to accept only construction and demolition waste.* Sanitary landfills accepting only construction and demolition waste shall be operated in conformance with Chapter 102, subrule 103.2(2), and this subrule. The plan submitted shall detail how the sanitary landfill will comply with these requirements.

a. Immediately after solid waste is deposited, it shall be uniformly distributed and compacted as densely as practical.

b. The waste shall be covered with a minimum of one foot of earth at least once every seven days of operation. The day during which cover will be applied shall be specified in the plan.

c. At least a two-foot cover of compacted earth shall be applied to any area of the sanitary landfill which will not be utilized for further disposal of solid waste for more than two months. The cover shall be graded to allow surface water runoff.

d. The final cover shall be consistent with the proposed land use but in no event shall be less than two feet.

567—103.5(455B) Specific requirements for a sanitary landfill proposing to accept a specific type of solid waste.

103.5(1) Plan requirements. The plans for sanitary landfills proposing to accept only a specific type of solid waste shall include the following information in addition to that required by Chapter 102 and subrule 103.2(1).

a. The source of the solid waste and a description of the process which produces it.

b. A detailed analysis of the solid waste to be deposited at the site, including such tests as may be required by the department to evaluate the potential impact of disposal of the solid waste on the environment if it is disposed in the manner described in the plans.

c. Engineering detailing how the site will be designed, constructed, and operated to protect ground and surface water resources.

d. If the information submitted in 103.5(1)"b" indicates that no danger of contamination of ground or surface waters exists, the director may waive any rule requiring analysis and definition of subsurface geology.

103.5(2) Specific operating requirements for sanitary landfills proposing to accept a specific type of solid waste. The operating requirements for a sanitary landfill accepting a specific type of solid waste will necessarily vary with the nature of the solid waste. Accordingly, no single standard of operation is practical. The applicant shall submit a plan of operation which incorporates the requirements of Chapter 102 and subrule 103.2(2), and which proposes minimum standards to be maintained at the site for the following operating procedures. The department shall approve the proposed standards if he finds they will provide adequate protection of the environment. The sanitary landfill shall be operated in conformance with Chapter 102, subrule 103.2(2) and the standards approved by the department.

a. Daily, intermediate, and final cover.

b. Number and duties of personnel.

c. Storage and preliminary processing of solid waste.

d. Safety procedures and equipment.

e. Operating equipment.

f. Buildings and shelter.

567—103.6(455B) Specific requirements for a sanitary landfill proposing to accept no solid waste other than municipal sewage sludge.

103.6(1) Plan requirements. The plans for sanitary landfills proposing to accept only sewage sludge from a publicly owned treatment works shall include information required by Chapter 102 and subrule 103.2(1) and the following:

a. The source of the sludge, a description of the process(es) which produce the sludge and a description of the sources and characteristics of the treatment plant influent.

b. Detailed analysis of the sludge to be disposed of at the site including:

(1) Total residue;

(2) Volatile residue;

(3) pH;

(4) Total nitrogen;*

(5) Ammonia nitrogen (NH₃-N);*

(6) Nitrate-nitrogen (NO₃-N);*

(7) Total phosphorous;*

(8) Potassium;*

(9) The following metals:* Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu),

*on a dry weight basis

Lead (Pb), Mercury (Hg), Nickel (Ni), and Zinc (Zn); and

(10) Such other tests as are determined by the department to 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 at the plant producing the sludge, or the operator's designee. This shall be done in a manner and frequency approved by the director and intended to assure that the sampling results are representative of the sludge being disposed.

Analyses shall be performed at a laboratory approved by the state hygienic laboratory. All analyses shall be performed in accordance with the methods described in "Methods for Chemical Analysis of Water and Wastes," 1974 (U.S. EPA) or "Standard Methods for the Examination of Water and Waste Water", 14th Edition, 1976. Alternate methods may be substituted only if acceptable to the state hygienic laboratory and approved by the department.

c. The detailed description of the disposal process required in 102.12(6) shall include:

(1) Method of operation;

(2) Daily and annual loading of the sludge and the significant components of the sludge as identified in the analyses of 103.6(1)"b"; and

(3) Times of use (including durations and frequencies);

d. Information indicating how the operating requirements of 102.13(455B), 103.2(2) and 103.6(2) shall be met.

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

f. Proof of the applicant's ownership of the site or legal entitlement to use the site for the disposal of solid waste for the term of the permit for which application is made.

g. Such other information as is required by the executive director to determine the adequacy of the applicant's plan.

103.6(2) *Operating requirements.* Sanitary landfills accepting only sewage sludges from publicly owned treatment works shall be operated in conformance with Chapter 102, subrule 103.2(2), and this subrule. The plan submitted shall detail how the sanitary landfill will comply with these requirements.

a. Sludge at the site shall be covered after each day of operation with a layer of at least one foot of earth. In no event shall sludge be exposed for more than 24 hours.

b. At least two feet of intermediate cover of earth shall be applied to any area of the site which will not be utilized for further disposal of sludge for more than one week. The cover shall be graded to allow surface water runoff without creating erosion or pollution problems.

c. The final cover shall be consistent with the proposed land use, but in no event shall be less than two feet.

d. Analyses of the sludge shall be performed and submitted to the department on a stipulated schedule and shall include such tests as required to confirm the constituents of the sludge.

103.6(3) Time of compliance. Publicly owned treatment works shall have until July 1, 1979 to comply with this rule.

This rule is intended to implement Iowa Code section 455B.304.

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CHAPTER 104
SANITARY DISPOSAL PROJECTS WITH PROCESSING FACILITIES

(Prior to 7-1-83, DEQ Ch 29)
(Prior to 12-3-86, Water, Air and Waste Management (900))

567—104.1(455B) Scope and applicability. Any sanitary disposal project utilizing any of the equipment described in this chapter shall comply with the requirements for that equipment set out in this chapter, in addition to the requirements of chapter 102. If a composting process is to be used, the contents of 567—Chapter 105 are applicable.

104.1(1) Detailed engineering drawings of the sanitary disposal project shall be submitted showing all conveyor lines, holding areas, loading and unloading areas, transfer points, and initial and permanent roads, buildings and equipment to be installed, unloading and holding areas, fences and gates, landscaping and screening devices, personnel and maintenance facilities, sewer and water lines, lines of flow for all waste and salvaged materials.

104.1(2) Design specifications for all equipment shall be as follows:

a. All equipment which may be cleaned by washing shall be installed on reasonably smooth impermeable floors so designed as to be easily cleaned and having drainage to a sanitary sewer unless other acceptable provisions are made to control process or wash water.

b. All equipment shall be so designed as to prevent spilling of waste and to be easily cleaned and shall be adequately enclosed so as to prevent blowing of dust or litter or wetting of the waste from precipitation or runoff.

567—104.2(455B) Dumping or holding floors or pits.

104.2(1) All unloading area surfaces shall be constructed of impervious, reasonably smooth material so designed as to be easily cleaned, with drainage to a sanitary sewer.

104.2(2) All unloading areas shall have a storage capacity of at least one day's processing capacity.

104.2(3) All unloading areas shall be adequately enclosed and roofed so as to prevent blowing of dust or litter and to prevent precipitation or drainage onto any accumulated waste.

567—104.3(455B) Compaction equipment. All compactors shall be located on reasonably smooth impermeable aprons so designed as to control wash water and area runoff, be easily cleaned, and avoid creation of fly or rodent habitats.

567—104.4(455B) Hammermills.

104.4(1) All hammermills shall be equipped with adjustable water spray or other dust suppression equipment.

104.4(2) All hammermills shall be provided with fire and explosion control or suppression devices or equipment.

104.4(3) Solid waste which cannot be processed by the hammermill or is rejected by it shall be stored in enclosed leakproof containers.

567—104.5(455B) Hydropulping or slurring equipment. All solid waste which cannot be processed by such equipment or is rejected by it shall be stored in enclosed leakproof containers.

567—104.6(455B) Air classifiers. All air classifiers shall be equipped with dust suppression equipment unless air is recirculated.

567—104.7(455B) Metals separation equipment.

104.7(1) Metals separation equipment shall be installed at that point in the process which minimizes possible organic contamination of the metal.

104.7(2) Provisions shall be made for storage of separated materials in enclosed leakproof containers.

567—104.8(455B) Sludge processing.

104.8(1) If introduced to solid waste, sludges shall be introduced after any resource recovery operation.

104.8(2) Sludge addition equipment and storage facilities shall be sanitary and odor free.

567—104.9(455B) Storage containers and facilities.**104.9(1) Storage of solid waste.**

a. Containers used for the storage of all solid wastes except salvaged materials but including refuse derived fuels shall be covered, leakproof, durable and of easily cleanable construction.

b. Facilities used for the storage of all solid wastes except municipal sewage sludge and salvaged materials but including refuse derived fuels shall be constructed as follows:

(1) Storage facilities shall have a smooth, impervious, easily cleaned base.

(2) Storage facilities shall provide leachate collection.

(3) Storage facilities shall prevent runoff entering the facility from adjacent areas.

(4) Storage facilities shall be enclosed to prevent blowing litter and roofed to prevent precipitation into any solid waste.

c. Facilities used for the storage of municipal sewage sludge shall be constructed as follows:

(1) Storage facilities shall have a smooth, impervious, easily cleaned base.

(2) Storage facilities shall provide leachate monitoring and collection. The executive director may accept contingency plans in lieu of an installed collection system.

(3) Storage facilities shall prevent runoff entering the facility from adjacent areas.

(4) Storage facilities shall be designed and constructed to prevent odor, litter, leaching and vector problems. The acceptability of any such facility shall be based on the materials being stored, duration of storage and conditions to be experienced.

104.9(2) *Storage of salvaged materials.* Containers and facilities used for the storage of salvaged materials shall be designed and constructed to prevent odor, litter, leaching and vector problems. The acceptability of any such container shall be based on the materials being stored, duration of storage and conditions to be experienced.

567—104.10(455B) Operating requirements for all processing facilities. All sanitary disposal projects with processing facilities shall be operated in conformance with chapter 102 and this subrule. The plan submitted shall detail how the facility will comply with these requirements.

104.10(1) All equipment shall be cleaned daily unless the department approves less frequent cleaning on a specific schedule stipulating component part, cleaning method, and schedule.

104.10(2) Sewage sludge shall not be handled in such a manner as to present a health hazard or potential source of pollution.

104.10(3) All solid waste processed or rejected by the facility shall be disposed in conformance with these rules.

104.10(4) Emergency access shall be provided to the material in solid waste storage facilities.

104.10(5) Storage time.

a. Solid waste. Solid waste, except for composted materials, but including refuse derived fuels shall not be stored on the site for more than seventy-two (72) hours.

b. Rescinded IAB 10/17/90, effective 11/21/90

104.10(6) Solid waste shall be unloaded at the operating areas only when an operator is on duty at that area. Solid waste may be deposited in storage containers inside the site under the supervision of an attendant or operator.

104.10(7) The operating area for solid waste shall be as small as practicable and shall be surrounded with appropriate barriers to prevent litter from blowing beyond the operating area.

104.10(8) The site shall be fenced to control access and a gate shall be provided at the entrance to the site and kept locked when an attendant or operator is not on duty.

104.10(9) A copy of the permit, engineering plans and reports shall be kept at the site at all times.

104.10(10) Sites not open to the public shall have a permanent sign posted at the site entrance specifying:

- a. Name of operation.
- b. The site permit number.
- c. That the site is not open to the public.
- d. The name and telephone number of the responsible official.

567—104.11(455B) Closure requirements. All sanitary disposal projects with processing facilities shall close in conformance with their approved closure plan, this rule, and the requirements of Chapter 102.

104.11(1) All equipment, storage facilities, holding areas, and drainage collection systems shall be cleaned and decontaminated.

104.11(2) All processed waste, stored waste and waste from cleaning and decontaminating the facility shall be removed and disposed of in a permitted disposal facility.

104.11(3) Disposal projects with processing facilities may be required to obtain a closure permit described in 102.2(4), dependent upon the potential of the closed facility for environmental impact.

These rules are intended to implement Iowa Code section 455B.304.

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**CHAPTER 105
YARD WASTE DISPOSAL AND SOLID WASTE
COMPOSTING FACILITIES**

567—105.1(455B,455D) General. This chapter shall apply to the composting of solid wastes, except animal manure, animal bedding and crop residue. If animal wastes are mixed with other solid wastes for the purpose of composting, this chapter does apply. Land application of yard waste shall be in conformance with this chapter and 567—Chapter 121, Iowa Administrative Code.

105.1(1) Two types of composting are allowed, yard waste and solid waste.

a. Yard waste composting involves only yard waste. If the yard waste composting facilities can operate in accordance with these rules, they are exempt from having a permit. If collection and recirculation of water is used, all solid waste composting criteria are applicable.

b. Solid waste. Composting involves any waste used in addition to or other than yard waste. Solid waste composting facilities shall require a permit. Solid waste composting facilities may include: windrows that are turned frequently, static piles with air circulation, aerated in-vessel techniques or other methods approved by the department. Solid waste composting shall include composting sewage sludge, municipal solid waste or any other waste with or without yard waste.

105.1(2) Beginning January 1, 1991, burial of yard waste at a sanitary landfill is prohibited. However, yard waste which was separated at its source from other solid waste may be accepted by a sanitary landfill for the purposes of soil conditioning or composting. The incineration of yard waste at a sanitary landfill is prohibited.

105.1(3) By March 21, 1991, each city and county shall, by ordinance, require persons within the city or county to separate yard waste from other solid waste generated. By January 1, 1991, municipalities which provide for a collection system for solid waste shall provide for a collection system for yard waste which is not composted.

105.1(4) The use of yard waste as land cover or soil conditioner is not prohibited. Land application of yard waste should be in conformance with this rule.

567—105.2(455B,455D) Exemptions. Projects not exempted must follow requirements relating to type of waste being composted as stated in this chapter.

105.2(1) Yard waste generated, composted and disposed of on the same premises where it originated does not require a permit. This composting shall not create a nuisance.

105.2(2) Tree chipping facilities are not regulated by this chapter.

105.2(3) Firewood processing facilities are not regulated by this chapter.

105.2(4) Composting facilities using only animal manure, animal bedding or crop residues as compost materials are not regulated by this chapter.

567—105.3(455B,455D) General operating requirements for all composting facilities. Solid waste composting facilities shall be operated in conformance with 567—Chapter 102 (567—102.1(455B) to 102.13(7) and this rule. The plans required in 567—102.13(455B) shall detail the means by which the following operating requirements shall be complied with. Yard waste composting facilities do not have to comply with 567—Chapter 102, but they shall keep records on the premises showing compliance with this rule.

105.3(1) Materials resulting from composting or similar processes shall be innocuous and shall contain no sharp particles which would cause injury to persons handling the compost. Sale shall be in compliance with all applicable federal and state laws and local ordinances and regulations.

105.3(2) Solid waste which cannot be composted or which is removed during processing shall be handled in a manner which will not create pollution or a nuisance and shall be disposed of by another method provided in 567—Chapters 100 to 110, Iowa Administrative Code.

105.3(3) Solid waste including yard waste shall be unloaded at the operating areas only when an operator is on duty at that area.

105.3(4) The operating area for composting shall be as small as practicable and shall be surrounded with appropriate barriers to prevent litter from blowing beyond the operating areas.

105.3(5) The site shall be fenced to control access and a gate shall be provided at the entrance to the site and kept locked when an attendant or operator is not on duty.

105.3(6) Emergency access shall be provided to the site. Alleyways shall be maintained to provide access for fire fighting equipment.

567—105.4(455B,455D) Specific requirements for yard waste composting facilities. This rule applies to facilities composting only yard waste. Facilities in conformance with this chapter shall not require a permit to operate.

105.4(1) Yard waste to be composted must be taken out of containers. Yard waste may be left in the bags only if the bags are biodegradable. The biodegradable bags shall be opened by some means before composting.

105.4(2) An all-weather surface must be used for the unloading area. The all-weather surface shall be made of materials that will permit accessibility during periods of inclement weather.

105.4(3) The area of the composting facility must be large enough for the volume of yard waste composted. One acre shall be used for every 6,000 cubic yards of yard waste composted. Windrows and alleys between windrows shall be kept distinct at all times. The composting facility may determine the volume of yard waste accepted by using the following conversion factors:

1 ton of grass = 5 cubic yards

1 ton of leaves = 8 cubic yards

1 ton of wood chips = 7.9 cubic yards

105.4(4) Compost must be turned at least once per month.

105.4(5) Composting shall be done on a surface which is 1 percent to 3 percent slope.

105.4(6) The facility must be 100 feet from any existing habitable residence unless there is written agreement with the owner of the residence and the site is separated by natural objects, plantings, fences, or other appropriate means. The residence must be in existence on the date of application for the original permit from the department. The written agreement shall be filed with the county recorder and recorded for abstract of title purposes, and a copy submitted to the department.

105.4(7) Ponding of water must be prevented.

105.4(8) Measures shall be taken to prevent water from running onto the facility from adjacent land.

105.4(9) Sites shall have a permanent sign posted at the entrance specifying:

a. Name of operation,

b. The operating hours,

c. The name and telephone number of the responsible official,

d. Materials which are accepted.

105.4(10) Litter shall be confined to the property on which the composting facility is located. At the conclusion of each day of operation, any litter strewn beyond the confines of the operating area shall be collected and stored in covered leakproof containers or properly disposed.

105.4(11) Record-keeping requirements. The yard waste compost facility shall maintain the following records: dates the compost was turned, volume of yard waste accepted, and volume of compost removed from the site. These records shall be maintained for a period

of two years after last use of the compost site. These records shall be available at the site or city hall for inspection and evaluation by the department at any time during normal operating hours.

105.4(12) Notification. Before opening a yard waste composting facility, the department shall be notified in writing of the location of the composting facility. The notice shall also contain the legal description of the site, the landowner, the responsible official, and capacity of the site.

105.4(13) If finished compost is to be offered for sale as a soil conditioner or fertilizer, the compost must be registered by the department of agriculture and land stewardship under Iowa Code chapter 200, Iowa Fertilizer Law.

105.4(14) Storage of finished yard waste compost. Storage of finished compost is limited to 12 months.

105.4(15) If the operation of the facility results in a discharge of wastewater or if a runoff control basin is required then the facility must obtain a sanitary disposal permit and is subject to the conditions in this chapter.

567—105.5(455B,455D) Specific design requirements for solid waste composting facilities. The plans required in rule 567—102.12(455B) and the following design requirements shall be met.

105.5(1) Detailed engineering drawings of the site showing all initial and permanent roads, buildings and equipment to be installed; unloading and holding areas; fences and gates; landscaping devices; personnel and maintenance facilities; sewer and water lines.

105.5(2) Method of composting.

105.5(3) Duration of composting.

105.5(4) Method of removal of composted materials.

105.5(5) Final disposition of the composted materials.

105.5(6) The facility must be 500 feet from any existing habitable residence unless there is written agreement with the owner of the residence and the site is separated by natural objects, plantings, fences, or other appropriate means. The residence must be in existence on the date of application for the original permit from the department. The written agreement shall be filed with the county recorder and recorded for abstract of title purposes, and a copy submitted to the department.

105.5(7) Measures shall be taken to prevent water from running onto the facility from adjacent land.

105.5(8) Composting must take place on an impervious base that can support the load of the equipment used. The permeability coefficient of the base must be less than 1×10^{-7} cm/sec (0.00028 ft/day). This must be determined by permeameter testing of a minimum of two undisturbed samples.

105.5(9) The base may be constructed with asphaltic cement concrete, portland cement concrete, or similar materials able to support the equipment load and meet the permeability coefficient.

105.5(10) The low permeability, thickness, and continuity of the base material must be maintained.

105.5(11) The area of the base must be adequate for the volume of solid waste being composted. Design calculations must be submitted supporting the proposed area of the base. These calculations should show support for equipment load and composting process used.

105.5(12) A detention basin must be constructed to provide collection of runoff water.

a. The detention basin shall be designed to contain runoff from a 25-year, 24-hour precipitation event. Pertinent information can be found in the department of agriculture and land stewardship publication, "Climatology of Iowa Series #2—1980." The detention basin must also collect all runoff water resulting from the composting facility.

b. The detention basin shall be located, constructed, and tested according to Chapter 18C of the "Iowa Wastewater Facilities Design Standards." (See 567—64.2(9)"b")

(1) One or more piezometers must be used to determine the water table as referenced in 18C.3.5.2.

(2) If a clay liner is used, the coefficient of permeability must be less than 1×10^{-7} cm/sec (0.00028 ft/day). This must be determined by permeameter testing of a minimum of two undisturbed samples.

(3) If a synthetic liner is used, testing for leaks must be done according to manufacturer's directions or methods approved by the department.

105.5(13) The detention basin shall not discharge to surface waters except as allowed by an NPDES permit.

105.5(14) A maintenance plan for the detention basin shall be submitted to the department. It should address maintenance of design volume and repair of leaks. If a clay liner is used, the plan should also address repair of cracks that form due to drying or as a result of the freeze/thaw cycle.

567—105.6(455B,455D) Specific operating requirements for solid waste composting facilities. The plans required in 567—102.13(455B,455D) shall detail the means by which the following operating requirements shall be met.

105.6(1) If mechanical sorting, grinding, or other processing of the waste occurs, operation shall be in conformance to 567—Chapter 104.

105.6(2) Process water must be available as needed during times of low precipitation and for enclosed projects.

105.6(3) The method to be used to prevent discharge from the detention basin must be specified (sewer or hauling equipment).

105.6(4) The compost must be turned at least once per week to provide aeration, or a system of air circulation must be used.

105.6(5) The method used to provide temperature control for proper composting and pathogen destruction must be specified.

105.6(6) If the criteria for finished compost as specified in 567—105.9(455B,455D) cannot be met, compost must be returned to process, disposed of in a landfill or other approved disposal method.

105.6(7) All holding areas for composted material and storage of finished (cured) compost must occur on an all-weather surface. The all-weather surface shall be accessible during periods of inclement weather.

105.6(8) To monitor the operation, records shall be maintained by the operator as required by the director. The records shall be maintained on the premises for departmental review upon inspection. These records shall include, but not be limited to, the following:

- a. Twice weekly temperature readings of compost piles, batches, or windrows;
- b. Volume of waste accepted daily;
- c. Volume or weight of compost removed from facility;
- d. Documentation showing compliance with 105.12(455B,455D) including application site legal descriptions.

105.6(9) A copy of the permit, engineering plans and reports shall be kept at the site at all times.

105.6(10) The compost must be passed through a screen with holes that are three-eighths inch or less in size.

105.6(11) If equipment is not dedicated to the compost project, it must be cleaned before removing it from the site. If sewage sludge is composted, the cleaning must include pathogen destruction. This may be accomplished by using a hot soap spray or any other germicidal product.

567—105.7(455B,455D) Reporting requirements for solid waste composting facilities.

105.7(1) An annual report of the analytical results required in 105.9(455B,455D) and record keeping required in 105.6(8) and 105.9(1) must be submitted to the department on July 1.

105.7(2) The records required in 105.6(8) and 105.9(1) should be condensed into monthly totals. The twice weekly temperature reports should consist only of data required to support 105.9(1).

567—105.8(455B,455D) Closure requirements. Solid waste composting facilities shall be closed in conformance with their approved closure plan. This rule, the requirements in rule 567—104.11(455B) and the requirements of 567—Chapter 102. Upon review of the closure plan, the department may require groundwater monitoring systems at the facility.

567—105.9(455B,455D) Finished compost. Only cured solid waste compost meeting the following criteria may be considered as finished compost which is ready for use. Compost must be held at a temperature above 55 degrees Celsius (131 degrees Fahrenheit) for at least two weeks for the purpose of pathogen destruction. Other time periods may be approved by the department for aerated static piles or in-vessel composting.

567—105.10(455B,455D) Storage of finished solid waste compost. Storage of finished compost is limited to 12 months.

567—105.11(455B,455D) Compost for sale. If the compost is to be offered for sale as a soil conditioner or fertilizer, the compost must be registered by the department of agriculture and land stewardship under Iowa Code chapter 200, Iowa Fertilizer Law.

567—105.12(455B,455D) Application rates for finished compost. Compost resulting from only yard waste is not subject to the following application rates. Yard waste compost may be applied at any rate. The following application rates apply to all other composted materials meeting the criteria in 105.9(455B,455D).

The application rates are not in excess of 30 tons per acre/year dry weight and the constituent levels do not exceed the levels specified below per acre per year. (Note: Records maintained for the purpose of documenting compliance with this rule must include waste loading rate, concentration and calculated constituent loading rate for all lands so utilized.)

Metal	Cumulative Limits Soil Cation Exchange Capacities		
	< 5	5-15	> 15
Cadmium (Cd)	4.4 lb/ac	8.9 lb/ac	17.8 lb/ac
Copper (Cu)	125 lb/ac	250 lb/ac	500 lb/ac
Lead (Pb)	500 lb/ac	1,000 lb/ac	2,000 lb/ac
Nickel (Ni)	125 lb/ac	250 lb/ac	500 lb/ac
Zinc (Zn)	250 lb/ac	500 lb/ac	1,000 lb/ac

If the above-mentioned criteria cannot be met, a land application permit is required pursuant to 567—121.3(455B).

567—105.13(455B,455D) Land application of yard waste. Land application of yard waste is allowed.

105.13(1) The yard waste shall be taken out of containers and the containers shall be removed from the land application site.

- 105.13(2) The site shall be managed to prevent waste from leaving the property line.
105.13(3) The land application shall not exceed 20 tons per acre per year.
105.13(4) Yard waste can be stored for two weeks before it must be land applied.
These rules are intended to implement Iowa Code Supplement sections 455B.304 and 455D.9.

[Filed 9/1/71; amended 2/13/74]

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CHAPTER 106 RECYCLING OPERATIONS

[Prior to 7/1/83, DEQ Ch 31]

[Prior to 12/3/86, Water, Air and Waste Management (900)]

567—106.1(455B) Specific design requirements. The plans required in 102.12(455B) shall include a complete description of initial and permanent roads, buildings and equipment to be installed; unloading and holding areas; fences and gates; landscaping and screening devices; personnel and maintenance facilities; sewer and water lines, the method of processing reclaimed salvageable materials, the disposition of such materials, the transfer points to which they will be moved, capacities of such points, and frequency of interchange shall be shown.

567—106.2(455B) Specific operating requirements for all recycling operations. The plans required in 102.12(455B) shall detail the means by which the following requirements will be complied with.

106.2(1) Material which cannot be recycled or removed during processing shall be handled in a manner which will not create pollution or a nuisance and shall be disposed of by another method provided in these rules.

106.2(2) Solid waste shall be unloaded at the operating areas only when an operator is on duty at that area. Solid waste may be deposited in storage containers inside the site under the supervision of an attendant or operator.

106.2(3) The operating area for solid waste shall be as small as practicable and shall be surrounded with appropriate barriers to prevent litter from blowing beyond the operating area.

*Subrules 105.2(1) and 105.2(4) rescinded; subrules 105.2(9), to 105.2(11) renumbered 105.2(7) to 105.2(9).

106.2(4) The site shall be fenced to control access and a gate shall be provided at the entrance to the site and kept locked when an attendant or operator is not on duty.

106.2(5) A copy of the permit, engineering plans and reports shall be kept at the site at all times.

106.2(6) Sites not open to the public shall have a permanent sign posted at the site entrance specifying:

- a. Name of operation.
- b. The site permit number.
- c. That the site is not open to the public.
- d. The name and telephone number of the responsible official.

These rules are intended to implement Iowa Code section 455B.304.

567—106.3(455B) Recycling operations processing paper, cans and bottles. Recycling operations which handle only paper, cans, and bottles are exempt from 106.1(455B) and 106.2(455B), and chapters 102 and 104 if the operation has no mechanical processing facilities or if the operation receives on average less than two (2) tons of paper, cans, and bottles per day. Such operations shall submit the following information to the department for distribution to the public; address or legal description of site, organization operating the facility, name and phone number of the responsible official of the facility, type of waste to be handled, operating days and hours.

567—106.4(455B) Closure requirements. All recycling operations shall be closed in conformance with their approved closure plan, this rule, rule 104.11(455B), and the requirements of Chapter 102.

These rules are intended to implement Iowa Code section 455B.304.

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*Subrules 106.2(4) and 106.2(5) rescinded, subrule 106.2(6) to 106.2(8) renumbered as 106.2(4) to 106.2(6). IAB 9 12 54

CHAPTER 107
BEVERAGE CONTAINER DEPOSITS

[Prior to 7/1/83, DEQ Ch 34]
[Prior to 12/3/86, Water, Air and Waste Management (900)]

567—107.1(455C) Scope. This chapter is intended to implement the provisions of Iowa Code chapter 455C. The Act requires that every alcoholic liquor container, beer, mineral water, soda water or carbonated soft drink container sold in Iowa for consumption off the premises of the dealer be subject to a deposit of five cents (5¢) or more. Such container must have indicated on it that the container is subject to a minimum refund of five cents (5¢) or must be exempt from the requirement of having the refund value indicated on it. An empty container on which a deposit was made may be returned to any dealer in the state who sells the kind, brand and size of container or may be returned to a redemption center. The dealer or redemption center must accept the empty container and refund the deposit.

The Act also prohibits the sale at retail of any metal beverage container so designed and constructed that a part of the container is detachable in opening, the so-called "pop-top can".

This chapter contains rules specifying the minimum size of type to be used for indicating the minimum refund value on beverage containers, rules relating to approval of redemption centers for beverage containers and rules relating to exemptions from labeling the refund value on beverage containers. This chapter also contains interpretive rules that clarify or interpret the statute, or apply the statute to specific factual situations.

567—107.2(455C) Definitions. As used in this chapter:

"Act" means Iowa Code chapter 455C.

"Alcoholic beverage" means any beverage containing more than one-half of one percent (0.5%) of alcohol by volume including alcoholic liquor, wine, and beer.

"Alcoholic liquor" or "intoxicating liquor" means the varieties of liquor defined hereunder in paragraphs 1 and 2 which contain more than five percent (5%) of alcohol by weight, beverages made as described in the definition of "beer" which beverages contain more than five percent (5%) of alcohol by weight but which are not wine as defined in this rule, and every other liquid or solid, patented or not, containing spirits and every beverage obtained by the process described in the definition of "wine" containing more than seventeen percent (17%) alcohol by weight, and susceptible of being consumed by a human being, for beverage purposes.

1. "Alcohol" means the product of distillation of any fermented liquor rectified one or more times, whatever may be the origin thereof, and includes synthetic ethyl alcohol.

2. "Spirits" means any beverage which contains alcohol obtained by distillation mixed with drinkable water and other substances in solution, including, but not limited to, brandy, rum, whisky, and gin.

3. Rescinded effective July 1, 1985.

"Approved redemption center" means a redemption center that has been approved by the department pursuant to 107.4(455C).

"Beer" means any liquid capable of being used for beverage purposes made by the fermentation of an infusion in potable water of barley, malt, and hops, with or without unmalted grains or decorticated and degerminated grains or made by the fermentation of or by distillation of the fermented products of fruit, fruit extracts, or other agricultural products, containing more than one-half of one percent (0.5%) of alcohol by volume but not more than five percent (5%) of alcohol by weight but not including mixed drinks or cocktails mixed on the premises.

"Beverage" means wine as defined in Iowa Code section 123.3, subsection 7, alcoholic liquor as defined in Iowa Code section 123.3, subsection 8, beer as defined in Iowa Code section 123.3, subsection 9, mineral water, soda water or similar carbonated soft drinks in liquid form intended for human consumption.

"*Beverage container*" means any sealed glass, plastic, or metal bottle, can, jar or carton containing a beverage.

"*Carbonated*" means charged under pressure with carbon dioxide.

"*Commission*" means the environmental protection commission of the department of natural resources.

"*Consumer*" means any person who purchases a beverage in a beverage container for use or consumption.

"*Dealer*" means any person who engages in the sale of beverages in beverage containers to a consumer.

"*Department*" means the department of natural resources.

"*Director*" means the director of the department of natural resources.

"*Distributor*" means any person who engages in the sale of beverages in beverage containers to a dealer in this state, including any manufacturer who engages in such sales.

"*Exempt beverage container*" means a beverage container that is not marked with the words "Iowa Refund 5¢" because it is a refillable glass beverage container having a brand name permanently marked on it and having a refund value of five (5) or more cents or because it is a refillable metal or plastic beverage container that has been exempted, in accordance with the procedure of 107.3(7), from the requirement of having the refund value marked on the container. An exempt beverage container is exempt from having the words "Iowa Refund 5¢" indicated on the container, but is not necessarily exempt from the minimum deposit.

"*Manufacturer*" means any person who bottles, cans, or otherwise fills beverage containers for sale to distributors or dealers.

"*Mineral water*" means water naturally or artificially infused with mineral salts or gases. Mineral water may be carbonated or uncarbonated.

"*Redemption center*" means any establishment other than a dealer's premises at which consumers may return empty beverage containers and receive payment of the refund value of the containers, or means the premises of a dealer if the dealer voluntarily chooses to accept, and refund the deposit on, empty beverage containers (other than alcoholic liquor containers) that are not of the kind, size and brand sold by the dealer. A redemption center is either an approved redemption center or an unapproved redemption center.

"*Soda water*" means water that has been carbonated.

"*Soft drink*" means any nonalcoholic liquid other than mineral water or soda water intended for human consumption.

"*Unapproved redemption center*" means a redemption center that has not been approved by the department pursuant to 107.4(455C).

"*Wine*" means any beverage containing more than five percent (5%) but not more than seventeen percent (17%) alcohol by weight obtained by the fermentation of the natural sugar contents of fruits or other agricultural products but excluding any product containing alcohol derived from malt or by the distillation process from grain, cereal, molasses, or cactus.

This rule is intended to implement Iowa Code sections 455C.1 and 455C.9.

567—107.3(455C) Labeling requirements.

107.3(1) All beer, wine, mineral water, soda water and carbonated soft drink containers (other than exempt containers) sold or offered for sale in Iowa by a dealer shall have the words "Iowa Refund 5¢" clearly and legibly indicated on the container. If the refund value is more than five cents (5¢), the greater value may be indicated, e.g., "Iowa Refund 10¢." The words may be abbreviated if a request to use a specific abbreviation is submitted to and approved by the director.

107.3(2) The minimum size of the words "Iowa Refund 5¢" shall be 9 point type (approximately .125 inch or 3 millimeters) if the words are embossed and 18 point type (approximately .25 inch or 6 millimeters) if the words are otherwise affixed to the container. A stamp or label may have the words "Iowa Refund 5¢" in less than 18 point type if the label is submitted to the director and the director determines that the contrasting color, or the characteristics of the stamp or label make the stamp or label as easy to discern as a stamp or label with 18 point type.

107.3(3) The words "Iowa Refund 5¢" shall be indicated by embossing (raised letters) or by a stamp, label or other method securely and permanently affixed to the container.

107.3(4) The print on a stamp, label or other method used to indicate the words "Iowa Refund 5¢" should be in a high contrast color.

107.3(5) The words "Iowa Refund 5¢" should be on the end of a metal beverage container. The words "Iowa Refund 5¢" should be on the conical portion of a glass or plastic beverage container so that the words are visible from above.

107.3(6) An exemplar of the label or labeled container may, but need not, be submitted to the director for informal approval.

107.3(7) An application for exemption from the requirement of having the words "Iowa Refund 5¢" indicated on the container shall be on form LQ 37 or on 8½ x 11 inch paper and contain:

- a. The name, address and phone number of the applicant;
- b. The kind of container, i.e., glass, metal or plastic; the size in fluid ounces or milliliters and the contents, i.e., beer, mineral water, soda water or carbonated soft drink;
- c. The refund value of the container; and
- d. A statement of why the container can be readily and permanently identified by consumers as subject to a deposit.

107.3(8) The director may exempt the container if the director determines that the container is subject to a deposit of five (5) or more cents and that consumers can readily and permanently identify the container as one subject to a deposit.

107.3(9) The director shall maintain and, from time to time, distribute a list of all brands, kinds and sizes of beverage containers that have been exempted from the requirement of having the words "Iowa Refund 5¢" indicated on the container.

567—107.4(455C) Approval of redemption centers.

107.4(1) *Approved and unapproved redemption centers explained.* The Act provides for both approved and unapproved redemption centers. Both approved and unapproved redemption centers perform the same activity, that is, redemption of empty beverage containers; and both are lawful. However, an approved redemption center relieves any dealer covered in the order approving the redemption center from the obligation of redeeming those empty beverage containers covered in the order under 107.4(4). Thus the difference between an approved and unapproved redemption center, is in the effect on the obligation of dealers to redeem certain empty beverage containers rather than in the activity performed by the redemption center.

107.4(2) Nothing in the Act or this chapter prevents a person from establishing a redemption center that has not been approved by the director. However, an unapproved redemption center does not relieve any dealer of the responsibility to refund the deposit to the consumer upon presentation of any empty beverage container.

107.4(3) *Contents of application for approval.* An application for approval of a redemption center shall be on form LQ 38 or on 8½ x 11 inch paper that contains the following information:

- a. Name, address and phone number of the person or persons responsible for the establishment and operation of the redemption center;
- b. The address and phone number, if in service, of the redemption center;
- c. The kinds, sizes, and brand names of the beverage containers which will be accepted at the redemption center;
- d. The names and addresses of the dealers to be served by the redemption center and the written consent of those dealers to be served by the redemption center;
- e. Distance, in blocks or other appropriate measure, from the redemption center to each dealer to be served by the redemption center;
- f. The names and addresses of the distributors whose beverage containers will be redeemed;

- g. The hours the redemption center is to be open;
- h. Whether metal or glass beverage containers will be crushed or broken and, if so, the written consent of the distributor or manufacturer to the crushing or breaking;
- i. Reasons why the dealer and redemption center believe that the center will provide a convenient service to consumers.

107.4(4) An order of the director approving a redemption center shall not authorize a redemption center to accept and pay the refund value of beverage containers purchased from Iowa state liquor stores.

107.4(5) A dealer served by an approved redemption center must prominently post on the premises of the dealer the location and hours of the redemption center.

567—107.5(455C) Redeemed containers — use. Distributors are requested to inform the director of the intended ultimate use or disposal of redeemed beverage containers. The commission encourages the reuse or recycling of empty beverage containers and the department will assist distributors in finding and examining alternatives to burial of empty containers in sanitary landfills.

567—107.6(455C) Rules relating to alcoholic liquor containers and wine containers purchased from state-owned liquor stores.

107.6(1) *Labeling.* All alcoholic liquor containers and wine containers (except alcoholic liquor containers and wine containers sold to holders of liquor control licenses or beer or wine permits, as defined in Iowa Code chapter 123) sold by state-owned liquor stores shall have the words "Iowa Refund 5¢" clearly and legibly indicated on the container. If the refund value is more than five cents (5¢) the greater value may be indicated, e.g., "Iowa Refund 10¢." The words may be abbreviated if a request to use a specific abbreviation is submitted to and approved by the director.

107.6(2) *Mandatory deposit.* The consumer (other than the holder of a liquor control license or beer or wine permit, as defined in Iowa Code chapter 123) will be charged a five-cent (5¢) deposit on each alcoholic liquor container or wine container sold in the state of Iowa.

107.6(3) *Refund.* Alcoholic liquor containers and wine containers bearing the refund label described in 107.6(1) and 107.6(4) may be redeemed in any state-owned liquor store if the empty beverage containers are clearly marked to indicate that they were sold in a state-owned liquor store. Alcoholic liquor containers bearing the label described in 107.6(1) and 107.6(4), shall not be redeemed by an approved or unapproved redemption center or by a dealer other than the alcoholic beverages division of the department of commerce. Wine containers bearing the refund label described in 107.6(1) and 107.6(4), except wine containers with a state liquor store label attached, shall be redeemed by any dealer, which sells the kind, size and brand as the empty wine container. A dealer, other than a state liquor store, or a distributor may refuse to accept and to pay the refund value of an empty wine container which is marked to indicate that it was sold by a state liquor store. A state liquor store may refuse to accept and to pay the refund value of an empty wine container which is not marked to indicate that it was sold by a state liquor store.

107.6(4) The provisions of subrules 107.3(2) to 107.3(9) shall fully apply to the refund labeling requirements of liquor containers and wine containers as fully as if set forth in this rule.

107.6(5) Each beverage container containing wine or alcoholic liquor which is sold or offered for sale in a state liquor store shall also be marked by embossing or by stamp, label, or other methods securely affixed to the container to indicate that it was sold in a state liquor store.

This rule is intended to implement Iowa Code sections 455C.4 and 455C.5, as amended by 1985 Iowa Acts, chapter 32.

567—107.7(455C) Redeemed containers must be reasonably clean. Consumers should take care to return containers in a reasonably clean condition. In order to be redeemed, an empty beverage container shall be free of materials, such as paper, sticks and cigarette butts, other than the residue of the beverage.

567—107.8(455C) Interpretive rules.

107.8(1) Beverage containers "sold" on interstate carriers. It is common practice for interstate carriers to provide or sell soft drinks, beer, wine, or alcoholic liquor to passengers for consumption on the conveyance. Such containers are not a litter problem and their return would be impractical. Since statutes should be construed to avoid a strained or impractical result, the commission believes that control of the beverage containers "sold" on interstate carriers is beyond the objectives sought to be obtained by the Act and that these containers are not subject to the deposit and labeling requirements of the Act.

107.8(2)* Beverage containers must be reasonably intact. In order to be redeemed, an empty beverage container must be returned reasonably intact. For a refillable beverage container, the container must hold liquid, be able to be resealed and be in its original shape. A nonrefillable glass container may be chipped, but it may not have the bottom broken out or the neck broken off. A nonrefillable metal container may be dented or partially crushed, but may not be crushed flat. A returned beverage container should be able to stand on its own base. (Reason: Section 2.2 of the Act provides in part: "A dealer or person operating a redemption center may compact empty metal beverage containers with the approval of the distributor required to accept such containers." So far as metal beverage containers are concerned, such right of approval in the distributor would be meaningless if the dealer were required to accept and redeem crushed metal beverage containers from consumers. Since there appears to be no reason to treat distributors of non-refillable glass beverage containers different than distributors of metal beverage containers, there is presumably a corresponding right in the distributors of nonrefillable glass beverage containers to approve the destruction of the containers.)

107.8(3) Vending machines.

a. When a beverage container is dispensed from a vending machine in exchange for money, there is presumed to be a "sale of a beverage in a beverage container to a consumer" within the meaning of 107.2(13). Therefore some person must be the "dealer" who is responsible for collecting the deposit at the time of sale and for refunding the deposit upon return of the empty beverage container. Because of the variety of contractual relationships surrounding operation of a vending machine, the person who is the "dealer" might be the owner of the vending machine, the lessee of the vending machine, the owner of the premises on which the vending machine is located, or the person who stocks the vending machine. It is incumbent upon the parties involved in the operation of a vending machine to determine the person who is the "dealer" and to indicate prominently on the vending machine the name, location and normal operating hours of the dealer (or an approved redemption center) if the dealer does not have personnel on its premises.

b. If the vending machine is located on premises where personnel of the dealer are not normally working, there is no obligation to provide personnel to redeem beverage containers at the site of the vending machine. However, the "dealer" must provide for redemption of beverage containers at the dealer's usual working place.

*Objection filed 1/3/79, see IDEQ, 34.8(2) IAB 1/24/79.

107.8(4) *Transfer tanks, premix tanks and beer kegs.* Because transfer tanks, premix tanks and beer kegs (half-kegs, quarter kegs or pony kegs) are refillable, are returned to distributors and are not a litter problem, the commission believes that control of these containers is beyond the objectives sought to be obtained by the Act and that these containers are not subject to the deposit and labeling requirements of the Act.

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CHAPTER 108
REUSE OF SOLID WASTE

(Prior to 7/1/83, DEQ Ch 39)
(Prior to 12/3/86, Water, Air and Waste Management (900))

567—108.1(455B) Scope. This chapter establishes the conditions under which certain solid wastes may be reused. Solid waste which is not reused in accordance with this chapter must be disposed, processed, composted, recycled or land applied in conformance with chapters 101 to 121 of these rules.

567—108.2(455B) Definitions. For the purposes of this chapter, the following terms shall have the meaning indicated in this rule.

"Coal combustion residue" means any solid waste produced by the burning of coal, either by itself or in conjunction with natural gas or other fossil fuels. It includes, but is not limited to, bottom ash, fly ash, slag, and flue gas desulfurization sludge generated by coal combustion and associated air pollution control equipment.

"Wetlands" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

567—108.3(455B) Coal combustion residue.

108.3(1) General conditions for reuse.

a. Storage and use of coal combustion residue shall be in a manner that will not significantly degrade ground or surface water, create a public health hazard or create a nuisance.

b. Coal combustion residue shall not be placed or stored on any wetland or in any water of the state.

108.3(2) Uses for which no permit is required. Coal combustion residue may be stored or used for the following purposes without a permit:

a. *Raw material.* As a raw material in cement or concrete, filler in asphalt or plastic, and any other similar use where the coal combustion residue is bound up in cementitious material so that leaching and dusting do not occur. Use as a raw material does not include pretreating coal combustion residue for the purpose of disposal.

b. *Fill base.* As a fill base for roads, parking lots, and any other similar use, not to exceed an average of one ton for each twenty-five (25) square feet of area covered or an average thickness of twelve (12) inches.

c. *Mineral recovery.* As a raw material to be used in mineral recovery.

d. *Gypsum source.* As a source of gypsum in wallboard, plaster or similar uses.

e. *Other uses.* Any single use of 500 dry tons or less.

These rules are intended to implement Iowa Code section 455B.304.

[Filed 1/25/83, Notice 9/15/82—published 2/16/83, effective 3/23/83]

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

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

CHAPTER 109
FEEES FOR DISPOSAL OF SOLID WASTE AT SANITARY LANDFILLS

(Prior to 12.3.86, Water, Air and Waste Management(900))

567—109.1(455B) Authority, purpose and applicability.

109.1(1) Authority. Pursuant to Iowa Code section 455B.310, the department has authority to collect fees for the disposal of solid waste at sanitary landfills. All tonnage fees received by the department under this chapter shall be deposited in the solid waste account of the ground-water protection fund created under Iowa Code section 455E.11(1).

109.1(2) Purpose. The purpose of these rules is to provide an orderly and efficient process for the assessment and collection of fees for the disposal of solid waste at a sanitary landfill. These rules clarify the applicability of the fees and set forth a fee schedule, means of filing, and recordkeeping requirements.

109.1(3) Applicability. Except as provided in rule 109.3(455B), operators of all sanitary landfills located within Iowa and subject to the permitting requirements of the department shall pay a fee for each ton of solid waste disposed of in the landfill.

567—109.2(455B) Definitions. In addition to the definitions in Iowa Code section 455B.301 and in rule 100.2(455B), the following terms have the meaning indicated in this chapter.

"Residential and commercial solid waste" means solid waste, excluding sewage sludge and liquid wastes, which are primarily generated by residential and commercial activities but may include minor amounts of industrial wastes that are in the total waste stream and are not hazardous. For the purposes of these rules, trees and brush are considered to be part of the residential and commercial solid waste category.

567—109.3(455B) Exclusions.

109.3(1) The fees specified in rule 109.4(455B) do not apply to solid waste disposal facilities with special permit provisions which limit the site to the disposal of construction and demolition waste, landscape waste, coal combustion waste, foundry sand and solid waste materials approved by the department for lining or capping or constructing berms, dikes or roads in the project.

109.3(2) Fees do not apply to wastes which will not be buried at a sanitary landfill, if such material is salvaged or recycled in accordance with the provisions of the landfill permit.

567—109.4(455B) Fee schedule.

109.4(1) Effective date. On and after April 1, 1986, fees shall begin to accrue for the disposal of solid waste in sanitary landfills within Iowa.

109.4(2) Fee.

a. For the year beginning July 1, 1988, the tonnage fee is \$1.50 per ton of solid waste and shall increase annually in the amount of \$.50 per ton through July 1, 1992.

b. For purposes of assessing this fee, sanitary landfills which utilize scales shall base the assessment on the net scale weight of solid wastes disposed of at the landfill during the reporting period. During periods when scales are not in operation, the landfill shall estimate the weight of solid waste received. In lieu of weighing cars, vans, pickups, and similar small vehicles, the weight of waste delivered to the landfill in such vehicles may be estimated. All weight estimates shall be made by determining the waste volume received and converting to an equivalent weight basis, using the conversion factors listed in subparagraph 109.4(2) "c" of these rules.

c. Sanitary landfills which do not utilize scales shall assess this fee by one of the following methods:

(1) The landfill may determine the volume of each type of solid waste disposed of at the landfill during the reporting period and convert this volume to an equivalent weight basis, using the following conversion factors:

Type of Waste	Volume/Weight Conversion
Residential and Commercial Solid Waste	
As delivered-compacted	1 cubic yard = 500 pounds
As delivered-loose	1 cubic yard = 200 pounds
Industrial Solid Waste	
As delivered-compacted	1 cubic yard = 500 pounds
As delivered-loose	1 cubic yard = 200 pounds
Sludge and Liquid Waste	1 cubic yard = 1,700 pounds
Construction and Demolition Waste	1 cubic yard = 1,250 pounds
Contaminated soil	1 cubic yard = 2,000 pounds
Other	1 cubic yard = 500 pounds

(2) The landfill may determine the weight of waste received from residential and commercial sources located in its service area by using a waste generation rate of 1,400 pounds per person per year. The landfill shall add to this waste tonnage value the weight of any industrial solid waste, sludge and liquid waste, and construction and demolition waste which is delivered to the landfill separately from the residential and commercial waste. The weight of these wastes shall be determined by determining the waste volume received and converting to an equivalent weight basis, using the conversion factors listed in subparagraph 109.4(2)"c"(1) of these rules.

d. If special conditions existing at a sanitary landfill make it impractical to use any of the methods listed in paragraphs 109.4(2)"b" or 109.4(2)"c" to determine waste tonnages, the landfill may propose for department review and approval an alternate method for determining the weight of solid waste disposed of.

e. A county in which a privately operated landfill accepts solid waste from outside of the county may charge an additional tonnage fee for the disposal of solid waste at the sanitary landfill which is not more than 100 percent of the fee otherwise established in this chapter. The additional fee charged and the moneys collected should be used exclusively for the development and implementation of alternatives to sanitary landfills or for costs incurred by the county to abate problems associated with the operation of the sanitary landfill.

567—109.5(455B) Form, manner, time and place of filing.

109.5(1) *Form.* Any person to whom this chapter applies shall file a completed Form 98 supplied by the department as specified in subrule 109.5(2).


109.5(2) *Manner, time and place.* Fees are to be paid on a quarterly basis. The fees will be due January 1, April 1, July 1, and October 1 for the previous quarter. The person shall present or mail the completed form with the appropriate fees to: Accounting, Department of Natural Resources, Henry A. Wallace Building, 900 East Grand Avenue, Des Moines, Iowa 50319.

567—109.6(455B) Reporting and recordkeeping.

109.6(1) *Operating records.* Those sanitary landfill operators who are subject to the fee assessment requirements of these rules shall maintain adequate records to determine and document the weight of solid waste received at and disposed of in the sanitary landfill during the calendar year.

109.6(2) All records used in determining the solid waste fee assessment must be kept for a period of at least three (3) years from the end of the calendar year which the records represent.

109.6(3) All records required under this chapter must be furnished upon request, and made available at all reasonable times for inspection to any officer, employee, or representative of the department who is duly designated by the director.




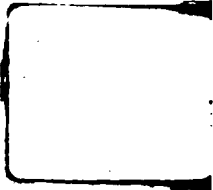
567—109.7(455B) Failure to pay fees. If it is found that a person has failed to pay the fees assessed by this chapter, the director shall enforce the collection of the delinquent fees. A person required to pay fees as required by Iowa Code section 455B.310 who fails or refuses to pay the fees by the due date shall be assessed a penalty of 2 percent of the quarterly fee due to be assessed on January 2, April 2, July 2, October 2, and on the first day of each month thereafter, on a monthly basis until paid. The penalty shall be paid in addition to the fee due.

These rules are intended to implement Iowa Code sections 455B.309 and 455B.310 as amended by 1990 Iowa Acts, Senate File 2181.

[Filed 5/30/86, Notice 2/12/86—published 6/18/86, effective 7/23/86]

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

[Filed 6/22/90, Notice 4/18/90—published 7/11/90, effective 8/15/90]



CHAPTER 110
DESIGN, CONSTRUCTION AND OPERATION STANDARDS
FOR SOLID WASTE MANAGEMENT FACILITIES

567—110.1(455B) Applicability. This chapter pertains to the hydrologic monitoring system standards for solid waste disposal facilities.

567—110.2(455B) Hydrologic monitoring system planning requirements.

110.2(1) All plans, specifications and other documentation required herein must be developed by an engineer registered in Iowa.

110.2(2) All sanitary disposal projects shall conduct a soil and hydrogeologic investigation which conforms to the requirements of this chapter. The purpose of soil and hydrogeologic investigation is to obtain data which will enable a determination of potential routes of contaminant migration from a site via groundwater. The following items are minimum requirements for such investigations. Additional work and use of other methods (e.g., geophysical techniques) are encouraged.

567—110.3(455B) Soil investigation:

110.3(1) Soil borings.

a. Number of borings. A sufficient number of soil borings shall be made to accurately identify the hydrogeologic variations of the site. For new sites, the minimum number of borings required is 10 for sites of 10 acres or less, 20 for sites of 10 to 50 acres, and 20 plus an additional boring for every 10 acres above 50 acres for sites larger than 50 acres. Fewer borings may be needed for existing sites, depending on previous work done at the site. Also, no borings will be required in existing fill areas. The department may require additional borings based on the geological complexity of the site.

b. Depth of borings. All borings must extend a minimum of 25 feet deep and at least 10 feet deep below the water table. However, borings in proposed fill areas shall be terminated 10 feet above the uppermost aquifer or grouted to provide such separation. At least half the borings located outside the existing or proposed fill area shall extend 10 feet into the uppermost aquifer, 50 feet below the water table, or 10 feet into bedrock. At least one boring shall go 10 feet into bedrock, or 100 feet below the lowest ground surface elevation.

c. Boring method. Borings shall comply with the applicable portions of rule 567—110.11(455B). The preferred boring method is hollow stem auger, although it may be necessary to use other methods at greater depths and in bedrock. When wet drilling methods are used for boring in which monitoring wells or piezometers are installed, the drilling fluid and methods and development procedures shall be approved by and documented with the department.

110.3(2) Soil samples. Samples shall be collected at five-foot intervals plus at every change in stratum. These samples should be obtained using a split spoon sampler and the procedures of the standard penetration test, conducted in accordance with American Society of Testing and Materials (ASTM) Standard D1586. This test simply counts the blows of a 140-pound hammer falling 30 inches on the sampler per foot penetration of the sampler. A minimum of one undisturbed shely tube sample shall be obtained in the uppermost cohesive stratum at or below the lowest depth at which solid waste will be disposed. Shely tube sampling shall be in accordance with ASTM Standard D1587. Samples should be clearly marked, preserved, and maintained for future inspection. Samples selected for laboratory analysis shall be preserved and transported to the laboratory in accordance with ASTM Standard D422.

110.3(3) Laboratory test of discrete soil samples. Laboratory tests of discrete soil samples shall be conducted to correlate strata between soil borings, obtain permeability data on each stratum, and design monitoring wells.

a. Permeability tests. Permeability tests using a constant-head or falling head permeameter shall be run on a minimum of one sample from each Shelby tube sample. Each sample shall be from a different soil boring representing a different area of the site.

b. Grain size distribution. Grain size distribution tests should be conducted on a minimum of one sample from each distinct stratum. Analysis should be conducted in accordance with ASTM Standards D422 and D1140. Estimates of permeability shall be developed for each sample tested based on grain size distribution and standard penetration blow counts.

567—110.4(455B) Hydrogeologic investigation.

110.4(1) Groundwater level measurements. The elevation of the water table shall be determined at or near the location of each soil boring which penetrates the water table. The water table may be determined using a completed water table monitoring well, or piezometer. The bottom of a piezometer used to measure water table elevation shall be no more than five feet below the water table.

The apparent horizontal groundwater flow direction should be determined based on water table measurements. Vertical groundwater flow shall then be assessed in at least two profiles approximately parallel to the apparent horizontal flow direction. Vertical groundwater flow shall be assessed using at least two well clusters per profile. Each well cluster shall contain a water table monitoring well or piezometer and additional water level monitoring points based on site conditions as follows:

a. If the water table is in the uppermost aquifer, one additional water level monitoring point is to be located near the base of the aquifer or at least 20 feet below the base of the water table monitoring point. This additional monitoring point may not be required if the aquifer is less than 20 feet thick.

b. If the uppermost aquifer is less than 50 feet below the water table, an additional water level monitoring point shall be located at the top of the aquifer.

c. If the uppermost aquifer is more than 50 feet below the water table, additional water level monitoring points shall be placed at depths of 30 feet and 50 feet below the water table.

d. If required, the one deeper soil boring into bedrock shall be used as a site for one well cluster. Water table monitoring points in this cluster shall correspond to the other well cluster used for a profile. In addition, water level monitoring points shall be placed at the bottom of the boring and, if possible, at the top and bottom of the uppermost aquifer.

Groundwater level measurements should be made after the water levels have stabilized in the monitoring point; at least 24 hours after completion and bailing of the monitoring well, or installation of the piezometer. The water level in existing wells shall be observed and recorded prior to bailing. Each set of water level measurement shall be made in as short a time frame as possible within an eight-hour period maximum.

110.4(2) In-situ permeability tests. In-situ permeability tests shall be conducted on each monitoring well and piezometer in each well cluster.

a. Pumping test. If more than one monitoring point is located in the uppermost aquifer, a pumping test should be conducted at one or more upper aquifer monitoring point. A pumping test involves pumping at constant rate from one well while observing water levels in other wells. The pumping rate should be as high as possible without dewatering the well. Water level measurements in other uppermost aquifer wells should be measured at frequent intervals near the start of the test and then at progressively longer intervals (e.g., 1-minute intervals to ten minutes, 5-minute intervals to an hour, 15-minute intervals to two hours, and half-hour intervals thereafter). Continuous water level recording is preferable. Water levels in wells not located in the uppermost aquifer should be recorded throughout the test at regular intervals (e.g., every half hour). Water levels in all wells should be measured 24 hours prior to the test and just before the test. The test duration should be at least four hours and continuing until a stabilized drawdown condition is observed. Longer tests may be necessary if other

uppermost aquifer monitoring points are slow to respond. Water level readings should be recorded through the recovery phase of the water table.

b. *Bail and slug tests.* Monitoring wells and piezometers located in materials with low permeabilities should be tested using bail or slug tests. These tests involve rapidly removing or adding a known volume of water to a well and then recording water levels in the well as it recovers to its original level. Typically, the necessary frequency of measurements will be similar to that required of pumping tests. In materials of very low permeability, less frequent measurements are necessary; and in materials of higher permeability, more frequent measurements may be necessary.

567—110.5(455B) Hydrologic monitoring system planning report requirements. The hydrologic monitoring system planning report shall contain a description of field investigations and presentation of results including a description of the field and laboratory testing methods; a presentation of the test results and field measurements; a reasonable effort to inventory all active, unused, and abandoned wells within one mile of the facility shall be made; and the identification of all public water supply wells and wells with water withdrawal permits pursuant to 567—Chapters 50, 51 and 52 within three miles of the facility. Well logs, other available information on well construction, static water levels, and usage shall be obtained. The well inventory should be based on thorough reviews of state and local collections of well logs and, when possible, interviews or surveys of well owners.

Also to be included are maps showing the location of soil borings, other field tests/measurements, and existing wells.

567—110.6(455B) Evaluation of hydrogeologic conditions.

110.6(1) Based on soil boring and other available information, a description of the site geology shall be made. This shall include preparation of geologic cross sections of sufficient number and spacing (no fewer than four at every site) to adequately define all areas of the site and of sufficient detail to adequately depict major stratigraphic and structural trends and reflect geologic structural features in relation to groundwater flow. Each pair of cross sections must be as near to perpendicular as possible to adequately portray the site geology.

110.6(2) A description of the hydrogeologic unit(s) within the saturated zone shall be made including: thickness; depth, hydraulic properties, such as transmissivity and storage coefficient or specific yield; description of the role of each as confining bed, aquifer, or perched saturated zone, and their actual or potential use as water supply aquifers.

110.6(3) All groundwater flow paths from the site shall be identified, including both horizontal and vertical components of flow. A contour map of the water table shall be presented showing horizontal flow paths. A potentiometric surface map of the uppermost aquifer showing horizontal flow paths shall also be presented, if different than the water table. Vertical flow paths shall be shown in at least two profiles approximately parallel to the direction of horizontal flow. Vertical flow paths shall be determined by water level measurements from clustered wells at different depth, if possible. An evaluation of vertical groundwater flow based on the hydrologic properties of the various strata encountered at the site, estimated groundwater flow and recharge rates, and known information on hydraulic head shall also be made.

110.6(4) The seasonal, temporal and artificially induced variations in groundwater flow shall be evaluated. Temporal variations would occur due to natural events, such as rainfall. The addition of tile lines, removal of overburden, or deposition of wastes would constitute artificially induced variations.

110.6(5) Surface water flow paths from the site shall be identified on topographic contour maps.

567—110.7(455B) Monitoring system plan. A hydrologic monitoring system shall be designed to intercept the groundwater and surface water flow paths from the site. The plan shall include proposed locations and depths for monitoring wells in accordance with monitoring well siting criteria in subrule 567—110.1(2). Monitoring wells shall be designed in accordance with subrule 567—110.1(3).

The surface water monitoring plan shall include monitoring points on all standing and flowing bodies of water which will receive surface runoff or groundwater discharge from the site. For streams, sampling points upstream and downstream of areas of potential impact from the site should be selected.

567—110.8(455B) Sampling protocol. At a minimum, the sampling protocol must include procedures or descriptions of the:

Order in which monitoring points are to be sampled, all tests and procedures needed at each monitoring point and the order in which these procedures will be carried out, equipment and containers to be used, procedures and precautions for their use; precautions to avoid introducing contaminants from outside sources into monitoring wells or samples; and how equipment must be cleaned between uses,

Procedures for evacuating each monitoring well prior to each water quality sampling, Procedures for handling field blanks and other quality assurance samples at the facility and in transit to and from the laboratory,

Procedures for field filtration of samples, if required,

Procedures for sample preservation,

Procedures for sample collection, labeling and handling at the facility and during transport to the laboratory,

Procedures for recording field observations and measurements,

Procedures for records maintenance and data analysis, and

Procedures for sampling surface water monitoring points including exact sampling locations and depths.

567—110.9(455B) Monitoring well maintenance performance reevaluation plan.

110.9(1) A monitoring well performance reevaluation plan shall be included as part of the hydrogeologic monitoring system plan. The plan shall ensure that all monitoring points remain reliable.

110.9(2) The plan shall include the following items:

a. Every two years an examination of high and low water levels accompanied by a discussion of the acceptability of well location (vertically and horizontally) and exposure of the screened interval to the atmosphere.

b. A biannual evaluation of water level conditions in the monitoring wells to ensure the effects of waste disposal or well operation have not resulted in changes in the hydrologic setting and resultant flow paths.

c. Annually conducting well depth measurements to ensure wells are physically intact and not filling with sediment.

d. Every five years conduct in-situ permeability tests on monitoring wells; comparing test data with those collected originally to determine if well deterioration is occurring.

567—110.10(455B) Monitoring well siting requirements.

110.10(1) Downgradient monitoring wells. Downgradient monitoring wells must be located to provide a high level of certainty that releases of contaminants from the site can be promptly detected. Downgradient monitoring wells should be placed along the site perimeter, within 50 feet of the planned liner or waste boundary unless site conditions dictate otherwise, downgradient of the facility with respect to the hydrologic unit being monitored. For those facilities which are long-term, multiphase operations, the department may establish temporary waste

boundaries in order to define locations for monitoring wells. Downgradient monitoring well placement may consider the convergence of groundwater paths to minimize the overall length of the downgradient dimension.

110.10(2) *Water table wells.* At least three downgradient water table monitoring wells shall be installed at each facility. The maximum spacing between wells shall be 600 feet.

110.10(3) *Uppermost aquifer monitoring wells.* If different than water table monitoring wells, at least three uppermost aquifer monitoring wells shall be installed at each facility. Uppermost aquifer monitoring wells shall be spaced no more than 600 feet apart. If the uppermost aquifer is located more than 50 feet below the water table, this requirement may be relaxed, although at least one downgradient uppermost aquifer monitoring well will be required.

110.10(4) *Other downgradient monitoring wells.* Additional downgradient monitoring wells will be required if the water table and uppermost aquifer monitoring wells do not intercept most vertical flow paths from the site. In such situations, monitoring wells shall be placed at the appropriate depths to intercept the remaining flow paths and shall be spaced at no more than 600 feet apart.

110.10(5) *Upgradient monitoring wells.* Upgradient monitoring wells shall not be affected by the site. At least one upgradient monitoring well shall be installed into each stratum being monitored by downgradient monitoring wells. If it is not possible to actually locate a monitoring well upgradient of the site, the well should be placed as near the site as feasible without being affected by the site.

110.10(6) *Monitoring point identification system.* The various types of monitoring points should be identified as follows:

Monitoring Well	MW# _____
Surface Water Monitoring Point	SW# _____
Piezometer	PZ# _____

Each monitoring point must have a unique number, regardless of the type of monitoring point, and that number must never change.

567—110.11(455B) Monitoring well/soil boring construction standards.

110.11(1) *General considerations.*

a. Contractors involved in construction of monitoring wells and piezometers and soil boring activities shall be registered with the department as required in 567—Chapter 37.

b. To the extent possible, all monitoring well construction materials must not absorb, desorb, react or otherwise alter the screened soil stratum or the quality of the groundwater being sampled. Galvanized metal, glues, welding solvents, pipe thread lubricants and other foreign substances must not be used.

c. All monitoring well construction materials must be protected from contamination prior to installation.

d. A typical cross section of a properly constructed monitoring well is shown in Figure 1 at the end of this chapter.

110.11(2) *Casings.*

a. As a minimum, the diameter of the inner casing (see Figure 1) of a monitoring well must be at least two inches.

b. Plastic cased wells must be constructed of materials with threaded, nonglued joints which do not allow water infiltration under natural subsurface pressure conditions or when the well is evacuated for sampling.

c. Well casings must provide structural stability to prevent casing collapse during installation as well as drill hole integrity when installed. Flush joint casing is required for small diameter wells installed through hollow stem augers.

d. Well casings must be constructed of inert materials such as polytetrafluorethylene, stainless steel or polyvinyl chloride. The department may approve other casing materials if the owner

or operator can demonstrate the material has a low potential for biasing the water quality parameters of samples. The department may approve the construction of composite well casings (casings with less inert materials in the unsaturated zone).

110.11(3) Well screens.

a. Slot size will be based on sieve analysis of the sand and gravel stratum or filter pack. The slot size must hold out 35 percent to 60 percent of the formation material and not less than 90 percent of the filter pack.

b. Slot configuration and open area must permit effective development of the well.

c. Screen length. Maximum screen length shall be 10 feet except for water table wells in which the screen must be of sufficient length to accommodate expected seasonal fluctuations of the water table. The screen should be placed 5 feet above and below the observed water table, unless local conditions are known to produce greater fluctuations. Screen length for piezometers should be 2 feet or less.

Multiple screened single-cased wells are prohibited.

110.11(4) Filter pack.

a. To prevent other materials from coming in contact with the well screen, extend the filter pack 18 inches above and 12 inches below the well screen.

b. Size must be based on sieve analysis of sand and gravel stratum. The filter pack material must be 2.5 to 3 times larger than 50 percent grain size of the zone being monitored.

110.11(5) Grouting.

a. The annular space above the filter pack must be sealed with expanding cement or bentonite grout. The vertical dimension of this seal must be a minimum of three feet.

b. The annular space between the seal and to just below the frostline must be backfilled with an impervious material such as bentonite or expanding cement.

c. The remaining annular space must be sealed with bentonite grout to the ground surface.

d. Grouting materials must be installed from the top of the filter pack up in one continuous operation with a tremie tube.

110.11(6) Well protection.

a. Plastic cased wells. A protective metal casing must be installed around the well casing. The inside diameter of the protective metal casing should be at least two inches larger than the outside diameter of the well casing. Extend the protective metal casing from a minimum of one foot below the frostline to slightly above the well casing top. The protective casing should be shortened or omitted if it covers part of the well screen. Seal or immobilize the protective casing with a concrete plug around the outside. The bottom of the concrete plug must extend at least one foot below the frostline. The concrete plug should be shortened if it covers part of the well screen. Extend the top of the plug approximately three to six inches above the ground surface and slope it away from the well approximately three feet. Soil may be placed above the plug. Seal the inside of the protective casing with a bentonite grout. Place a vented cap on the well casing and a protective locking cap on the metal casing. The lockable cap must be kept locked when the well is not in use.

b. Metal cased wells. Extend the concrete plug from at least one foot below the frostline to approximately three to six inches above the ground surface and slope it away from the well approximately three feet. Soil may be placed on top of the concrete plug. Place a vented, locking cap on the casing. The lockable cap must be kept locked when the well is in use. See Figure 1.

c. To protect against accidental damage, a ring of brightly colored posts or other protective devices must be installed around all wells.

110.11(7) Well drilling.

a. The owner or operator must ensure that in all phases of drilling, well installation and completion, the methods and materials used do not introduce substances that may alter the results of water quality analyses.

b. Well drilling equipment coming into contact with contaminants in the borehole or above ground must be thoroughly cleaned to avoid spreading contamination to other depths or locations. Contaminated materials or leachate from wells must not be discharged onto the ground surface or into ponds or streams so as to cause environmental harm in the processes of drilling or well development.

c. The owner or operator must ensure that, at a minimum, the following well design and construction, log information be retained at the site and a copy of this information be sent to the department.

- Date/time of construction;
- Name and address of the driller;
- Drilling method and drilling fluid used;
- Soil sampling methods;
- Surveyed location (± 0.5 ft.);
- Soil and rock classifications;
- Field observations;
- Well name/number;
- Borehole diameter and well casing diameter;
- Well depth (± 0.1 ft.);
- Water level measurements;
- Drilling and lithologic logs;
- Casing materials, inside diameter and weight or wall thickness;
- Screen materials;
- Casing and screen joint type;
- Screen slot size/length;
- Filter pack material/size; (depths from ___ to ___)
- Filter pack volume;
- Filter pack replacement method;
- Sealant materials; (depths from ___ to ___)
- Sealant volume;
- Sealant placement method;
- Grouting schedule and materials;
- Surface seal design/construction; (depths from ___ to ___)
- Type of protection well cap;
- Ground surface elevation (± 0.1 ft.);
- Well cap elevation (± 0.01 ft.);
- Top of casing elevation (± 0.01 ft.); and
- Detailed drawing of well (include dimensions).

110.11(8) *Well development.* Prior to use of the monitoring well for water quality monitoring purposes, well development is required to ensure the collection of representative groundwater samples. Procedures used in well development involve using a surge block, bailing or surging by pumping of compressed inert gas to produce a movement of water at alternately high and low velocities into and out of the well screen and gravel pack in order to loosen and remove fine materials. Development of low hydraulic conductivity wells may require the circulation of water down the well casing, out through the screen and gravel pack, and up the open borehole prior to the placement of grout or seal in the annulus. Any additional water used must be of a quality so as not to interfere with future groundwater quality determinations. Following surging, the well is pumped until the water does not contain significant quantities of suspended solids.

567—110.12(455B) *Sealing abandoned wells and boreholes.* Boreholes, piezometers and observation wells not used for groundwater monitoring must be sealed. Document in writing the location of the abandoned well or borehole with reference to the landfill's coordinate

system and method of sealing. The document must be retained at the landfill with a copy sent to the department.

110.12(1) Sealing boreholes. Fill the borehole by extending a tremie tube to the bottom of the hole. Apply bentonite or expanding cement grout through the tube to the bottom of the hole and raise the tremie tube as the hole is filled from the bottom upward. Keep the end of the tremie tube submerged in the grout while filling. Fill the borehole from the base of the boring all the way to the ground surface.

110.12(2) Sealing abandoned monitoring wells.

a. Well is known to be constructed properly with impermeable grout that was installed from the bottom up using a tremie tube. Remove any existing protective metal casing by vertically pulling it off the well. Using a tremie tube, fill the inner well casing with an impermeable grout slurry from the bottom to ground surface. After 24 hours, retop the grout if it has settled below the existing ground surface.

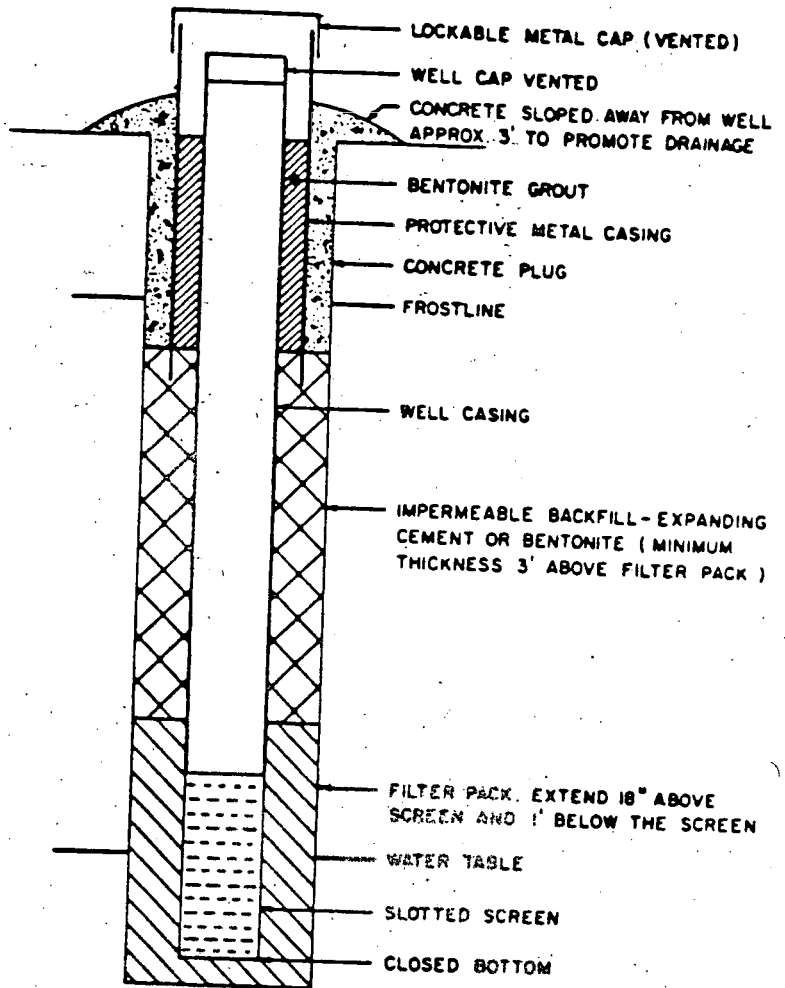
b. Well construction is improper or undocumented. Attempt to remove the well casing. If this fails, either drill round the well casing using a hollow stem auger of large inside diameter or drill out the well casing using a standard casing bit or solid stem auger with a boring diameter greater than the initial diameter of the hole. Drill to the maximum depth of the previously drilled boring. Clean the drilling debris from the interior of the auger or borehole. Seal the borehole with an impermeable grout using a tremie tube. If the soil conditions permit the sealing to be conducted in a continuous operation, keep the tremie tube submerged in the grout at all times. After 24 hours, retop the grout if it has settled below the ground surface.

c. Monitoring wells in future fill areas. Remove well and seal as described in the procedures for sealing boreholes per 110.12(1).

567—110.13(455B) Variance from design, construction, and operation standards. Pursuant to the authority of Iowa Code section 455B.303, a variance from the specific requirements of Chapter 110 may be issued, modified, or denied by the director. The request should also include any supporting information to be considered by the director in the formulation of a decision.

These rules are intended to implement Iowa Code section 455B.304.

FIGURE 1
TYPICAL MONITORING WELL CROSS SECTION



PLASTIC CASED WELL CONSTRUCTION DETAILS

—NOT TO SCALE—

[Filed 4/28/89, Notice 1/11/89—published 5/17/89, effective 6/21/89]

CHAPTERS 111 to 117
Reserved

TITLE IX
LAND APPLICATION OF SLUDGE AND SOLID WASTE
 CHAPTER 120
SCOPE OF TITLE—DEFINITIONS—FORMS—RULES OF PRACTICE
 [Prior to 12/3/86, Water, Air and Waste Management, 1900]

567—120.1(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.

Chapter 121 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—120.2(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 sub-surface injection.

"Sludge" means any solid, semisolid, or liquid waste generated from a municipal, 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 semi-solid 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 sewage sludge" means sludge from wastewater treatment facilities 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.)

"Unstabilized sewage sludge" means sludge from wastewater treatment facilities which is not treated to remove pathogens.

567—120.3(455B) Application for permits and forms. Any private or public person or agency desiring to secure a permit for any land application of solid waste not exempted in 121.2(455B) and 121.3(455B) shall file a properly completed application.

120.3(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:

Administrative Support Station
 Environmental Protection 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. Where not specified in the instructions, forms should be submitted to the Program Operations Division.



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120.3(2) Application for a land application permit shall be made on Form 43, "Application for a Sanitary Disposal Project Permit."

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

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

**CHAPTER 121
LAND APPLICATION OF WASTES**

(Prior to 7/1/93, DEQ Ch 33)
(Prior to 12/3/86, Water, Air and Waste Management)

567—121.1(455B) Land application of solid wastes.

121.1(1) General. This chapter shall apply to the land application of solid wastes, except animal manure, animal bedding and crop residue. Land application of animal manure should be in conformance with "Guidelines of Iowa Water Quality Commission on Land Disposal of Animal Wastes" following chapter 65 of these rules. Land application of water supply sludge and certain other approved wastes is governed by 121.2(455B). Land application of municipal sewage sludge and other waste without a permit is governed by 121.3(455B). Land application of wastes which require a permit is governed by 121.4(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.

121.1(2) Land application does not include disposal of solid waste by burial.

567—121.2(455B) Land application of solid wastes for home and certain crop use.

121.2(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 excludes cereal crops.

121.2(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. All solid wastes shall be applied in conformance with 121.3(455B).

a. Water supply sludges.

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

567—121.3(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 121.4(455B).)

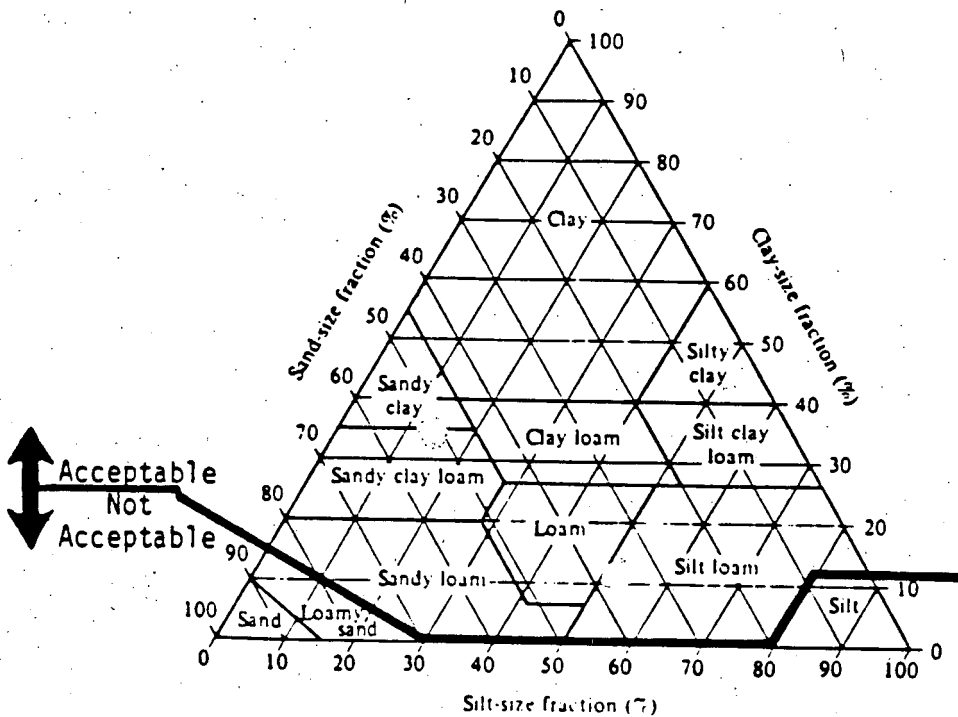
121.3(1) Municipal sewage sludge and other solid wastes. Municipal sewage sludge from a publicly owned treatment works and other solid wastes (other than petroleum contaminated soil) may be land applied without permit if the land application does not violate the facilities NPDES permit and the following:

a. Land application of municipal sewage 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 to the director 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.2



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.

(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) If possible 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>
Arsenic (As)	50 mg/kg
Cadmium (Cd)	15 mg/kg
Copper (Cu)	1,000 mg/kg
Lead (Pb)	1,000 mg/kg
Mercury (Hg)	10 mg/kg
Nickel (Ni)	200 mg/kg
Selenium (Se)	34 mg/kg
Zinc (Zn)	2,000 mg/kg

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 director.

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. If land applying municipal sewage sludge, the sludge shall be treated to reduce pathogen content prior to land application. If land applying other types of wastes containing pathogens, the waste must be treated to reduce pathogen content by methods approved by the department 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 resident 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 121.3(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 wishing to land apply their waste 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 assure that the waste being applied to land continues to meet the criteria in 121.3(1).

(2) A determination of the amount of land required to allow disposal to be conducted in accordance with the requirements of 121.3(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 121.3(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—101.3(2) and 121.3(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 attempt to 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.

(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 director may require to adequately define the waste).

121.3(2) Petroleum-contaminated soil. Petroleum-contaminated soil may be land applied without a permit if the land application does not violate the following:

- a. The maximum soil application rate shall not exceed 500 ton/acre per year.
- b. The soil will not exceed four inches in depth of application.
- c. Contaminated soil which is saturated or in slurry condition cannot be land applied without a permit.
- d. Contaminated soil cannot be applied within 500 feet of a well nor within 200 feet of an occupied residence.
- e. Contaminated soil cannot be applied within 200 feet from a stream, lake, pond, sinkhole or tile line surface intake located downgradient of the land application site.
- f. The application of contaminated soil on frozen or snow-covered ground should be avoided. If application is necessary, it shall be limited to land areas of less than 5 percent slope. Application rate must be \leq 1/4-inch thick.

g. Slope restrictions and incorporation requirements:

Slope Class	Application Rates	Mechanical Incorporation Requirements
\leq 5%	\leq 1/4 inch	None
\leq 5%	> 1/4 to 4 inches	Within 48 hrs. after application

h. The petroleum-contaminated soil shall be applied only to soils classified as acceptable throughout the top six feet of soil profile. The acceptability of the soil shall be determined using the USDA soil classifications chart in 121.3(1)"a." The site shall have a minimum of six feet of soil over bedrock.

i. Notification requirements. The owner of the site where the petroleum-contaminated soil originated shall notify the department prior to land application of the petroleum-contaminated soil. This shall be followed by submitting a "Land Application Notification" form, supplied by the department and all pertinent information required by the form.

j. Analytical requirements. Generally contaminated soil can be land applied without extensive monitoring programs; however, site specifications may necessitate environmental sampling to determine the impact of the application activity.

k. Record-keeping requirements. The owner of the site where the petroleum-contaminated soil originated must maintain adequate records on the premises to document compliance with subrule 121.3(2) of the Iowa Administrative Code. The records must be maintained for five years following the last application of soil at the land farming area. The records must be available for inspection and evaluation by the department during normal working hours.

121.3(3) Rescinded IAB 10/17/90, effective 11/21/90.

567—121.4(455B) Permit requirements. Prior to any land application of solid waste not exempted in 121.2(455B) and 121.3(455B), a permit must be obtained by the waste generator in accordance with the following requirements.

121.4(1) Municipal sewage sludge. The land application of sludge from a publicly owned treatment works which does not comply with 121.3(455B) shall:

a. Submit plan requirements of 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 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 467A.42 to 467A.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*: NH₃-N*, NO₃-N*; total phosphorus*; potassium*; the following metals*: Arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), mercury (Hg), nickel (Ni), lead (Pb), Zinc (Zn); and such other tests as may be necessary to establish the constituents and stability of the sludge.

*On a dry weight basis

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

Analyses shall be performed at a laboratory approved by the university hygienic laboratory. 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", 15th Edition, 1981. Alternate methods may be substituted only if acceptable to the university hygienic laboratory and approved by the executive director.

(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 121.4(1)"d"(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 121.4(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 director 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 five (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 con-

centrations, 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:

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

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_1 = maximum final elevation of a contiguous portion of till of the site.

h_2 = 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 director.

c. Operating requirements for land application sites. All land application projects shall be operated in conformance with 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 snowcovered unless special precautions are taken to avoid runoff.

(5) As required by the director, 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 director. 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 121.4(1)"a"(12);

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

(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.

121.4(2) Waste pesticides. Waste pesticides may be land applied:

a. If a determination is made by the director 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 director.

(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 assure 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 director.

c. Operating requirements.

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

(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 director as specified in special provisions of the permit.

121.4(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 the land application of municipal sewage sludge (121.4(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]

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

CHAPTERS 122 to 129

Reserved

CHAPTER 132
TRANSPORTATION OF RADIOACTIVE MATERIALS IN IOWA

[Prior to 7/1/83, DEQ Ch 42]
[Prior to 12/3/86, Water, Air and Waste Management(900)]

567—132.1(455B) Transportation of radioactive materials. All carriers of radioactive materials which are transported across the state of Iowa by highway and which are required to be labeled "Radioactive Yellow III" by the United States Department of Transportation in 49 CFR 172.403(d) must notify the state of Iowa prior to movement in Iowa in accordance with the rules of the Iowa Department of Transportation.

(Note: The Department of Transportation has not yet adopted those rules [on this subject]; so the notification requirement will not be effective until the Iowa Department of Transportation's rules are effective.)

This rule is intended to implement Iowa Code sections 455B.332 and 455B.333.
[Filed 9/26/80, Notice 4/16/80—published 10/15/80, effective 11/19/80]
[Filed emergency 6/3/83—published 6/22/83, effective 7/1/83]
[Filed emergency 11/14/86—published 12/3/86, effective 12/3/86]

CHAPTER 133
RULES FOR DETERMINING
CLEANUP ACTIONS AND RESPONSIBLE PARTIES

567—133.1(455B,455E) Scope.

133.1(1) These rules establish the procedures and criteria the department will use to determine the parties responsible and cleanup actions necessary to meet the goals of the state pertaining to the protection of the groundwater. These rules pertain to the cleanup of groundwater itself and soils and surface water where groundwater may be impacted. They may also be used as guidelines in other environmental protection activities authorized by Iowa Code chapter 455B. Where specific federal or state programs or funds exist to address situations that are also governed by these rules, the rules and standards of the specific programs or funds will be integrated and utilized to achieve an equitable, expeditious and environmentally sound resolution of the particular contamination situation. These rules apply specifically to point source contamination only.

133.1(2) These rules apply specifically to cleanup actions required to abate, prevent or remediate a hazardous condition, the presence of a hazardous substance or waste, the release of a regulated substance, or the discharge of a pollutant as those terms are defined in Iowa Code chapter 455B.

133.1(3) These rules shall not limit the department's authority to require remedial or preventative action, or to take remedial or preventative action, as necessary to protect the public health, the environment, or the quality of life. The department will make its evaluation on a case-by-case basis, considering site characteristics, and where more than one contaminant is present or there is no established action level, will consider the toxicity, mobility and persistence of contaminants involved. The evaluation may include the potential synergistic, antagonistic, or cumulative effects of the contaminants involved in a particular case.

133.1(4) Persons subject to these rules retain all applicable appeal rights provided in Iowa Code chapter 455B.

567—133.2(455B,455E) Definitions.

"Action level" means, for any contaminant, the HAL, if one exists; if there is no HAL, then the NRL, if one exists; if there is no HAL or NRL, then the MCL. If there is no HAL,



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NRL, or MCL, an action level may be established by the department based on current technical literature and recommended guidelines of EPA and recognized experts, on a case-by-case basis.

"Active cleanup" means removal, treatment, or isolation of a contaminant from groundwater or associated environment through the directed efforts of humans.

"Aggravated risk" means a contamination situation which presents a potentially catastrophic or an immediate and substantial risk of harm to human life or health or to the environment. Examples include exposure of humans, animals or the food chain to acutely toxic substances, contamination of a drinking water supply, threat of fire or explosion, or similar situations.

"Background" means groundwater quality unaffected by human activities, and generally shall be determined by historical data of the geological services bureau or other government agencies for the type of aquifer or location involved in a given case. If available data is not adequate, background may be established by groundwater samples upgradient of a source or potential source of a substance which is detected in or has a reasonable probability of entering the groundwater.

"Best available technology" means those processes which most effectively remove, treat, or isolate contaminants from groundwater or associated environment, as determined through professional judgment considering actual equipment or techniques currently in use, published technical articles and research results, engineering reference materials, consultation with known experts in the field, and guidelines or rules of other regulatory agencies.

"Best management practices" means maintenance procedures, schedules of activities, prohibition of practices, and other management practices, or a combination thereof, which, after problem assessment and evaluation of alternatives is determined to be the most effective means of preventing or abating contamination at a location.

"Contaminant" means any chemical, ion, radionuclide, synthetic organic compound, microorganism, waste or other substance which does not occur naturally in groundwater or which occurs naturally at a lower concentration, and includes all hazardous substances as defined in 42 U.S.C. 9601, and any element, compound, mixture, solution or substance designated pursuant to 40 CFR 302.4 as of September 13, 1988.

"Groundwater" means any water of the state as defined in Iowa Code section 455B.171 which occurs beneath the surface of the earth in a saturated geologic formation of rock or soil.

"HAL" means a lifetime health advisory level for a contaminant, established by the United States Environmental Protection Agency (EPA). Health advisories represent the concentration of a single contaminant, based on current toxicological information, in drinking water which is not expected to cause adverse health effects over lifetime exposure.

"MCL" means the enforceable maximum contaminant level established by the EPA pursuant to the Safe Drinking Water Act.

"NRL" means the negligible risk level for carcinogens established by the EPA, which is an estimate of one additional cancer case per million people exposed over a lifetime to the contaminant (1×10^{-6}).

"Passive cleanup" means the removal or treatment of a contaminant in groundwater, or associated environment, through management practices or the construction of barriers, trenches and other similar facilities for prevention of contamination, as well as the use of natural processes such as groundwater recharge, natural decay and chemical or biological decomposition.

"Point source" means any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or any site or area where a contaminant has been deposited, stored, disposed of, or placed, or otherwise come to be located.

"Preventative" or *"prevention"* refers, in the context of these rules, to actions or efforts to minimize or stop further contamination in a situation where contamination already exists or is imminent.

"*Remedial action plan*" means a written report which includes all relevant information, findings, and conclusions from a site assessment, including all analytical results and identification of contaminant migration pathways; identification and evaluation of cleanup alternatives, including both active and passive measures using best available technology and best management practices; a recommended cleanup action or combination of action, including identification of expected cleanup levels consistent with the cleanup goal of 133.4(3)"b"; a monitoring network and schedule to document cleanup levels; and a proposed schedule of implementation.

"*Responsible person*" means any person who is legally liable for the contamination in question or who is legally responsible for abating contamination under any applicable law, including Iowa Code chapters 455B and 455E, and the common law. This may include the person causing, allowing or otherwise participating in the activities or events which cause the contamination, persons who have failed to conduct their activities so as to prevent the release of contaminants into groundwater, property owners who are obligated to abate a condition, or persons responsible for or successor to such persons.

"*Significant risk*" means:

1. The presence in groundwater of a contaminant in excess of an action level;
2. The presence of a contaminant in the soils, surface water, or other environment in proximity to groundwater which may reasonably be expected to contaminate the groundwater to an action level; or
3. The presence of a contaminant or contaminants in the groundwater, or in the soils, surface water or other environment in proximity of groundwater which may be expected to contaminate groundwater in quantities, concentrations, or combinations which may significantly adversely impact the public health, safety, environment, or quality of life. This criterion would normally be applied where there is no established action level or where combinations of more than one contaminant are present.

"*Site assessment plan*" means a written proposal for study of a contamination situation to determine the types, amounts, and sources of contaminants present, hydrogeological characteristics of the site, and the vertical and horizontal extent of contamination, with a goal of developing an adequate remedial action plan. The proposal must include: recommendations for collection of relevant historical data such as site management practices, inventory records, literature searches, photographs and personal interviews; a methodology for obtaining groundwater flow information including well placements, construction and elevation, bore logs, static groundwater table measurements, groundwater elevations, groundwater gradients (isopleth), and information on soil transmissivity, porosity and permeability; and a methodology for identifying contaminant plumes, including additional monitoring wells to identify the horizontal and vertical extent of contamination, a site plot showing the estimated configuration of contamination, and a sampling schedule and list of constituents to be analyzed. The plan development may require preliminary field investigations.

567—133.3(455B;455E) Documentation of contamination and source.

133.3(1) Sampling and analytical procedures. 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 or cleanup levels under this chapter shall be conducted in accordance with the following:

a. 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, December, 1987).

b. 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 conduct-

at a laboratory that certifies to the department that the appropriate analytical procedure is 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. The parties, both the department and person responsible for investigating, shall have the opportunity to split samples for independent analysis, and where appropriate a sample portion shall be retained for a reasonable period of time or possible reanalysis.

133.3(2) Department determination of contamination. When the department receives or obtains evidence of groundwater contamination or the release or presence of contaminants in the environment associated with groundwater, where contamination of the groundwater may reasonably be expected, the department shall make reasonable efforts to document the source of contamination, and shall require responsible persons to take appropriate preventative, investigatory and remedial actions. Evidence of contamination may include but is not limited to the following:

- a. Water samples indicating the presence of a contaminant at levels above background.
- b. Soil or surface water samples indicating the presence of a contaminant at levels above background, where release to the groundwater is likely.
- c. Known releases of contaminants into the environment in quantities and locations that could reasonably be expected to cause groundwater contamination.
- d. Other events that the department determines could potentially cause groundwater contamination.

The amount and type of evidence necessary to document contamination or potential contamination will vary with the circumstances of each case, including the amount and type of contaminant involved, site topography and geologic conditions, and potential adverse effects. Normally, a reasonable number of water and soil samples will be taken or analyses obtained by the department. However, where a significant quantity of contaminants is known to have been released into the environment, for example from a spill, which could reach groundwater, the department is not required to collect samples.

133.3(3) Department determination of source. The department shall determine whether the contamination is or likely was caused by a particular source or sources, for example a known spill of contaminants or current or past facilities or activities in the vicinity which involved products or substances which could be a likely source. If no such person or event can be identified, the department shall make reasonable efforts to determine whether there is a relatively restricted area of more concentrated contaminants in the vicinity which is or is likely to be a source of the contamination. This subrule does not require the department to identify a specific person or persons responsible for the contamination, but to determine whether the contamination has or has likely come from a relatively defined source.

133.3(4) Determination of responsible persons. Where a source or likely source of contamination is identified, the person or persons responsible for that source or sources shall conduct necessary preventative, investigatory and remedial actions.

a. Identification. The persons responsible or potentially responsible initially shall be identified by the department through such measures as on-site observations; interviews with witnesses and local officials; review of public records, including department files; and interviews with or information obtained from potentially responsible persons. Where there may be more than one source, or the source is otherwise not conclusively identified, persons who handle or have handled materials or wastes in the vicinity of the contamination, which could be the source, shall investigate and provide information satisfactory to the department to confirm or disaffirm that their activities are a source of the contamination. Investigation by the responsible or potentially responsible person may include inspection of inventory or other records, and soil and groundwater monitoring to better define the source. Such monitoring shall conform to the requirements of 133.4(3) "a," provided that a full-scale assessment may not be required for this purpose.

b. Notification. The department shall notify in writing the persons determined responsible under the above procedures, and include a brief statement of the facts upon which the department concluded that they are responsible, and the actions required; provided that where immediate action is necessary, verbal notification may be given, followed up with written notification. The persons notified may provide information disputing or supplementing the information relied on by the department, which shall be considered by the department.

c. Responsible persons may be jointly and severally liable, and the department is not required to name all potentially responsible parties in directing responsive actions to contamination.

567—133.4(455B,455E) Response to contamination.

133.4(1) Prevention of further contamination. In all cases where an active source of contamination is identified, such as leaking tanks or current practices, which may be readily corrected, the source shall be removed, repaired or otherwise contained, or the contaminating practices ceased, immediately upon discovery of the source. In addition, readily accessible contaminants, for example concentrated contaminants spilled on the ground or accessible through a recovery well or system, shall be promptly removed to avoid or minimize further contamination in the groundwater.

133.4(2) Aggravated risk. Where the contamination presents an aggravated risk, the preventative, investigatory and remedial measures provided in subrules 133.4(1) and 133.4(3) shall be expedited to remove such risk. In addition, the following actions shall be taken by the responsible parties, if necessary, to protect the public health or environment:

- a. Providing alternate water supplies.*
- b. Installing security fencing or other measures to limit access.*
- c. Extraordinary measures to control the source of release.*
- d. Removal of hazardous substances to an approved site for storage, treatment or disposal.*
- e. Placing physical barriers to deter the spread of the release.*
- f. Recommending to appropriate authorities the evacuation of threatened individuals.*
- g. Using other materials to restrain the spread of the contaminant or to mitigate its effects.*
- h. Executing damage control or salvage operations.*

133.4(3) Significant risk. In cases of significant risk, the following investigatory and remedial measures shall be implemented:

a. Investigation. The responsible party shall determine the extent and levels of contamination through a site assessment conducted under the supervision of a registered professional engineer, an expert in the field of hydrogeology, or other qualified person. A site assessment plan shall be submitted to the department within 45 days of notice by the department, unless a shorter time is required or a longer time is authorized by the department. The plan shall be approved by the department prior to initiation of the assessment, unless otherwise approved by the department. The site assessment shall be conducted within a reasonable time and a remedial action plan shall be submitted to the department, within the time directed or approved by the department. The department may require further investigation by the responsible person in order to adequately assess the extent of contamination, and may require the remedial action plan to be supplemented if necessary.

b. Required cleanup actions.

(1) **Groundwater.** The goal of groundwater cleanup is use of best available technology and best management practices as long as it is reasonable and practical to remove all contaminants, and in any event until water contamination remains below the action level for any contaminant, and the department determines that the contamination is not likely to increase and no longer presents a significant risk. Where site conditions and available technology are such that attainment of these goals would be impractical, the department may establish an alternative

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cleanup level or levels, including such other conditions as will adequately protect the public health, safety, environment, and quality of life.

(2) *Other.* Where significant amounts of contaminants are documented as being present in the soils or other environment, such that groundwater contamination is occurring or is likely, active cleanup of the contaminated soils or other environment shall be implemented to the extent reasonable and necessary to prevent or minimize release to the groundwater; passive cleanup may be allowed in extraordinary circumstances.

133.4(4) *Other.* Where significant risk is not currently present, the responsible person may be required to monitor the groundwater and implement reasonable management or other preventative measures to minimize further contamination.

567—133.5(455B,455E) **Report to commission.** Department actions taken pursuant to this chapter shall be reported to the commission.

This chapter is intended to implement Iowa Code section 455E.5(5) and Iowa Code chapter 455B, Division III, Part 1 and Division IV, Part 4.

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Reserved