CERL Special Report 96/04
October 1995
Revised April 2000

US Army Corps
of Engineers
Engineer Research and
Development Center

The Environmental Assessment and Management (TEAM) Guide

Iowa Supplement
Revised April 2000

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FOREWORD

This is USACERL Special Report 96/04. The report is based on the information available on Enflex Federal and State Regulations of February 2000.

The research was performed for the Air National Guard under Military Interdepartmental Purchase Request (MIPR) number OMAF57/3400/357/A/9830147/PO, technical monitor Chuck Smith; the Army Environmental Center under MIPR 0C48R0006, technical monitor Matthew Andrews; the National Guard Bureau under MIPR 0CCER6EL11, technical monitor Phil Dao; the Air Force Center for Environmental Excellence under MIPR FQ7624-00-08010, technical monitor Scott Newquist; the U.S. Army Corps of Engineers under FAD3123-X-2402-JAN-980803369, technical monitor James Wolcott; the U.S. Army Reserve Center under MIPR 00CCWEL009, technical monitor Dave Jennings; and the U.S. Postal Service under MIPR number 102590-99-Z-093, technical monitor Paul Fennewald.

The research was performed by the Environmental Processes Branch (CN-E), Installations Division (CN), of the U.S. Army Construction Engineering Research Laboratory (CERL). The CERL Principal Investigator was Carolyn O'Rourke. Dr. Ilker Adiguzel is Chief, CN-E, and Dr. John T. Bandy is Chief, CN.

Dr. Alan Moore is Acting Director of CERL.

NOTICE

This manual is intended as general guidance for personnel at Federal facilities. It is not, nor is it intended to be, a complete treatise on environmental laws and regulations. Neither the U.S. Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information contained herein. For any specific questions about, or interpretations of, the legal references herein, consult appropriate legal counsel.

IOWA SUPPLEMENT

The Iowa Supplement to the U.S. TEAM Guide contains the protocols necessary for determining compliance with Iowa's environmental regulations. This manual is a supplement to the U.S. TEAM Guide; the manual does not replace it.

The following Iowa agencies issue regulations and have responsibility in the areas indicated.

The Department of Natural Resources:

- has jurisdiction over the atmosphere of the state to prevent, abate, and control air pollution by establishing standards for air quality and by regulating potential sources of air pollution through a system of general rules or specific permits. The construction and operation of any new or existing stationary source which emits or may emit any air pollutant requires a specific permit from the Department, unless exempted by the Department.
- regulates underground tanks used for storage of regulated substances, and adopts rules relating to detection, prevention, and correction of releases of regulated substances from such tanks, maintenance of financial responsibility by owners or operators of such tanks, new tank performance standards, notice and reporting requirements, and designation of regulated substances.
- conducts the public water supply program and establishes minimum standards for the construction of private water supply systems. The public water supply program includes the establishment of drinking water standards, including maximum contaminant levels, treatment techniques, monitoring, and public notice requirements consistent with the federal Safe Drinking Water Act, and the establishment of construction standards. The construction, modification, and operation of any public water supply system requires a specific permit from the Department. Certain construction permits are issued upon certification by a registered professional engineer that a project meets standards, and in certain instances permits are issued by local authorities pursuant to IAC 567 -- Chapter 9. Private water supplies are regulated by local boards of health.
- has jurisdiction over the surface and groundwater of the state to prevent, abate, and control water pollution by establishing standards for water quality and for direct or indirect discharges of wastewater to waters of the state and by regulating potential sources of water pollution through a system of general rules or specific permits. The construction and operation of any wastewater disposal system and the discharge of any pollutant to a water of the state requires a specific permit from the Department, unless exempted by the Department.
- has jurisdiction over all flood plains and floodways in the state for the purpose of establishing and implementing a program to promote the protection of life and property from floods and to promote the orderly development and wise use of the flood plains of the state. As part of the program, the Department regulates flood plain development by three alternative methods: Establishment of regulations for specific stream reaches by issuance of flood plain management orders; approval of flood plain management regulations adopted by local governments; and approval of flood plain development on a case-by-case basis where areas or projects are not covered by the first two methods. Any person who desires to construct or maintain a structure, dam, obstruction, deposit, or excavation, or allow the same in any flood plain or floodway has a responsibility to contact the Department to determine whether approval is required from the Department or a local government authorized to act for 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.
- has jurisdiction over the generation, transportation, and disposal of hazardous wastes by establishing standards for the treatment, storage, and disposal of these wastes. Any person or agency who generates, transports, or owns or operates a facility that treats, stores, or disposes of hazardous waste must notify the Department.

The Division of Labor Services of the Department of Employment Services is the Office of the Commissioner and consists of the Commissioner and those employees who discharge the duties and responsibilities imposed upon the Commissioner by the laws of this state. The Commissioner has control, supervision, and authority to enforce the following chapters and sections of the Iowa Code: section 30.7, Iowa Emergency Response Commission, Duties to be Allocated to Department of Employment Services; Chapter 88, Occupational Safety and Health; Removal and Encapsulation of Asbestos; Chapter 89B, Hazardous Chemicals Risks -- Right to Know among others.

The Division consists of four bureaus: Occupational Safety and Health Enforcement Bureau (enforces occupational safety and health rules in workplaces through inspections based on accidents, complaints, and programmed inspections); Occupational Safety and Health Consultation and Education Bureau (conducts occupational safety and health inspections at the request of an employer and conducts educational programming); Inspections and Reporting Bureau (conducts amusement ride, elevator and boiler inspections and maintains statistical information on the worker's illnesses and injuries and the Division's inspection activities); and Employee Protection Bureau (responsible for child labor, wage payment and collection, minimum wage, employment agency licensing, workplace standards, asbestos removal and encapsulation contractor permits and licensing of professions engaged in removal and encapsulation, community and emergency response right to know, EPCRA, out-of-state construction contractor bonding, and construction contractor registration).

The State Fire Marshal's Division has a charter to prevent fires. Fire causes are determined and communicated to the public by various means including the division's annual report. The division requires building standards necessary for fire safety and apprehends those who violate such standards or fire related criminal statutes.

ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
AQMA	air quality management area
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
BACT	best available control technology
BOD	biochemical oxygen demand
BTEX	benzene, toluene, elthylbenzene, xylene
CAR	control area responsible party
CAS	Chemical Abstract Service
CEM	continuous emission monitoring
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act*
CFC	chlorofluorocarbons
CWA	*Clean Water Act*
dB	decibel
dBA	decibels using A-weighting network
dBC	decibels using C-weighting network
DEQ	Department of Environmental Quality
ESA	*Endangered Species Act*
FIFRA	*Federal Insecticide, Fungicide, and Rodenticide Act*
GVWR	gross vehicle weight rating
HEPA Filter	high efficiency particulate air filter
HWM	hazardous waste management
IARC	International Agency for Research on Cancer
ICRU	International Commission on Radiological Units and Measurements
IUPAC	International Union of Pure and Applied Chemistry
LAER	lowest achievable emission rate
Ldn	day-night airport noise level
Leq	equivalent noise level
LPG	Liquefied Petroleum Gas
MC	medium curing
MCL	maximum contaminant level
MFL	million fibers per liter
MSDS	material safety data sheet
MSW	municipal-type solid waste
MSWLF	municipal solid waste landfill
MWC	municipal waste combustor
NBS	National Bureau of Standards
NEPA	*National Environmental Policy Act*
NFPA	National Fire Protection Association
NHPA	*National Historic Preservation Act*
NPDES	National Pollutant Discharge Elimination System
NTNCWS	nontransient noncommunity water system
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
PEL	permissible exposure limit
POTW	publicly owned treatment works
PUC	Public Utility Commission of Oregon
RACT	reasonably available control technology

ACRONYMS

RC	rapid curing
RCRA	*Resource Conservation and Recovery Act*
RDF	refuse-derived fuel
REL	recommended exposure level
RGF	recirculating gravel filter
RVP	Reid vapor pressure
SAE	Society of Automotive Engineers
SARA	*Superfund Amendments and Reauthorization Act*
SC	slow curing
SDWA	*Safe Drinking Water Act*
SIC	Standard Industrial Classification
SMCL	secondary maximum contaminant level
SPCC	spill prevention countermeasure and control
SPL	sound pressure level
SWDA	*Solid Waste Disposal Act*
TLV	threshold limit value
TNTC	too numerous to count
TPH	total petroleum hydrocarbons
TRI	toxic release inventory
TSCA	*Toxic Substance Control Act*
TSD	treatment, storage, and disposal
TSDF	treatment, storage, and disposal facility
TSP	total suspended particulate
TSS	total suspended solids
TTHM	total trihalomethane
UL	Underwriters Laboratory
UFC	Uniform Fire Code
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound
VOL	volatile organic liquid
WPCF	Water Pollution Control Facilities

COMMONLY USED ABBREVIATIONS

bbl	barrel	mg	milligram
Btu	British thermal unit	mi	mile
C	Celsius	min	minute
cfs	cubic feet per second	MJ	megajoule
cm	centimeter	mL	milliliter
cm^2	square centimeter	mm	millimeter
dscf	dry standard cubic foot	mo	month
dscm	dry standard cubic meter	mrem	millirem
F	Fahrenheit	MW	megawatt
ft	foot	ng	nanogram
ft^2	square feet	NTU	nephelometric turbidity unit
ft^3	cubic feet	oz	ounce
g	gram	pCi	picoCurie
gal	gallon	ppm	part per million
gJ	gigajoule	ppmv	part per million by volume
gr	grain	ppmw	part per million by weight
h	hour	psi	pound per square inch
ha	hectare	psia	pounds per square inch absolute
hp	horsepower	psig	pounds per square inch gauge
in.	inch	qt	quart
J	Joule	s	second
kg	kilogram	scf	standard cubic foot
km	kilometer	scm	standard cubic meter
kPa	kilopascals	sdcf	standard dry cubic foot
L	liter	sdcm	standard dry cubic meter
lb	pound	TU	turbidity unit
m	meter	V	volt
m^3	cubic meter	yd	yard
MBtu	million British thermal units	yd^2	square yard
meq	milligram equivalent	yr	year
CO	carbon monoxide	NO_2	nitrogen dioxide
CO_2	carbon dioxide	NO_x	nitrogen oxides
Hg	mercury	SO_2	sulfur dioxide

METRIC CONVERSION TABLE

The following conversion table may be used throughout this manual to make approximate conversions between U.S. units and metric units.

1 in.	=	2.54 cm or 25.4 mm
1 ft	=	0.3048 m
1 ft^2	=	0.093 m^2
1 ft^3	=	0.028 m^3
1 psi	=	6.895 kPa
1 lb	=	0.454 kg
1 mi	=	1.61 km
1 gal	=	3.78 L
°F	=	(°C + 17.78) x 1.8
°C	=	0.55 (°F - 32)
1 yd	=	0.9144 m
1 Btu	=	4.184 kJ
1 acre	=	4046.9 m^2
1 acre	=	0.405 hectare

Comment Form

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Please include the following information with your comment:

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13. ABSTRACT (*Maximum 200 words*)

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SECTION 1

AIR EMISSIONS MANAGEMENT

Iowa Supplement, April 2000

This section covers the state requirements for Air Emissions Management and is intended to supplement the U.S. TEAM Guide. Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.

Federal Regulations Adopted by Reference

- In Iowa Administrative Code (IAC) 567-22.4, the State of Iowa adopts by reference Title 40, Code of Federal Regulations (CFR), Subsection 52.21 as amended through 12 March 1996, which pertains to the prevention of significant deterioration of air quality. The following portions of the Federal regulations are **not** adopted by reference:
    1. Plan Approval, 40 CFR 52.21(a)
    2. Public Participation, 40 CFR 52.21(q)
    3. Environmental Impact Statement, 40 CFR 52.21(s)
    4. Delegation of Authority, 40 CFR 52.21(u).

- In IAC 567-23.1(1) and (2), the State of Iowa adopts by reference the Federal standards of performance for new stationary sources of 40 CFR 60 as amended and corrected through 22 April 1994, and 40 CFR 503 as adopted on 19 February 1993. (NOTE: 40 CFR 60.530 through 60.539b are not adopted.) The adopted regulations apply to the following sources:
    1. fossil-fuel fired steam generators of more than 250 MBtu heat input the construction, reconstruction, or modification of which commenced after 17 August 1971
    2. incinerators of more than 50 tons/day charging rate
    3. nitric acid plants
    4. sulfuric acid plants
    5. sewage sludge incinerators
    6. electric utility steam generating units capable of combusting more than 250 MBtu/h (73 MW) heat input of fossil fuel for which construction, modification, or reconstruction commenced after 18 September 1978; or an electric utility combined cycle gas turbine capable of combusting more than 250 MBtu/h (73 MW) heat input of fossil fuel in the steam generator
    7. stationary gas turbines, including simple cycle gas turbine, regenerative cycle gas turbine, or any gas turbine portion of a combined cycle steam/electric generating system that is not self-propelled (but may be mounted on a vehicle for portability)
    8. petroleum storage vessels, unless exempted, for which construction, modification, or reconstruction commenced after 11 June 1973 and prior to 19 May 1978 with a capacity greater than 151,142 L (40,000 gal)
    9. petroleum storage vessels, unless exempted, for which construction, modification, or reconstruction commenced after 18 May 1978 and prior to 23 July 1984 with a capacity greater than 151,142 L (40,000 gal)
    10. graphic arts sources, including any publication rotogravure printing press (except proof presses)
    11. bulk gasoline terminals, including the total of all loading racks delivering liquid product into gasoline tank trucks
    12. petroleum dry cleaners with a total manufacturer's rated dryer capacity equal to or greater than 38 kg (84 lb), including petroleum solvent dry cleaning dryers, washers, filters, stills, and settling tanks
    13. equipment leaks of volatile organic compounds from onshore natural gas processing plants, unless exempted, constructed, modified, or reconstructed after 20 January 1984

14. SO_2 emissions from sweetening units and sweeting unit/recovery unit combinations at onshore natural gas processing plants, unless exempted, constructed, modified, or reconstructed after 20 January 1984
15. volatile organic liquid storage vessels, unless exempted, the construction, modification, or reconstruction of which commenced after 23 July 1984
16. municipal waste combustors, unless exempted, with a capacity greater than 250 tons/day of municipal solid waste or refuse derived fuel for which construction, modification, or reconstruction commenced after 20 December 1989
17. municipal solid waste landfills [Revised May 1998].

- In IAC 567-22.148, the State of Iowa adopts by reference the Acid Rain Opt-Ins, as amended through April 4, 1995.

- In IAC 567-23.1(1) and (3), the State of Iowa adopts by reference the Federal standards of emissions of hazardous air pollutants of 40 CFR 61 as amended and corrected through 25 June 1993. (NOTE: 40 CFR 61.20 to 61.26, 61.90 to 61.97, 61.100 to 61.108, 61.120 to 61.127, 61.190 to 61.193, 61.200 to 61.205, 61.220 to 61.225, and 61.250 to 61.256 are **not** adopted.) The adopted regulations apply to the following sources/substances:
  1. asbestos, including waste disposal, demolition activities, and renovation operations
  2. beryllium, including incinerators and machine shops that process beryllium, beryllium oxides, or any alloy containing more than 5 percent beryllium by weight; including beryllium rocket motor test sites
  3. mercury, including sludge incineration plants, sludge drying plants, and a combination of sludge incineration plants and sludge drying plants
  4. equipment leaks of benzene, including leaks occurring at any pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, flanges, and other connectors, product accumulator vessels, and control devices or systems that handle benzene
  5. equipment leaks of volatile hazardous air pollutants, including leaks occurring at any pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, flanges, and other connectors, product accumulator vessels, and control devices or systems that handle benzene
  6. benzene emissions from benzene storage vessels, unless exempted, including vessels storing benzene with a specific gravity within the range of gravities specified in American Society for Testing and Materials (ASTM) D 836-84 for Industrial Grade Benzene, ASTM D 835-85 for Refined Benzene-485, ASTM D 2359-85a for Refined Benzene-535, and ASTM D 4734-87 for Refined Benzene-545
  7. benzene waste operations, unless exempted, including facilities at which waste management units are used to treat, store, or dispose of waste generated by any manufacturing facility.

Definitions

- *Act* - the Clean Air Act, 42 U.S.C. sections 7401, et seq (IAC 567-22.100) [Added May 1998].

- *Actual Emissions* - the actual rate of emissions of a pollutant from an emissions unit, as determined in accordance with the following (IAC 567-22.100) [Added May 1998]:
  1. In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which immediately precedes that date and which is representative of normal source operations. The director may allow the use of a different time period upon a demonstration that it is more representative of normal source operations. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored or combusted during the selected time period. Actual emissions for acid rain affected sources are calculated using a one-year period
  2. Lacking specific information to the contrary, the director may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit
  3. For any emissions unit which has not begun normal operations on a particular date, actual emissions shall equal the potential to emit of the unit on that date

4. For purposes of calculating early reductions of hazardous air pollutants, actual emissions shall not include excess emissions resulting from a malfunction or from startups and shutdowns associated with a malfunction.

- *Affected Source* - a source that includes one or more affected units subject to any emissions reduction requirement or limitation under Title IV of the Act (IAC 567-22.100) [Added May 1998].

- *Affected Unit* - a unit that is subject to any acid rain emissions reduction requirement or acid rain emissions limitation under Title IV of the Act (IAC 567-22.100) [Added May 1998].

- *Air Pollution Episode* - a combination of forecast or actual meteorological conditions and emissions of air contaminants which may or do present an imminent and substantial endangerment to the health of persons, during which the chief meteorological factors are the absence of winds that disperse air contaminants horizontally and a stable atmospheric layer which tends to inhibit vertical mixing through relatively deep layers (IAC 567-20.2).

- *Air Quality Standard* - an allowable level of air contaminant or atmospheric air concentration established by the commission (IAC 567-20.2) [Added May 1998].

- *Allowable Emissions* - the emission rate of a stationary source calculated using both the maximum rated capacity of the source, unless the source is subject to federally enforceable limits which restrict the operating rate or hours of operation, and the most stringent of the following (IAC 567-20.2) [Added May 1998]:
  1. The applicable new source performance standards or national emissions standards for hazardous air pollutants, contained in 567 -- subrules 23.1(2) and 23.1(3)
  2. The applicable existing source emission standard contained in 567 -- Chapter 23
  3. The emissions rate specified in the air construction permit for the source.

- *Ambient Air* - that portion of atmosphere, external to buildings, to which the general public has access. Ambient air does not include the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers (IAC 567-20.2).

- *Anaerobic Lagoon* - an impoundment, the primary function of which is to store and stabilize organic wastes. The impoundment is designed to receive wastes on a regular basis and the design waste loading rates are such that the predominant biological activity in the impoundment will be anaerobic. An anaerobic lagoon does not include:
  1. a runoff control basin which collects and stores only precipitation induced runoff from an open feedlot feeding operation
  2. a waste slurry storage basin which receives waste discharges from confinement feeding operations and which is designed for complete removal of accumulated wastes from the basin at least semiannually
  3. any anaerobic treatment system which includes collection and treatment facilities for all off gases (IAC 567-20.2).

- *BTU* - British Thermal Unit, the quantity of heat required to raise the temperature of one pound of water from 59°F to 60°F (IAC 567-20.2) [Added May 1998].

- *Control Equipment* - any equipment that has the function to prevent the formation of or the emission to the atmosphere of air contaminants from any fuel burning, incinerator or process equipment (IAC 567-20.2).

- *Criteria* - information used as guidelines for decisions when establishing air quality goals, air quality standards, and the various air quality levels, and which in no case is to be confused or used interchangeably with air quality goals or standards (IAC 567-20.2).

- *Director* - the director of the department of natural resources or the director's designee (IAC 567-20.2) [Added May 1998].

- *Emission Limitation (Emission Standard)* - a requirement established by a state, local government, or the administrator which limits the quantity, rate or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications or prescribe operation or maintenance procedures for a source to assure continuous emission reduction (IAC 567-20.2) [Added May 1998].

- *Emissions Unit* - any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant or any pollutant listed under section 112(b) of the Act. This term is not meant to alter or affect the definition of the term "unit" for purposes of Title IV or the Act or any related regulations (IAC 567-20.2) [Added May 1998].

- *Equipment* - equipment capable of emitting air contaminants to produce air pollution such as fuel burning, combustion, or process devices or apparatus including but not limited to fuel-burning equipment, refuse burning equipment used for the burning of fuel or other combustible material from which the products of combustion are emitted: and including but not limited to apparatus, equipment, or process devices which generate heat and may emit products of combustion, and manufacturing, chemical, metallurgical, or mechanical apparatus or process devices which may emit smoke, particulate matter, or other air contaminates (IAC 567-20.2).

- *Excess Emission* - any emission which exceeds either the applicable emission standard prescribed in chapter 23 or rule 567-22.5, or any emission limit specified in a permit or order (IAC 567-20.2) [Revised April 2000].

- *Director* - the Director of the Department of Natural Resources or his designee (IAC 567-20.2).

- *Existing Equipment* - equipment, machines, devices, or installations that are in operation prior to 23 September 1970 (IAC 567-20.2).

- *Fugitive Dust* - any airborne solid particulate matter emitted from any source other than a flue or stack (IAC 567-20.2) [Added May 1998].

- *Garbage* - all solid and semisolid putrescible and nonputrescible animal and vegetable wastes resulting from the handling, preparing, cooking, storing, and serving of food or of material intended for se as food, but excluding recognized industrial by-products (IAC 567-20.2).

- *Gas Cleaning Device* - a facility designed to remove air contaminants from gases exhausted from equipment as defined herein (IAC 567-20.2).

- *Goal* - a level of air quality which is expected to be obtained (IAC 567-20.2) [Added May 1998].

- *Incinerator* - a combustion apparatus designed for high temperature operation in which solid, semisolid, liquid, or gaseous combustible refuse is ignited and burned efficiently, and from which the solid residues contain little or no combustible material (IAC 567-20.2).

- *Initiation of Construction, Installation, or Alteration* - significant permanent modification of a site to install equipment, control equipment, or permanent structures. Not included are activities incident to preliminary engineering, environmental studies, or acquisition of a site for a facility (IAC 567-20.2).

- *Landscape Waste* - any vegetable or plant wastes except garbage. The term includes trees, tree trimmings, branches, stumps, brush, weeds, grass, shrubbery, and yard trimmings (IAC 567-20.2).

- *Major Source* - any stationary source (or any group of stationary sources located on one or more contiguous or adjacent properties and under common control of the same person or of persons under common control) belonging to a single major industrial grouping that is any of the following (IAC 567-22.100) [Added May 1998]:

1. A major stationary source of air pollutants, as defined in section 302 of the Act, that directly emits or has the potential to emit 100 tons per year (tpy) or more of any air pollutant (including any major source of fugitive emissions of any such pollutant). The fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of section 302(j) of the Act, unless the source belongs to one of the stationary source categories listed in this chapter
2. A major source of hazardous air pollutants according to section 112 of the Act as follows:
    a. For pollutants other than radionuclides, any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit, in the aggregate, 10 tpy or more of any hazardous air pollutant which has been listed pursuant to section 112(b) of the Act and these rules or 25 tpy or more of any combination of such hazardous air pollutants. Notwithstanding the previous sentence, emissions from any oil or gas exploration or production well (with its associated equipment) and emission from any pipeline compressor or pump station shall not be aggregated with emissions from other similar units, whether or not such units are in a contiguous area or under common control, to determine whether such units or stations are major sources.
    b. For radionuclides, "major source" shall have the meaning specified by the administrator by rule as of January 18, 1994.
3. A major stationary source as defined in Part D of Title I of the Act, including:
    a. For ozone nonattainment areas, sources with the potential to emit 100 tpy or more of volatile organic compounds or oxides of nitrogen in areas classified as "marginal" or "moderate," 50 tpy or more in areas classified as "serious," 25 tpy or more in areas classified as "severe" and 10 tpy or more in areas classified as "extreme"; except that the references in this paragraph to 100, 50, 25, and 10 tpy of nitrogen oxides shall not apply with respect to any source for which the administrator has made a finding, under section 182(f)(1) or (2) of the Act, that requirements under section 182(f) of the Act do not apply;
    b. For ozone transport regions established pursuant to section 184 of the Act, sources with potential to emit 50 tpy or more of volatile organic compounds;
    c. For carbon monoxide nonattainment areas (1) that are classified as "serious" and (2) in which stationary sources contribute significantly to carbon monoxide levels, and sources with the potential to emit 50 tpy or more of carbon monoxide;
    d. For particulate matter (PM-10), nonattainment areas classified as "serious," sources with the potential to emit 70 tpy or more of PM-10.

- *Maximum Capacity* - for purposes of calculating potential to emit for emergency generators (IAC 567-20.2) [Added May 1998]:
    1. 500 h of operation annually, if the generator has actually been operated less than 500 h/yr for the past 5 yr
    2. 8760 h of operation annually, if the generator has actually been operated more than 500 h in one of the past 5 yr
    3. The number of hours specified in a state or federally enforceable limit.

- *Opacity* - the degree to which emissions reduce the transmission of light and obscure the view of an object in the background (IAC 567-20.2).

- *Open Burning* - any burning of combustible materials where the products of combustion are emitted into the open air without passing through a chimney or stack (IAC 567-20.2).

- *Particulate Matter* - any material, except uncombined water, that exists in a finely divides form as a liquid or solid at standard conditions (IAC 567-20.2).

- PM_{10} - particulate matter with an aerodynamic diameter less than or equal to a nominal 10 mm as measured by a USEPA-approved reference method (IAC 567-20.2).

- *Potential to Emit* - the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant,

including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation is enforceable by the administrator. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations relating to acid rain. If the source is subject to new source construction permit review, then potential to emit is defined as stated above or as established in a federally enforceable permit (IAC 567-20.2) [Added May 1998].

- *Process* - any action, operation or treatment, and all methods and forms of manufacturing or processing, that may emit smoke, particulate matter, gaseous matter or other air contaminant (IAC 567-20.2) [Added May 1998].

- *Process Weight* - the total weight of all materials introduced into any source operation Solid fuels charged will be considered as part of the process weight, but liquid and gaseous fuel and combustion air will not (IAC 567-20.2) [Added May 1998].

- *Process Weight Rate* - continuous or long-run steady-state source operations, the total process weight for the entire period of continuous operation or for a typical portion thereof, divided by the number of hours of such period or portion thereof; or for a cyclical or batch source operation, the total process weight for a period that covers a complete operation or an integral number of cycles, divided by the number of hours of actual process operation during such a period. Where the nature of any process or operation, or the design of any equipment is such as to permit more than one interruption of this definition, the interpretation that results in the minimum value for allowable emission shall apply (IAC 567-20.2).

- *Refuse* - garbage, rubbish, and all other putrescible and nonputrescible wastes, except sewage and water-carried trade wastes (IAC 567-20.2).

- *Regulated Air Pollutant (regulated Air Contaminant)* - the following (IAC 567-22.100) [Added May 1998; Revised April 1999]:
    1. Nitrogen oxides or any volatile organic compounds;
    2. Any pollutant for which a national ambient air quality standard has been promulgated;
    3. Any pollutant that is subject to any standard promulgated under section 111 of the Act;
    4. Any Class I or II substance subject to a standard promulgated under or established by Title VI of the Act;
    5. Any pollutant subject to a standard promulgated under section 112 or other requirements established under Section 112 of the Act, including Sections 112(g), (j), and (r) of the Act, including the following:
        a. any pollutant subject to requirements under section 112(j) of the Act. If the administrator fails to promulgate a standard by the date established pursuant to Section 112(e) of the Act, any pollutant for which a subject source would be major shall be considered to be regulated on the date 18 mo after the applicable date established pursuant to Section 112(e) of the Act; and
        b. any pollutant for which the requirements of Section 112(g)(2) of the Act have been met, but only with respect to the individual source subject to the Section 112(g)(2) requirement
    6. With respect to Title V, total suspended particulate is not considered a regulated air pollutant for the purpose of determining whether a source is considered to be a major source.

- *Rubbish* - all waste materials of nonputrescible nature (IAC 567-20.2).

- *Shutdown* - the cessation of operation of any control equipment or process equipment or process for any purpose (IAC 567-20.2) [Added May 1998].

- *Source Operation* - the last operation preceding the emission of an air contaminant, and which results in the separation of the air contaminant from the process materials or in the conversion of the process materials into air contaminants, but is not an air pollution control operation (IAC 567-20.2).

- *Spray Material* - material sprayed from spray equipment when used in the surface coating process in the spray booth, including but not limited to paint, solvents, and mixtures of paint and solvents (IAC 567-23.8) [Added April 1999].

- *Standard Conditions* - a gas temperature of 70 °F and a gas pressure of 29.92 in. Hg absolute (IAC 567-20.2).

- *Standard Metropolitan Statistical Area* - an area which has at least one city with a population of at least 50,000 and such surrounding areas as geographically defined by the U.S. Bureau of the Budget (Department of Commerce) (IAC 567-20.2).

- *Start-Up* - the setting into operation of any control equipment or process equipment or process for any purpose (IAC 567-20.2).

- *Stationary Source* - any building, structure, facility, or installation which emits or may emit any air pollutant (IAC 567-20.2).

- *Stationary Source* with de minimus emissions -
  1. In every 12 month rolling period, the stationary source emits less than or equal to the following quantities of emissions
     a. 5 tons per year of a regulated air pollutant (excluding HAPs), and
     b. 2 tons per year of a single HAP, and
     c. 5 tons per year of any combinations of HAPs
  2. In every 12-month rolling period, at least 90 percent of the stationary source's emissions are associated with an operation for which the throughput is less than or equal to one of the quantities specified in paragraphs "1" to "9" below:
     a. 1400 gal of any combination of solvent containing materials but no more than 550 gallons of ant one solvent-containing material, provided that the materials do not contain the following: methyl chloroform (1,1,1-trichloroethane), methylene chloride (dichloromethane), tetrachloroethylene (perchloroethylene), or trichloroethylene;
     b. 750 gallons of any combination of solvent containing materials where the materials contain the following: methyl chloroform (1,1,1-trichloroethane), methylene chloride (dichloromethane), tetrachloroethylene (perchloroethylene), or trichloroethylene, but not more than 300 gallons of any one solvent-containing material;
     c. 365 gallons of solvent-containing material used at a paint spray unit(s);
     d. 4,400,000 gallons of gasoline dispensed from equipment with Phase I and II vapor recovery systems;
     e. 470,000 gallons of gasoline dispensed from equipment without Phase I and II vapor recovery systems;
     f. 1,400 gallons of gasoline combusted;
     h. 1,600 gallons of diesel fuel combusted;
     i. 500,000 gallons of distillate oil combusted; or
     j. 71,400,000 cubic feet of natural gas combusted (IAC 567-22.300(4)) [Added May 1998].

- *Trade Wastes* - any refuse resulting from the prosecution of any trade, business, industry, commercial venture (including farming and ranching), or utility or service activity, and any governmental or institutional activity, whether or not for profit (IAC 567-20.2).

- *Volatile Organic Compound* - any compound included in the definition of volatile organic compound found at 40 CFR Section 51.100(s) as amended through April 9, 1998 (IAC 567-20.2) [Revised April 2000].

AIR EMISSIONS MANAGEMENT GUIDANCE FOR IOWA CHECKLIST USERS	
	REFER TO CHECKLIST ITEMS:
Missing Checklist Items	AE.2.1.IA.
Permits/Notifications/Exemptions	AE.6.1.IA through AE.6.6.IA
Management/Administrative	AE.7.1.IA and AE.7.2.IA
Operations	AE.8.1.IA through AE.8.4.IA
Emission Limits	AE.9.1.IA through AE.9.3.IA
Ambient Air Quality (NOTE: In IAC 567-28.1, the State of Iowa adopts the National Primary and Secondary Ambient Air Quality Standards as published in 40 CFR 50, as amended in 38 Federal Register (FR) 22384 (14 September 1973), 43 FR 46258 (5 October 1978), 44 FR 8202 and 8220 (9 February 1979), and 52 FR 24634 to 24669 (1 July 1987), and 62 FR 38651 - 38760, 38855 - 38896 (18 July 1997).)	
Steam Generators	AE.10.1.IA. and AE.10.2.IA.
Miscellaneous Incinerators	AE.25.1.IA. through AE.25.3.IA.
Fugitive Emissions	AE.65.1.IA. and AE.65.2.IA.
Acid Production Units	AE.80.1.IA. through AE.80.4.IA.
Coating Operations	AE.100.1.IA. and AE.100.2.IA.
Open Burning	AE.130.1.IA.
Other Emissions/Sources	
Meat Smokehouses	AE.155.1.IA.
Sulfur Dioxide	AE.155.2.IA. through AE.155.4.IA.

AIR EMISSIONS MANAGEMENT GUIDANCE FOR IOWA APPENDIX USERS	
REFER TO APPENDIX NUMBERS:	**REFER TO APPENDIX ITEMS:**
1-1	Limitations of Particulate Matter Emissions Based on Process Weight
1-2	Exemptions from Permit Requirements
1-3	Sources Ineligible for an Operating Permit by Rule for Small Sources
1-4	Activities Exempt from the Open Burning Prohibition

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REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
AE.2 **MISSING CHECKLIST ITEMS**	
AE.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

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AE.6 PERMITS/ NOTIFICATIONS/ EXEMPTIONS	
AE.6.1.IA. Stationary sources must have construction and operating permits (IAC 567-20.1, 567-21.2(1), 567-21.2(6), and 567-22.1 [Moved in structural reorganization of AE.5 October 1999; Revised April 2000].	Verify that both new and existing stationary sources which emit or may emit any air pollutant have both construction and operating permits from the Department. (NOTE: A stationary source may make application for a variance (or extension of a variance) from air pollution and control rules and standards. Verify that a permit is obtained prior to the initiation of construction, installation, or alteration of any portion of a stationary source or anaerobic lagoon. (NOTE: Equipment, control equipment, and anaerobic lagoons exempt from construction requirements are listed in Appendix 1-2.) (NOTE: Existing sources built prior to 23 September 1970, are not subject to this requirement, unless they have been modified, reconstructed, or altered on or after 23 September 1970.) (NOTE: See AE.100.2.IA. for permit by rule requirements applicable to spray booths.)
AE.6.2.IA. Specific sources must have a Title V permit (IAC 567-22.101, 567-22.201, and 567-22.300) [Moved in structural reorganization of AE.5 October 1999].	Verify that the following sources obtain a Title V operating permit: - affected sources - major sources - sources subject to standards of performance for new stationary sources - sources subject to emission guidelines (unless the source is specifically exempted) - sources subject to emissions standards for hazardous air pollutants - sources subject to emission standards for hazardous air pollutants for source categories - solid waste incinerator units - those designated by the Administrator. (NOTE: Sources required to obtain a Title V operating permit solely because they are subject to a standard, and which are not major sources, need only obtain a Title V permit for the emissions units and related equipment causing the source to be subject to the Title V program) (NOTE: The requirement to obtain a Title V permit is deferred for all sources listed above that are not major sources, affected sources, or solid waste

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	incineration units until 9 December 1999 (or the deferral is superseded by a Federal requirement). Each source receiving a deferral under the provisions of this rule must submit a Title V permit application to the department within 12 mo of the date when the requirement is no longer deferred for that source.) (NOTE: Source categories exempt from Title V permit requirements are listed in Appendix 1-2.) (NOTE: Major sources otherwise required to obtain a Title V operating permit may instead apply to the Department for a voluntary operating permit or register for an operation permit by rule for small sources.)
AE.6.3.IA. Sources operating under a permit by rule for small sources must meet specific requirements (IAC 567-22.300(1) through (3), (5), and (6)) [Moved in structural reorganization of AE.5 October 1999].	Verify that, for sources which otherwise would be required to obtain a Title V operating permit but instead register for an operation permit by rule for small sources, the potential to emit air contaminants is equal to or in excess of the threshold for a major stationary source of regulated air pollutants or hazardous air pollutants. Verify that the actual emissions of stationary sources which otherwise would be required to obtain a Title V operating permit but instead register for an operation permit by rule for small sources are less than or equal to the following limitations for every 12 mo rolling period: - 50 percent of the major source thresholds for regulated air pollutants (excluding hazardous air pollutants) - 5 tons per year of a single hazardous air pollutant - 12.5 tons per year of any combination of hazardous air pollutants. (NOTE: Stationary sources may take into account the operation of air pollution control equipment on the capacity of the source to emit an air contaminant if the equipment is required by Federal, state, or local air pollution control agency rules and regulations, or permits terms and conditions that are federally enforceable.) Verify that such air pollution control equipment is maintained and operated in a manner consistent with good air pollution control practice for minimizing emissions. Verify that a source operating under a permit by rule for small sources obtains any necessary permits prior to commencing any physical or operational change or activity which will result in actual emissions that exceed these emission limitations. Verify that a source operating under a permit by rule for small sources continues to meet any and all applicable Federal requirements including, but not limited to, a maximum achievable control technology (MACT) standard. (NOTE: Source categories ineligible for an operation permit by rule for small

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	sources are listed in Appendix 1-3.)
AE.6.4.IA. Sources operating under a permit by rule for small sources must update their status when issued construction permits (IAC 567-22.300(9)) [Moved in structural reorganization of AE.5 October 1999].	Verify that, if the issuance of a construction permit acts to make the source no longer eligible for an operating permit by rule for small sources, an application for either a Title V operating permit or a voluntary operating permit is submitted within 12 mo of issuance of the construction permit. Verify that, if the issuance of a construction permit does not prevent the source from continuing to be eligible to operate under an operating permit by rule for small sources, a registration updated is provided to the Department within 30 days of issuance of the construction permit.
AE.6.5.IA. De minimus sources must meet recordkeeping requirements (IAC 567-22.300(4)) [Moved in structural reorganization of AE.5 October 1999].	(NOTE: The record-keeping requirements of this rule do not replace any record-keeping requirement contained in an operating or construction permit or in a local, state, or Federal rule or regulation.) Verify that de minimus sources maintain an annual log of the following: - each raw material used and its amount - each product produced and its production rate. Verify that the annual log and all related material safety data sheets for all materials are maintained for a period of not less then 5 yr. Verify that the annual log begins on the date the small source operating permit application was submitted, then on an annual basis, based on a calendar year.
AE.6.6.IA. Non de minimus sources must meet recordkeeping requirements (IAC 567-22.300(7)) [Moved in structural reorganization of AE.5 October 1999].	(NOTE: The record-keeping requirements of this rule do not replace any record-keeping requirement contained in any operating permit, construction permit, or in a local, state or federal rule or regulation.) Verify that non de minimus sources maintain records for each permitted emission unit sufficient to determine actual emissions and summarize this information in a monthly log which is maintained on site for 5 yr. Verify that non de minimus stationary sources that contain an unpermitted coating/solvent emission unit or use a coating, solvent, ink, or adhesive keep and maintain the following records: - a current list of all coatings, solvent, inks and adhesives in use that includes information on the manufacturer, brand, product name or code, VOC content in grams per liter or pounds per gallon, hazardous air pollutant content in grams per liter or pounds per gallon, or manufacturer's product

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	specifications, material VOC content reports, or laboratory analyses providing this information - a description of any equipment used during and after coating/solvent application, including type, make and model, maximum design process rate or throughput, control device(s) type and description (if any), and a description of the coating/solvent application/drying method(s) employed; - a monthly log of the consumption of each solvent (including solvents used in cleanup and surface preparation), coating, ink, and adhesive used - all purchases orders, invoices, and other documents to support information in the monthly log. Verify that non de minimus stationary sources that contain an organic liquid storage unit keep and maintain the following records: - a monthly log identifying the liquid stored and monthly throughput - information on the tank design and specifications including control equipment. Verify that non de minimus stationary sources that contain a combustion emission unit keep and maintain the following records: - information on equipment type, make and model, maximum design process rate or maximum power input/output, minimum operating temperature (for thermal oxidizers) and capacity, control device(s) type and description (if any) and all source test information - a monthly log of hours of operation, fuel type, fuel usage, fuel heating value (for nonfossil fuels in terms of Btu/lb or Btu/gal), percent sulfur for fuel oil and coal, and percent nitrogen for coal. Verify that non de minimus stationary sources that contain an emission control unit keep and maintain the following records: - information on equipment type and description, make and model, and emission units served by the control unit - information on equipment design including, where applicable - monthly log of hours of operation including notation of any control equipment breakdowns, upsets, repairs, maintenance and any other deviations from design parameters. Verify that the following information on equipment design is maintained: - pollutant(s) controlled control effectiveness - maximum design or rated capacity - inlet and outlet temperatures, and concentrations for each pollutant controlled - catalyst data (type, material, life, volume, space velocity, ammonia injection rate and temperature) - baghouse data (design, cleaning method, fabric material, flow rate, air/cloth ratio)

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	- electrostatic precipitator data (number of fields, cleaning method, and power input) - scrubber data (type, design, sorbent type, pressure drop) - other design data as appropriate - all source test information. Verify that non de minimus stationary sources that contain an emission unit not included above keep and maintain the following records: - information on the process and equipment including the following; equipment type, description, make and model; maximum design process rate or throughput; control device(s) type and description (if any) - a monthly log of operating hours, each raw material used and its amount, each product produced and its production rate - purchase orders, invoices, and other documents to support information in the monthly log.

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AE.7 MANAGEMENT/ ADMINISTRATIVE	
AE.7.1.IA. Federal facilities must plan abatement strategies for air pollution episodes (IAC 567-26.3(1)a, c, and d) [Moved in structural reorganization of AE.5 October 1999].	Verify that the federal facility implements its abatement plan for coal- or oil-fired electric power generating facilities and coal- and oil-fired process steam generating facilities during air pollution episodes. Verify that abatement plans have been approved by the Director.
AE.7.2.IA. Federal facilities must file oral reports of excess emissions (IAC 567-24.1(2) and (3)) [Moved in structural reorganization of AE.5 October 1999].	Verify that excess emissions are reported either in person or by phone to the Department within 8 h or at the start of the first working day after their occurrence. (NOTE: Oral reports of excess emissions are not required for sources with operational continuous monitoring equipment if the excess incident occurs for less than 30 min and does not exceed the applicable emission standard by more than 10 percent or the applicable visible emission standard by more than 10 percent opacity.) Verify that oral excess emission reports have been followed by written excess emission reports, submitted to the Department within seven working days of the excess emission incident.

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AE.8 **OPERATIONS**	
AE.8.1.IA. Federal facilities must take specific actions during alert level air pollution episodes (IAC 567-26.4(1)a) [Moved in structural reorganization of AE.5 October 1999].	Verify that the following general control actions are taken whenever an alert level air pollution episode is declared: - the open burning of tree waste, vegetation, refuse, and any form of debris ceases - the use of incinerators for the disposal of solid waste is limited to the hours between 12 noon and 4:00 p.m. - boiler lancing and soot blowing from fuel-burning equipment is performed only between 12 noon and 4:00 p.m. - the unnecessary [not defined] use of motor vehicles is eliminated. Verify that the following control actions for coal- or oil-fired electric generating units and coal- or oil-fired process steam generating facilities are taken whenever an alert level air pollution episode is declared: - use of fuels with low ash and sulfur content - maximum utilization of mid-day (i.e., 12 noon to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing - diversion of electric power generation to sources outside the alert level (for electric generating units) - substantial reduction of steam load demands consistent with continuing plant operations (for steam generating facilities).
AE.8.2.IA. Federal facilities must take specific actions during warning level air pollution episodes (IAC 567-26.4(1)b) [Moved in structural reorganization of AE.5 October 1999].	Verify that the following general control actions are taken whenever an warning level air pollution episode is declared: - the open burning of tree waste, vegetation, refuse, and any form of debris ceases - the use of incinerators for the disposal of solid waste is limited to the hours between 12 noon and 4:00 p.m. - boiler lancing and soot blowing from fuel-burning equipment is performed only between 12 noon and 4:00 p.m. - the use of car pools and mass transportation, as well as the elimination of unnecessary [not defined] motor vehicle operation. Verify that the following control actions for coal- or oil-fired electric generating units and coal- or oil-fired process steam generating facilities are taken whenever a warning level air pollution episode is declared: - use of fuels with the lowest ash and sulfur content - maximum utilization of mid-day (i.e., 12 noon to 4 p.m.) atmospheric turbu-

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	lence for boiler lancing or soot blowing - diversion of electric power generation to sources outside the alert level (for electric generating units) - preparation for use of emergency plans in the event of an emergency development (for steam generating facilities).
AE.8.3.IA. Federal facilities must take specific actions during emergency level air pollution episodes (IAC 567-26.4(1)c) [Moved in structural reorganization of AE.5 October 1999].	Verify that there is no open burning of tree waste, vegetation, refuse, and any form of debris during an emergency level air pollution episode. Verify that there is no use of incinerators for the disposal of solid or liquid waste during an emergency level air pollution episode. Verify that the following places of business or activity cease operations immediately during an emergency level air pollution episode: - all construction work, except what must proceed to avoid emergent physical harm - all wholesale trade establishments - offices of the Federal government, except those that are vital to public safety and welfare - all retail trade establishments, except pharmacies, surgical supply distributors, and grocery stores - banks, other financial institutions, and insurance agencies - advertising offices, consumer credit reporting, adjustment and collection agencies, duplicating, addressing, blueprinting, photocopying, mailing, mailing list and stenographic services, equipment rental services, commercial testing labs - wholesale and retail laundries, laundry services, cleaning and dyeing establishments, photographic studios, beauty shops, barber shops, shoe repair shops - automobile repair, automobile services, garages - amusement and recreational parks - movie theaters - institutions of learning. Verify that there is no use of motor vehicles during an emergency level air pollution episode, except for those used approved by local and state police for use in emergencies. Verify that the federal facility takes the following control actions for coal- or oil-fired electric generating units and coal- or oil-fired process steam generating facilities whenever an emergency level air pollution episode is declared: - use of fuels with the lowest ash and sulfur content (for electric generating units) - reduction of heat and steam demands to absolute necessities consistent with equipment damage prevention (for steam generating facilities)

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	- maximum utilization of mid-day (i.e., 12 noon to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing - diversion of electric power generation to sources outside the alert level (for electric generating units) - the use of emergency plans in the event of an emergency development (for steam generating facilities).
AE.8.4.IA. Federal facilities must maintain and repair sources or air pollution (IAC 567-24.2(1)) [Moved in structural reorganization of AE.5 October 1999].	Verify that the federal facility meets the following maintenance and repair requirements: - maintains and operates equipment and control equipment at all times, utilizing practices that minimize emission - remedies any cause of excess emissions in an expeditious [not defined] manner - minimizes the amount and duration of any excess emission to the maximum extent possible during periods of emissions - implements measures contained in a Director-approved contingency plan - schedules at a minimum routine maintenance of equipment or control equipment during periods of process shutdown to the maximum extent possible. (NOTE: Measures that can be taken to minimize the amount and duration of any excess emission to the maximum extent possible during periods of emissions include using clean fuels, cutting back production, and using alternative process units.)

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AE.9 **EMISSION LIMITS**	
AE.9.1.IA. Federal facilities must not exceed specific limitations for emissions of particulate matter from process equipment (IAC 567-23.3(2)a) [Moved in structural reorganization of AE.5 October 1999].	Verify that the federal facility does not allow particulate matter emissions from processes to exceed the limitations specified in Appendix 1-1.
AE.9.2.IA. Federal facilities must not exceed specific limitations for emissions of particulate matter from combustion units (IAC 567-23.3(2)b) [Moved in structural reorganization of AE.5 October 1999].	Verify that the federal facility does not allow particulate matter emissions from the combustion of fuel for indirect heating or power generation to exceed the limitations specified in the American Society of Mechanical Engineers, Standard APS-1, Second Edition, November 1968, *Recommended Guide for the Control of Dust Emission - Combustion for Indirect Heat Exchangers*. Verify that the federal facility does not allow particulate matter emissions from each stack of units combusting fuel for indirect heat or power generation to exceed the following limitations: - for existing units outside any standard metropolitan statistical area, 0.8 lb of particulate per MBtu input - for existing units inside any standard metropolitan statistical area, 0.6 lb of particulates per MBtu input - for new fossil-fired steam generating units of more than 250 MBtu/h heat input, the limitations specified in Appendix 1-1 - for new fossil-fuel steam generating units of between 150 and 250 MBtu/h (inclusively) 0.2 lb of particulates per MBtu of heat input - for new fossil-fuel steam generating units of less than 150 MBtu/h heat input, 0.6 lb of particulate per MBtu of heat input. Verify that, for fuel-burning sources in operation prior to 29 July 1977, which are not subject to Iowa particulate matter emissions requirements and which significantly impact a primary or secondary particulate standard nonattainment area, the following emissions limitations are not exceeded: - for a single stack with a total heat input capacity less than 250 MBtu/h, 0.60 lb of particulate matter per MBtu heat input - for a single stack with a total heat input capacity greater than or equal to 250 MBtu/h and less than 500 MBtu/h, 0.40 lb of particulate matter per MBtu heat input - for a single stack with a total heat input greater than or equal to 500 MBtu,

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REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000 [Reorganized October 1999]**
	0.30 lb of particulate matter per MBtu heat input. (NOTE: A significant impact is equal to or greater than 5 mg of particulate matter per cubic meter of air (24-h average) or 1 mg of particulate matter per cubic meter of air (annual average), based on a USEPA-approved single source dispersion model. In the case of two or more boilers discharge into a common stack, the emissions limitation is based upon the heat input of the largest operating boiler.)
AE.9.3.IA. Federal facilities must meet specific requirements for visible emissions (IAC 567-23.3(2)d) [Moved in structural reorganization of AE.5 October 1999].	Verify that the federal facility does not allow the emission of visible air contaminants in excess of 40 percent opacity from any of the following sources: - equipment - internal combustion engine - premise fire - open fire or stack. (NOTE: The following sources/emissions are exempt from the 40 percent opacity limitation for visible air contaminants: - residential heating equipment serving dwellings of four family units or less - emissions during initial startup and warmup of a cold engine - emissions during testing of an engine for trouble, diagnosis, or repair - the presence of uncombined water (e.g., condensed water vapor).) Verify that emissions of visible air contaminants from gasoline-powered motor vehicles do not last for more than five consecutive seconds. Verify that emissions of visible air contaminants from diesel-powered locomotives do not exceed 40 percent opacity (except for a maximum period of 40 consecutive seconds during acceleration under load, or for a period of four consecutive minutes when the locomotive is loaded after a period of idling).

COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
AE.10. STEAM GENERATORS	
AE.10.1.IA. Coal- and coal-gas-fired steam generating units with a rated capacity greater than 250 MBtu must operate continuous monitoring equipment (IAC 567-25.1(1)).	Verify that any coal- and coal-gas-fired steam generating unit with a rated capacity greater than 250 MBtu operates continuous monitoring equipment for opacity.
AE.10.2.IA. Coal- and coal-gas-fired steam generating units required to operate continuous monitoring equipment must meet recordkeeping and reporting requirements (IAC 567-25.1(5) and (6)).	Verify that records of continuous monitoring and related information are maintained at the coal- and coal-gas-fired steam generating unit for at least 2 yr. Verify that records of continuous monitoring and related information are submitted to the Director on a quarterly basis.

COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
AE.25. MISCELLANEOUS INCINERATORS	
AE.25.1.IA. Incinerators with a refuse burning capacity of 1000 lb/h or more must not exceed specific particulate matter emissions limitations (IAC 567-23.4(12)a).	Verify that incinerators with a refuse burning capacity of 1000 lb/h or more do not emit particulate matter in excess of 0.2 gr per standard cubic foot of exhaust gas, adjusted to 12 percent carbon dioxide.
AE.25.2.IA. Incinerators with a refuse burning capacity of less than 1000 lb/h must not exceed specific particulate matter emissions limitations (IAC 567-23.4(12)a).	Verify that incinerators with a refuse burning capacity of less than 1000 lb/h do not emit particulate matter in excess of 0.35 gr per standard cubic foot of exhaust gas, adjusted to 12 percent carbon dioxide.
AE.25.3.IA. Incinerator emissions must not exceed specific particulate matter emissions limitations (IAC 567-23.4(12)b).	Verify that no incinerator emits visible air contaminants in excess of 40 percent opacity. (NOTE: Visible emissions in excess of 60 percent may be emitted for a period or period aggregating not more than 3 min in any 60-min period.)

COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
AE.65. FUGITIVE EMISSIONS	
AE.65.1.IA. Federal facilities in attainment and unclassified areas must meet specific requirements to prevent fugitive dust (IAC 567-23.3(2)d(1)).	Verify that, in any attainment or unclassified area, the federal facility does not engage in the following fugitive dust-producing activities without taking reasonable precautions to prevent particulate matter emissions from becoming a nuisance: - handling, transporting, or storing materials - constructing, altering, repairing, or demolishing buildings - using construction appurtenances and haul roads. (NOTE: Dust generated by farming operations and ordinary [not defined] travel on unpaved public roads are excluded from the requirement to take reasonable precautions. Reasonable precautions include, but are not limited to, the following procedures: - where practical [not defined], the use of water or chemicals at demolition, construction, road grading, or land clearing sites - the application of asphalt, oil, water, or chemicals on unpaved roads, material stockpiles, race tracks, and other surfaces that give rise to airborne dust - the use of control equipment to enclose or otherwise limit emissions resulting from the handling and transfer of dusty materials (e.g., grain, fertilizer, and limestone) - at all times, the covering of open-bodied vehicles transporting materials likely to produce airborne dust - the prompt removal of earth or other material from paved streets transported there by trucks, earth-moving equipment, water erosion, or other means.)
AE.65.2.IA. Federal facilities in nonattainment areas must meet specific requirements to prevent fugitive dust (IAC 567-23.3(2)d(2)) [Revised April 1999].	Verify that, in any nonattainment area for particulate matter, the federal facility takes reasonable precautions to prevent any visible emission of fugitive dust to go beyond the lot line of the property on which a source subject to particulate matter emissions standards is located. (NOTE: For guidance on the types of controls that may constitute reasonable precautions, see the publication *Identification of Techniques for the Control of Industrial Fugitive Dust Emission*, which is available from the Department.)

COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
AE.80. ACID PRODUCTION UNITS	
AE.80.1.IA. Sulfuric dioxide emissions from sulfuric acid plants must not exceed specific limitations (IAC 567-23.3(3)c).	Verify that sulfuric dioxide emissions from sulfuric acid plants do not exceed 30 lb of sulfuric dioxide (maximum 3-h average) per ton of product calculated as 100 percent sulfuric acid.
AE.80.2.IA. Acid mist emissions from sulfuric acid plants must not exceed specific limitations (IAC 567-23.3(3)d).	Verify that acid mist emissions from sulfuric acid plants do not exceed 0.5 lb (maximum 3-h average) per ton of product calculated as 100 percent sulfuric acid.
AE.80.3.IA. Sulfuric acid plants with a production capacity greater than 300 tons/day must operate continuous monitoring equipment (IAC 567-25.1(4)).	Verify that any sulfuric acid plant with a production capacity greater than 300 ton/day (production expressed as 100 percent acid) operates continuous monitoring equipment for sulfur dioxide emissions.
AE.80.4.IA. Sulfuric acid plants required to operate continuous monitoring equipment must meet record-keeping and reporting requirements (IAC 567-25.1(5) and (6)).	Verify that records of continuous monitoring and related information are maintained at the sulfuric acid plant for at least 2 yr. Verify that records of continuous monitoring and related information are submitted to the Director on a quarterly basis.

COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
AE.100. COATING OPERATIONS	
AE.100.1.IA. Particulate matter emissions from painting and surface coating operations must not exceed specific limitations (IAC 567-23.4(13)).	Verify that particulate matter emissions from painting and surface coating operations do not exceed 0.01 gr per standard cubic foot of exhaust gas.
AE.100.2.IA. Spray booths that meet specific requirements are deemed to have a permit by rule (IAC 567-23.8) [Added April 1999].	(NOTE: Spray booths which comply with these requirements will be deemed to be in compliance with the requirements to obtain an air construction permit, an air operating permit, and to have Federally enforceable limits so that their potential emissions are less than the major source limits for regulated air pollutants and hazardous air pollutants.) Verify that facilities spraying 1 gal/day or less of sprayed material facilitywide meet the following requirements: - submit the following written statement to the Department: "I certify that all paint booths at the facility and listed below are in compliance with all applicable requirements of 567 IAC 22.8(1). I understand that this equipment shall be deemed permitted under the terms of rule 567 IAC 22.8(1) only if all applicable requirements of 567 IAC 22.8(1) are met. This certification is based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete." - record sprayed material use daily - maintain the records of daily sprayed material use for 18 mo from the date to which the records apply. Verify that facilities spraying more than 1 gal/day but never more than 3 gal/day facilitywide meet the following requirements: - submit the following written statement to the Department: "I certify that all paint booths at the facility and listed below are in compliance with all applicable requirements of 567 IAC 22.8(1). I understand that this equipment shall be deemed permitted under the terms of rule 567 IAC 22.8(1) only if all applicable requirements of 567 IAC 22.8(1) are met. This certification is based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete." - record sprayed material use daily - maintain the records of daily sprayed material use for 18 mo from the date to

COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
	which the records apply. - vent emissions from spray booths through stacks which are at least 22 ft tall, measured from ground level.

COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
AE.130. OPEN BURNING	
AE.130.1.IA. Open burning is prohibited (IAC 567-23.2).	Verify that the federal facility does not allow open burning to be conducted on its premises. (NOTE: See Appendix 1-4 for a list of exemptions from the open burning prohibition.)

COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
OTHER EMISSIONS/ SOURCES **AE.155. Meat Smokehouses**	
AE.155.1.IA. Meat smokehouses must not emit particulate matter in excess of specific limitations (IAC 567-23.4(9)).	Verify that particulate matter emissions from any meat smokehouse do not exceed 0.2 g/scf of exhaust gas.
Sulfur Dioxide	(NOTE: The following fossil fuel-fired steam generators subject to Federal New Source Performance Standards are subject also to Iowa requirements for sulfur dioxide emissions from liquid fuel use: - fossil fuel-fired generating units of more than 250 MBtu heat input for which construction, reconstruction, or modification commenced after 17 August 1971 - electric utility steam generating units capable of combusting more than 250 MBtu/h (73 MW) heat input of fossil fuel for which construction, reconstruction, or modification commenced after 18 September 1978 - electric utility combined cycle gas turbine capable of combusting more than 250 MBtu/h (73 MW) heat input of fossil fuel in the steam generator - industrial-commercial-institutional steam generating units with a heat input capacity of more than 100 MBtu/h for which construction, reconstruction, or modification commenced after 31 August 1983.)
AE.155.2.IA. Liquid fuel-burning units must not emit sulfur dioxide in excess of specific limitations (IAC 567-23.3(3)b).	Verify that liquid fuel-burning units do not emit sulfur dioxide in excess of 2.5 lb of sulfur dioxide per MBtu of heat input (replicated maximum 3-h average).
AE.155.3.IA. Solid fuel-burning units must not emit sulfur dioxide in excess of specific limitations (IAC 567-23.3(3)a).	(NOTE: Existing solid fuel-burning units are those in operation, for which components had been purchased, or which were under construction before 23 September 1970. New solid fuel-burning units are those in operation, for which components had been purchased, or which were under construction on or after 23 September 1970.) Verify that emissions of sulfur dioxide from existing solid fuel-burning units

COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
	located in the following counties do not exceed 6 lb/MBtu heat input (replicated maximum 3-h average): - Black Hawk - Clinton - Des Moines - Dubuque - Jackson - Lee - Linn - Louisa - Muscatine - Scott. Verify that emissions of sulfur dioxide from existing solid fuel-burning units located in the remaining 89 Iowa counties do not exceed 5 lb/MBtu heat input (replicated maximum 3-h average). Verify that emissions of sulfur dioxide from new solid fuel-burning units with a capacity of 250 MBtu/h or less heat input do not exceed 6 lb/MBtu heat input (replicated maximum 3-h average).
AE.155.4.IA. Sulfur dioxide emissions from process sources other than sulfuric acid plants must not exceed specific limitations (IAC 567-23.3(3)e).	Verify that sulfur dioxide emissions from processes other than sulfuric acid plants do not exceed 500 ppmv.

Appendix 1-1

Limitations of Particulate Matter Emissions Based on Process Weight
(Source: IAC 567-23.3(2) and Table I)

Process Weight Rate		Emission Rate	Process Weight Rate		Emission Rate
lb/h	**ton/h**	**lb/h**	**lb/h**	**ton/h**	**lb/h**
100	0.05	0.55	16,000	8.00	16.5
200	1.10	0.88	18,000	9.00	17.9
400	0.20	1.40	20,000	10.00	19.2
600	0.30	1.83	30,000	15.00	25.2
800	0.40	2.22	40,000	20.00	30.5
1000	0.50	2.58	50,000	25.00	35.4
1500	0.75	3.38	60,000	30.00	40.0
2000	1.00	4.10	70,000	35.00	41.3
2500	1.25	4.76	80,000	40.00	42.5
3000	1.50	5.38	90,000	45.00	43.6
3500	1.75	5.96	100,000	50.00	44.6
4000	2.00	6.52	120,000	60.00	46.3
5000	2.50	7.58	140,000	70.00	47.8
6000	3.00	8.56	160,000	80.00	49.0
7000	3.50	9.49	200,000	100.00	51.2
8000	4.00	10.4	1,000,000	500.00	69.0
9000	4.50	11.2	2,000,000	1000.00	77.6
10,000	5.00	5.00	6,000,000	3000.00	92.7
12,000	6.00	6.00			

(NOTE: Interpolation of the data in the above table for process weight rates up to 60,000 lb/h is accomplished by the use of the equation $E = 4.10P[0.67]$, where E = rate of emission in lb/h and where P = process weight in tons/h. Interpolation and extrapolation of the data for process weights rates in excess of 60,000 lb/h is accomplished by the use of the equation $E = 55.0\ P[0.11] - 40$, where E = rate of emission in lb/h and where P = process weight in tons/h.)

Appendix 1-2

Exemptions from Permit Requirements

(Source: IAC 567-22.1(2) and 567-22.102) [Added May 1998; Revised April 1999]

Construction Permits

The requirement to obtain a construction permit does not apply to the listed equipment or control equipment unless review of the equipment or control equipment is necessary to comply with any of the following (in which case a permit must be obtained):

- rule 22.4(455B), prevention of significant deterioration requirements
- rule 22.5(455B), special requirements for nonattainment areas
- 567 -- subrule 23.1(2), new source performance standards (40 CFR Part 60 NSPS)
- 567 -- subrule 23.1(3), emission standards for hazardous air pollutants (40 CFR Part 61 NESHAP)
- 567 -- subrule 23.1(4), emission standards for hazardous air pollutants for source categories (40 CFR Part 63 NESHAP)
- 567 -- subrule 23.1(5), emission guidelines.

If equipment is permitted under the provisions of rule 22.8(455B), then no other exemptions apply to it.

Equipment to which the requirement does not apply:

a. Fuel-burning equipment for indirect heating and reheating furnaces or cooling units using natural gas or liquefied petroleum gas with a capacity of less than ten million Btu per hour input per combustion unit.

b. Fuel-burning equipment for indirect heating or cooling with a capacity of less than one million Btu per hour input per combustion unit when burning coal, untreated wood or fuel oil. Used oils meeting the specification from 40 CFR 279.11 as amended through 4 March 1994, are acceptable fuels for this exemption.

c. Mobile internal combustion and jet engines, marine vessels and locomotives.

d. Equipment used for cultivating land, harvesting crops, or raising livestock other than anaerobic lagoons. This exemption is not applicable of the equipment is used to remove substances from grain which were applied to the grain by another person. This exemption is also not applicable to equipment used by a person to manufacture commercial feed, as defined in Iowa Code section 198.3, which is normally not fed to livestock, owned by the person or another person, in a feedlot, as defined in Iowa Code section 172D.1, subsection 6, or a confinement building owned or operated by that person and located in this state.

e. Incinerators with a rated refuse burning capacity of less than 25 pounds per hour.

f. Fugitive dust controls unless a control efficiency can be assigned to the equipment or control equipment.

g. Equipment or control equipment which reduces or eliminates all emission to the atmosphere. If a source wishes to obtain credit for reductions under the prevention of significant deterioration requirements, it must apply for a permit for the reduction prior to the time the reduction is made. If a construction permit has been previously issued for the equipment or control equipment, the conditions of the construction permit remain in effect. In order to use this exemption, the facility must comply with paragraph "s" below.

h. Equipment (other than anaerobic lagoons) or control equipment which emits odors unless such equipment or control equipment also emits particulate matter, or any other regulated air contaminant (as defined in 22.100(455B)).

i. Construction, modification or alteration to equipment which will not result in a net emissions increase (as defined in 22.5(1)"f") of more than 1.0 lb/hr of any regulated air pollutant (as defined in 22.100(455B)). Pollutants covered under the provisions of section 112(g) of the Clean Air Act are not included in this exemption except for those listed in the following table. Further, the net emissions rate INCREASE must not equal or exceed the values listed.

Pollutant	Ton/year
Lead	0.6
Asbestos	0.007
Beryllium	0.0004
Vinyl Chloride	1

This exemption is ONLY applicable to vertical discharges with the exhaust stack height 10 or more feet above the highest building within 50 feet. If a construction permit has been previously issued for the equipment or control equipment, the conditions of the construction permit remain in effect. In order to use this exemption, the facility must comply with paragraph "s" below.

The department reserves the right to require proof that the expected emissions from the source which is being exempted from the air quality construction permit requirement, in conjunction with all other emissions, will not prevent the attainment or maintenance of the ambient air quality standards specified in 567 -- Chapter 28. If the department finds, at any time after a change has been made pursuant to this exemption, evidence of violations of any of the department's rules, the department may require the source to submit to the department sufficient information to determine whether enforcement action should be taken. This information may include, but is not limited to, any information that would have been submitted in an application for a construction permit for any changes made by the source under this exemption, and air quality dispersion modeling.

j. Residential wood heaters, cook stoves, or fireplaces.

k. Asbestos demolition and renovation projects subject to 40 CFR 61.145 as amended through 15 July1994.

l. The equipment in laboratories used exclusively for nonproduction chemical and physical analyses. Nonproduction analyses means analyses incidental to the production of a good or service and includes analyses conducted for quality assurance or quality control activities, or for the assessment of environmental impact.

m. Gasoline storage tanks with a capacity of 5,000 gallons or less and an annual throughput less than 40,000 gal, and coolant, diesel fuel, detergents, fuel oil, LPG, lubricating oils, and other nonhazardous air pollutant emitting storage tanks with a capacity of less than 10,570 gal and an annual throughput less than 40,000 gal.

n. Stack or vents to prevent escape of sewer gases through plumbing traps. Systems which include any industrial waste are not exempt.

o. A nonproduction surface coating process that uses only hand-held aerosol spray cans.

p. Brazing, soldering or welding equipment or portable cutting torches used only for non-production activities.

q. Cooling and ventilating equipment: Comfort air conditioning not designed or used to remove air contaminants generated by, or released from, specific units of equipment.

r. An internal combustion engine with a brake horsepower rating of less than 400 measured at the shaft. For the purposes of this exemption, the manufacturer's nameplate rating at full load shall be defined as the brake horsepower output at the shaft.

s. A facility claiming to be exempt under the provisions of paragraph "g" or "i" above shall provide the information listed in 22.1(2)"s"(1) through 22.1(2)"s"(8) to the department. If the exemption is claimed for a source not yet constructed or modified, the information shall be provided to the department at least 30 days in advance of the beginning of construction on the project. If the exemption is claimed for a source that has already been constructed or modified and that does not have a construction permit for that construction or modification, the information listed in 22.1(2)"s"(1) through 22.1(2)"s"(8) shall be provided to the department within 60 days of March 20, 1996. After that date, if the exemption is claimed by a source that has already been constructed or modified and that does not have a construction permit for that construction or modification, the source shall not operate until the information listed in 22.1(2)"s"(1) through 22.1(2)"s"(8) is provided to the Department.

(1) A detailed emissions estimate of the actual and potential emissions for the project for all regulated pollutants (as defined in 22.100(455B)), accompanied by documentation of the basis for the emission estimate

(2) A detailed description of each change being made

(3) The name and location of the facility

(4) The height of the emission point or stack and the height of the highest building within 50 ft

(5) The date for beginning actual construction and the date that operation will begin after the changes are made

(6) A statement that the provisions of rules 22.4(455B) (Special Requirements for Major Stationary Sources Located in Areas Designated Attainment or Unclassified (PSD)) and 22.5(455B) (Special Requirements for Nonattainment Areas) do not apply

(7) A statement that the accumulated emissions increases associated with each change under paragraph 22.1(2)"i," when totaled with other net emissions increases at the facility contemporaneous with the proposed change (occurring within 5 yr before construction on the particular change commences) have not exceeded significant levels as defined in 40 CFR 52.21(b)(23) and adopted in rule 22.4(455B), and will not prevent the attainment or maintenance of the ambient air quality standards specified in 567 -- Chapter 28. This statement shall be accompanied by documentation for the basis of these statements

(8) The written statement shall contain certification by a responsible official as defined in rule 22.100(455B) of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Title V Permits

The following source categories are exempt from the obligation to obtain a Title V operating permit:

1. Residential wood heaters required to obtain a Title V permit solely because they are subject to 40 CFR 60, Subpart AAA, as amended to 29 June 1995.
2. Asbestos demolition and renovation projects required to obtain a Title V permit solely because they are subject to 40 CFR 61, Subpart M, as amended to 19 June 1995.
3. Any decorative chromium electroplating operation or chromium anodizing operation using fume suppressants as an emission reduction technology; and any decorative chromium electroplating operation using a trivalent chromium bath incorporating a wetting agent as a bath ingredient if the source is not by itself a major source and is not located at a major source, as defined under 40 CFR 70.2 (as amended through 21 July 1992).
4. Any batch cold solvent cleaning machine as defined in 40 CFR 63 Subpart T (as amended through 5 June 1995) that is not itself a major source and that is not located at a major source as defined under 40 CFR 70.2 (as amended through 21 July 1992).

Appendix 1-3

Sources Ineligible for an Operating Permit by Rule for Small Sources
(Source: IAC 567-22.300(3)) [Added May 1998]

a. Any affected source subject to the provisions of Title IV of the Act or any solid waste incinerator unit required to obtain a Title V operating permit under Section 129(e) of the Act is not eligible for an operating permit by rule for small sources.

b. Sources which meet the registration criteria established in 22.300(2)"a" and meet all applicable requirements of rule 22.300(455B), and are subject to a standard or other requirement under 567 -- subrule 23.1(2) (standards of performance for new stationary sources) or Section 111 of the Act are eligible for an operating permit by rule for small sources only until December 9, 1999. These sources shall be required to obtain a Title V operating permit when the deferment period specified in subrule 22.101(2) has expired. Sources subject to standards contained in Section 111 or 112 of the Act shall not be eligible to obtain a voluntary operating permit unless they are also exempted from Title V by rule 22.102(455B).

c. Sources which meet the registration criteria established in 22.300(2)"a" and meet all applicable requirements of rule 22.300(455B), and are subject to a standard or other requirement under 567 -- subrule 23.1(3) (emissions standards for hazardous air pollutants), 567 -- subrule 23.1(4) (emission standards for hazardous air pollutants for source categories) or Section 112 of the Act are eligible for an operating permit by rule for small sources only until December 9, 1999, or until the final promulgation of a federal standard under 40 CFR Part 60 or 40 CFR Part 63 to which the source is subject, whichever is earlier. These sources shall be required to obtain a Title V or voluntary operating permit when the deferment period specified in subrule 22.101(2) has expired or no longer applies.

Appendix 1-4

Activities Exempt from the Open Burning Prohibition
(Source: IAC 567-23.2(2) and (3)) [Revised April 1999]

The following open burning activities/materials are exempt from the open burning prohibition, unless local ordinances forbid them:

- *Variances* - Any activity for which the Department has issued a variance.

- *Disaster Rubbish* - open burning of rubbish, including landscape waste, for the duration of any community disaster period in cases where an officially declared emergency condition exists.

- *Trees and Tree Trimmings* - open burning of trees and tree trimmings not originated on the premises provided that the burning site is operated by a local governmental entity, the burning site is fenced and access is controlled, burning is conducted on a regularly scheduled basis and is supervised at all times, burning is conducted only when weather conditions are favorable with respect to surrounding property, and the burning site is limited to areas at least one-quarter mile from any inhabited building. Rubber tires must not be used to ignite trees and tree trimmings.

(NOTE: The *Trees and Tree Trimmings* exemption does not apply within the area classified as the PM_{10} (inhalable) particulate Group II area of Mason City. This Group II area is described as follows: the area in Cerro Gordo County, Iowa, in Lincoln Township including Sections 13, 24 and 25; in Lime Creek Township including Sections 18, 19, 20, 21, 27, 28, 29, 30, 31, 32, 33, 34 and 35; in Mason Township the western half of Section 1, Sections 2, 3, 4, 5, 8, 9, the northern half of Section 11, the northwestern quarter of section 12, the northern half of Section 16, the northern half of Section 17 and the portions of Sections 10 and 15 north and west of the line from U.S. Highway 18 south on Kentucky Avenue to 9th Street southwest; thence west on 9th Street southeast to the Minneapolis and Saint Louis railroad tracks; thence south on Minneapolis and Saint Louis railroad tracks to 19th Street southeast; thence west on 19th Street southeast to the section line between Sections 15 and 16.)

(NOTE: The open burning of trees or tree trimmings is prohibited in the following cities: Cedar Rapids, Marion, Hiawatha, Council Bluffs, Carter Lake, Des Moines, West Des Moines, Clive, Windsor Heights, Urbandale, and Pleasant Hill.)

- *Flare Stacks* - open burning or flaring of waste gases, as long as open burning or flaring is conducted in compliance with the open burning criteria for *Landscape Waste* and *Recreational Fires* in this appendix.

- *Landscape Waste* - disposal by open burning of landscape waste originating on the premises. However, the burning of landscape waste produced in clearing, grubbing, and construction operations shall be limited to areas located at least one-fourth mile from any inhabited building. Rubber tires must not be used to ignite landscape waste.

(NOTE: The open burning of landscape waste is prohibited in the following cities: Cedar Rapids, Marion, Hiawatha, Council Bluffs, Carter Lake, Des Moines, West Des Moines, Clive, Windsor Heights, Urbandale, and Pleasant Hill.)

- *Recreational Fires* - open fires for cooking, heating, recreation and ceremonies, as long as they comply with the open burning criteria for Landscape Waste in this appendix. Burning rubber tires is prohibited from this activity.

- *Residential Waste* - backyard burning of residential waste at dwellings of four-family units or less.

(NOTE: The open residential waste is prohibited in the following cities: Cedar Rapids, Marion, Hiawatha, Council Bluffs, Carter Lake, Des Moines, West Des Moines, Clive, Windsor Heights, Urbandale, and Pleasant Hill.)

- *Training Fires* - fires set for the purpose of bona fide training of public or industrial employees in fire fighting methods, as long as written notification is postmarked or delivered to the Director at least ten working days before such action commences. Notification shall be made in accordance with 40 CFR Section 61.145, Standard for Demolition and Renovation, of the asbestos National Emission Standards for Hazardous Air Pollutants, as amended through 16 January 1991. All asphalt roofing and asbestos-containing materials must be removed prior to the training fire. Rubber tires may not be burned during a training fire.

- *Paper or Plastic Pesticide Containers and Seed Corn Bags* - disposal by open burning of paper or plastic pesticide containers (except those formerly containing organic forms of beryllium, selenium, mercury, lead, cadmium or arsenic) and seed corn bags resulting from farming activities occurring on the premises. Such open burning must be limited to areas located at least one-fourth mile from any inhabited building, livestock area, wildlife area, or water source. The amount of paper or plastic pesticide containers and seed corn bags that can be disposed of by open burning must not exceed one day's accumulation or 50 lb, whichever is less.

- *Agricultural Structures* - open burning of agricultural structures outside of cities or towns, as long as the open burning occurs on the premises, all chemicals and asphalt shingles are removed, burning is conducted only when weather conditions are favorable with respect to surrounding property, and permission from the local fire chief is secured in advance of the burning. Rubber tires must not be used to ignite agricultural structures.

(NOTE: In this appendix, *agricultural structures* 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.)

SECTION 2

CULTURAL RESOURCES MANAGEMENT

Iowa Supplement, April 2000

This section covers the state requirements for Cultural Resources Management and is intended to supplement the U.S. TEAM Guide. Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.

Citations:

Some of the citations for Cultural Resources Management are taken from the *Survey Procedures and Guidelines Manual* of the State Historical Society of Iowa Historical Preservation Bureau of 7 October 1991, hereafter abbreviated SPGM

Definitions

- *Ancient Human Remains* - those remains found within the state which are more than 150 yr old (Iowa Code 305A.7).

- *Archaeologist* - a person possessing a graduate degree in archaeology, anthropology, or a closely related field plus the following:
  1. At least 1 yr of full-time professional experience or equivalent specialized training in archaeological research, administration or management;
  2. At least 4 mo of supervised field and analytic experience in general North American archaeology; and
  3. Demonstrated ability to carry research to completion.

  In addition to the above minimum qualifications, a professional in prehistoric archaeology must have at least 1 yr of full-time professional experience at a supervisory level in the study of archaeological resources of the prehistoric period. A professional in historic archaeology must have at least 1 yr of full-time professional experience at a supervisory level in the study of archaeological resources of the historic period (SPGM, *Professional Qualifications and Standard*s, B).

- *Broad Scale Intensive Survey* - a survey which normally follows a broad scale reconnaissance or is linked to it as part of a larger survey effort if previous surveys exist or if there is a considerable body of information on several relevant historic contexts. This type of survey, if necessary, refines historic contexts and property types, identifies and evaluates all examples of those property types for National Register eligibility, and prepares a Multiple Property Documentation Form for submittal to the State National Register Review Committee (SPGM, *Survey Approaches and Methodology*).

- *Broad Scale Reconnaissance Survey* - survey method to be used when dealing with a town, county, or other large geographical entity that has never been surveyed or survey coverage has been confined to one discipline. It is used to identify potential historic contexts and property types in order to provide broader survey coverage. The principal focus is on making recommendations for future intensive survey efforts. This type of survey ideally encompasses contexts and properties of archaeological, architectural, and historical importance (SPGM, *Survey Approaches and Methodology*).

- *Historian* - a person possessing a graduate degree in history or a closely related field; or a bachelor's degree in history or a closely related field plus one of the following:
  1. at least 2 yr of full-time experience in research, writing, teaching, interpretation, or other demonstrable professional activity with an academic institution, historical organization or agency, museum, or other professional institution

2. substantial contribution through research and publication to the body of scholarly knowledge in the field of history (SPGM, *Professional Qualifications and Standard*s, A).

- *Intensive Survey With Nomination* - this type of survey encompasses the other intensive approaches but adds a National Register nomination component for some or all eligible properties via the Multiple Property Documentation Form (SPGM, *Survey Approaches and Methodology*).

- *Office of the State Archaeologist (OSA)* - a state agency administered by The University of Iowa. Its responsibilities include the investigation, interpretation, and preservation of ancient burial grounds, and when necessary, the recovery and reburial of ancient human skeletal remains (*Protection of Ancient Burials in Iowa* pamphlet).

- *Specific Theme or Context Driven Intensive Survey* - survey type used for statewide or regional themes involving a large number of properties following a reconnaissance effort or when sufficient contextual and property distribution data is available. This approach is also useful for smaller geographical areas as well. The principal focus is on field survey and evaluation. A Multiple Property Documentation Form is prepared for submittal to the State National Register Review Committee (SPGM, *Survey Approaches and Methodology*).

- *Specific Theme or Context Driven Reconnaissance Survey* - survey method dealing with single themes or contexts generally recognized as significant and historic properties known or believed to be numerous. The principal thrust of this type of approach is directed toward a study and analysis of existing literature, archival research, the development of typologies or predictive models, and limited field work to test the typologies or field models (SPGM, *Survey Approaches and Methodology*).

- *Targeted Intensive Survey* - survey generated as the recommendation of a preceding targeted reconnaissance survey effort, but also can be utilized to test a sampling approach to survey when dealing with large geographical areas or a number of potential resources. It is most often utilized for Section 106 of the *National Historic Preservation Act* of 1966 surveys when project areas are confined to limited geographic areas or corridors. The primary purpose of this survey is to evaluate properties for the National Register of Historic Places for Section 106 purposes, and to allow agencies to access the impacts of federally funded, licensed, insured, or guaranteed programs on them (SPGM, *Survey Approaches and Methodology*).

- *Targeted Reconnaissance Survey* - survey method utilized when it is necessary to confine survey activities to broad geographical areas that do not encompass entire political entities such as counties, cities, etc., or when it is necessary because of a large survey area or number of potential resources to develop a sampling strategy. These surveys are most often conducted to meet requirements of Section 106 of the *National Historic Preservation Act* of 1966, and to determine the need for more intensive efforts. In most instances survey activities are confined to specific geographic limits (SPGM, *Survey Approaches and Methodology*).

CULTURAL RESOURCES MANAGEMENT GUIDANCE FOR IOWA CHECKLIST USERS	
	REFER TO CHECKLIST ITEMS:
Missing Checklist Items	CR.2.1.IA.
Historic Properties	CR.5.1.IA through CR.5.5.IA
Archaeological/Indian Sites	CR.15.1.IA
Collection Management and Curation	CR.20.1.IA

COMPLIANCE CATEGORY: CULTURAL RESOURCES MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
CR.2 **MISSING CHECKLIST ITEMS**	
CR.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: CULTURAL RESOURCES MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
CR.5. HISTORIC PROPERTIES	
CR.5.1.IA. Reconnaissance surveys must take place to identify the boundaries of areas that merit intensive survey (SPGM, *Guidelines for Research and the Documentation/Evaluation of Properties, Reconnaissance Survey*, 2).	Verify that reconnaissance surveys identify the boundaries of areas meriting intensive survey, such as the following: - potential historic districts - portions of the community having distinctive historical, planning, or cultural characteristics. Verify that such boundaries are clearly mapped by the reconnaissance surveyors and that the basis for recognizing each boundary is specified.
CR.5.2.IA. Intensive surveys must evaluate each property surveyed for inclusion in the National Register of Historic Places (SPGM, *Guidelines for Research and the Documentation/Evaluation of Properties, Intensive Surveys*, 2).	Verify that intensive surveys evaluate each property surveyed for inclusion in the National Register of Historic Places. Verify that this evaluation involves: - decisions about how each site relates to a significant historic context or contexts and to types of properties that represented them - decisions to what extent each site possesses sufficient site integrity (to exemplify the architectural, historical, engineering, or archaeological research potential of the type). Verify that the evaluation is performed using the National Register Criteria for Evaluation as interpreted through National Park Service guidelines *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (1982) and *National Register Bulletin 16: Guidelines for Completing National Register of Historic Places Forms* (1986). Verify that each recorded property is classified as being either: - individually eligible for listing in the National Register of Historic Places - a contributing or background structure (pertains only to properties evaluated as part of an historic district) - a property of some historic interest, but either of insufficient importance or lacking sufficient integrity to be evaluated as significant, or is a detracting or nonconforming element within a historic district.
CR.5.3.IA. Cultural resource surveys must be conducted in order to identify	Verify that the primary purpose of any cultural resource survey is to identify the historic resources of a particular geographic area, and to create a mechanism whereby historic preservation is integrated into national, state, and local planning

COMPLIANCE CATEGORY: CULTURAL RESOURCES MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
historic resources and to create a mechanism whereby such resources are preserved (SPGM, *Guidelines for Reporting of Cultural Resource Surveys*).	processes so that such resources are more effectively utilized, respected, valued, and protected. Verify that survey reports are prepared and disseminated in a manner in which survey data is shared easily and duplication of effort is avoided. Verify that cultural resource survey reports are prepared in a common format so that data is easily shared and integrated more readily into the planning process.
CR.5.4.IA. Principal investigators and project directors must have experience and training in historic archaeology or must use outside consultants in making recommendations for historic sites (SPGM, *Guidelines for Reporting of Archaeological Surveys: Special Problems, Historic Sites*).	Verify that the principal investigator and project director have experience and training in historic archaeology, or that outside consultants are used in making recommendations for historic sites.
CR.5.5.IA. A records check must be performed to determine if there are any previously recorded sites in the project area (SPGM, *Guidelines for Reporting of Archaeological Surveys: Special Problems, Records Check*).	Verify that the Archaeological Site Inventory at the OSA or at the State Historic Preservation Bureau are consulted to determine whether there are any previously recorded sites in the project area. Verify that the National Register of Historic Places and the files of the State Historic Preservation Office are consulted to determine if any listed or eligible sites are located in the project area. Verify that the National Register of Historic Places and the Historic Sites Inventory at the Bureau of Historic Preservation are reviewed for information on potential historic properties.

COMPLIANCE CATEGORY: CULTURAL RESOURCES MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
CR.15 INDIAN SITES	
CR.15.1.IA. The OSA must be contacted regarding the discovery of ancient human remains (Iowa Administrative Code 685-11.1).	Verify that the OSA is contacted regarding the discovery of human physical remains or suspected human physical remains believed to be over 150 yr old. Verify that the OSA is notified of the location of areas believed to represent ancient burial grounds. (NOTE: The Director of the OSA may deny permission to disinter human physical remains from aboriginal ossuaries, grave sites, cemeteries, or any other archaeological deposit that is determined to have state and national significance from the standpoint of history or science.)

COMPLIANCE CATEGORY: CULTURAL RESOURCES MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
CR.20. COLLECTION MANAGEMENT AND CURATION	
CR.20.1.IA. Deposition of artifacts, notes, photographs, and other materials relating to archaeological project or site investigations must be agreed upon prior to the beginning of any project (SPGM, *Guidelines for Reporting of Archaeological Surveys: Special Problems, Artifact and Archival Repositories*).	Verify that the deposition of artifacts, notes, photographs, and other materials relating to archaeological projects of site investigations is agreed upon in writing prior to the beginning of any project. (NOTE: Iowa facilities should receive first consideration for deposition of artifacts, notes, photographs, and other materials relating to archaeological project or site investigations.)

SECTION 3

HAZARDOUS MATERIALS MANAGEMENT

Iowa Supplement, April 2000

This section covers the state requirements for Hazardous Materials Management and is intended to supplement the U.S. TEAM Guide. Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.

State Adoptions of Federal Regulations

The State of Iowa has adopted the following Federal regulations:

- Federal Motor Carrier Safety Regulations, 49 Code of Federal Regulations (CFR) Parts 390 - 399 (1 October 1996). 49 CFR Sections 391.109 and 391.111 concerning random drug testing shall not apply to intrastate operations. (Iowa Administrative Code (IAC) 761-520.1)

- Federal Hazardous Materials Regulations, 49 CFR Parts 107, 171 through 173, 177, 178, and 180 (1 October 1996). The regulations in the 1 October 1990, edition of Title 49 CFR shall remain in full force and effect in accordance with the transition provisions of 49 CFR Section 171.14 (December 31, 1991). (IAC 761-520.1)

Definitions

- *Active Cleanup* - removal, treatment, or isolation of a contaminant from groundwater or associated environment through the directed efforts of humans (Iowa Administrative Code (IAC) 567-133.2).

- *Aggravated Risk* - 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 (IAC 567-133.2).

- *Best Available Technology* - 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 (IAC 567-133.2).

- *Best Management Practices* - maintenance procedures, schedules or 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 (IAC 567-133.2).

- *Cleanup* - actions necessary to contain, collect, control, identify, analyze, clean up, treat, disperse, remove, or dispose of a hazardous substance (Iowa Code (IC) 455B.381).

- *Commissions* - the environmental protection commission (IAC 567-144.2).

- *Contaminant* - 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 United States Code (USC) 9601, and any element, compound, mixture, solution, or substance designated pursuant to 40 CFR 302.4 as of 13 September 1988 (IAC 567-133.2).

- *Corrosive* - causing or producing visible destruction or irreversible alterations in human skin tissue at the site of contact, or in the case of leakage of a hazardous substance from its packaging, causing or producing a severe destruction of other materials through chemical processes (IAC 567-131.1).

- *Department* - the Department of Natural Resources (IAC 567-144.2).

- *Display Area Label* - the signage used by a retailer to mark a household hazardous material display area as prescribed by the Department (IAC 567-144.2).

- *Groundwater* - any water of the state as defined in IC section 455B.171 which occurs beneath the surface of the earth in a saturated geologic formation of rock or soil (IAC 567-133.2).

- *Hazardous Condition* - any condition involving the actual, imminent, or probable spillage, leakage, or release of a hazardous substance onto the land or into a water of the state, or into the atmosphere, which because of the quantity, strength, and toxicity of the hazardous substance, its mobility in the environment and its persistence, creates an immediate or potential danger to the public health, safety, or to the environment (IAC 567-131.1).

- *Hazardous Substance* - any substance or mixture of substances that presents a danger to the public health or safety and includes, but is not limited to, a substance that is toxic, corrosive, or flammable, or that is an irritant or that, in confinement, generates pressure through decomposition, heat, or other means. The following are examples of substances which, in sufficient quantity, may be hazardous: acids; alkalis; explosives; fertilizers; heavy metals such as chromium, arsenic, mercury, lead, and cadmium; industrial chemicals; paint thinners; paints; pesticides; petroleum products; poisons; radioactive materials; sludges; and organic solvents. Hazardous substances may include any hazardous waste identified or listed by the administrator of the USEPA under the *Solid Waste Disposal Act* as amended by the *Resource Conservation Act* of 1976, or any toxic pollutant listed under section 307 of the Federal *Water Pollution Control Act* as amended to 1 January 1977, or any hazardous substance designated under section 311 of the Federal *Water Pollution Control Act* as amended to 1 January 1977, or any hazardous material designated by the secretary of transportation under the *Hazardous Materials Transportation Act* (49 CFR 172.101) (IAC 567-131.1).

- *Informational Signs* - signs which explain the household hazardous materials program, the significance of the display area labels and direct consumers to the location of informational booklets or other information available in the store (IAC 567-144.2).

- *Irritant* - a substance causing or producing dangerous or intensely irritating fumes upon contact with fire or when exposed to air (IAC 567-131.1).

- *Manufacturer* - a person who manufactures or produces a household hazardous material for resale in this state (IAC 567-144.2).

- *Passive Cleanup* - 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 (IAC 567-133.2).

- *Person Having Control Over a Hazardous Substance* - a person who at any time produces, handles, stores, uses, transports, refines, or disposes of a hazardous substance the release of which creates a hazardous condition, including bailees, carriers, and any other person in control of a hazardous substance when a hazardous condition occurs, whether the persons owns the hazardous substances or is operating under a lease, contract, or other agreement with the legal owner of the hazardous substance. Person Having Control Over a Hazardous Substance does not include a person who holds indicia of ownership in a hazardous condition site, if the person satisfies all of the following:

1. holds indicia of ownership primarily to protect that person's security interest in the hazardous condition site, where the indicia of ownership was acquired either for the purpose of securing payment of a loan or other indebtedness, or in the course of protecting the security interest
2. does not exhibit managerial control of, or managerial responsibility for, the daily operation of the hazardous condition site through the actual, direct, and continual or recurrent exercise of management control over the hazardous condition site in which that person holds a security interest, which managerial control materially divests the borrower, debtor, or obligor of control
3. has taken no subsequent action with respect to the site which causes or exacerbates a release or threatened release of a hazardous substance (IC 455B.381).

- *Preventative or Prevention* - in the context of these rules, the actions or efforts taken to minimize or stop further contamination in a situation where contamination already exists or is imminent (IAC 567-133.2).

- *Release* - a threatened or real emission, discharge, spillage, leakage pumping, pouring, emptying, or dumping of a hazardous substance into or onto the land, air, or waters of the state unless one of the following applies:
  1. the release is done in compliance with the conditions of a federal or state permit
  2. the hazardous substance is confined and expected to stay confined to property owned, leased, or otherwise controlled by the person having control over the hazardous substance
  3 in the use of pesticides, the application is done in accordance with the product label (IC 455B.381).

- *Remedial Action Plan* - 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; a monitoring network and schedule to document cleanup levels; a proposed schedule of implementation (IAC 567-133.2).

- *Responsible Person* - any person who is legally liable for the contamination in question or who is legally responsible for abating contamination under any applicable law, including IC 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 (IAC 567-133.2).

- *Retailer* - a person offering for sale or selling a household hazardous material to the ultimate consumer within the state (IAC 567-144.2).

- *Significant Risk* - any of the following:
  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 (IAC 567-133.2).

- *Toxic* - causing or producing a dangerous physiological, anatomic, or biochemical change in a biological system (IAC 567-131.1).

- *Waters of the State* - rivers, streams, lakes, and any other bodies of surface and subsurface water lying within or forming a part of the boundaries of the state which are not entirely confined and located completely upon lands

owned, leased, or otherwise controlled by a single person or by two or more persons jointly or as tenants in common. Waters of the state includes waters of the United States lying within the state (IC 455B.381).

- *Wholesaler or Distributor* - a person other than a manufacturer or manufacturer's agent who engages in the business of selling or distributing a household hazardous material within the state for the purpose of resale (IAC 567-144.2).

HAZARDOUS MATERIALS MANAGEMENT GUIDANCE FOR IOWA CHECKLIST USERS	
	REFER TO CHECKLIST ITEMS:
Missing Checklist Items	HM.2.1.IA.
State-Specific Hazardous Materials Requirements	
Household Hazardous Materials	HM.5.1.IA. through HM.5.3.IA.
Anhydrous Ammonia	HM.5.4.IA.
Personnel Training	HM.10.1.IA.
Releases of Hazardous Materials	HM.20.1.IA. through HM.20.6.IA.
Emergency Planning	HM.25.1.IA. and HM.25.2.IA.
Right-to-Know	HM.30.1.IA.

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
HM.2 **MISSING CHECKLIST ITEMS**	
HM.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
STATE-SPECIFIC HAZARDOUS MATERIALS REQUIREMENTS	
HM.5. Household Hazardous Materials	(NOTE: Any brand, grade, size, or volume of the following products constitutes household hazardous materials: - motor oils and motor oil additives - motor oil filters - gasoline additives - diesel fuel additives - degreasers - waxes and polishes (excluding nail polish) - solvents (excluding water) - paints (excluding latex-based paints) - lacquers - thinners (excluding water) - caustic household cleaners - spot and stain removers with a petroleum base - petroleum-based fertilizers. A household hazardous material does not include laundry detergents or soaps, dishwashing compounds, chlorine bleach, personal care products, personal care soaps, cosmetics, animal and human medications, or pharmaceuticals.)
HM.5.1.IA. Retailers that sell household hazardous materials must display informational labeling (IAC 567-144.4(1) a and 144.4(2)).	Verify that the display label is at least 7/8 x 7/8 in. in size and is printed with the household hazardous materials program symbol in black on a fluorescent yellow background. Verify that all labels are in locations where they can easily be seen by consumers. Verify that labels are displayed immediately adjacent to the price information at the location where the household hazardous material is displayed for sale in their retail outlet. Verify that, where products are individually priced with no corresponding shelf pricing information, the labels is affixed immediately in front of, above or below the product displays. (NOTE: Where the same product from the same manufacturer is offered in a variety of sizes or colors on a single shelf, the display area labels may be spaced up to 2 ft apart on the shelf. If the shelf is 4 ft or less in length, a single label on each shelf is acceptable if an informational sign is placed above the display rack.)

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
	(NOTE: Retailers are not required to label shelves which are in an enclosed area that is not accessible to the consumer, but the retailer must provide copies of the informational booklets and maintain a list of products sold which are household hazardous materials adjacent to an informational sign.)
HM.5.2.IA. Retailers that sell household hazardous materials must provide informational signs (IAC 567-144.4(1)b and 144.4(3)).	Verify that signs are at least 8 1/2 x 11 in. and contain a copy of the symbol at least 5 in. in size. Verify that signs explain the significance of the shelf label, the relationship of improper disposal of household hazardous materials to the contamination of groundwater, and direct consumers to the location of informational materials in the store. Verify that signs are clearly visible to customers and are displayed at locations in the store close to shelves where household hazardous materials are offered for sale and in the location where informational materials are available. (NOTE: The informational signs are not required to be placed at every location where products are sold, but they should be displayed at areas where there are concentrations of such products and where required in HM.5.1.IA.)
HM.5.3.IA. Retailers that sell household hazardous materials must provide informational materials (IAC 567-144.5).	Verify that retailers make available consumer information bulletins about household hazardous materials. (NOTE: Manufacturers or distributors of household hazardous materials who authorize independent contract retailers to sell products on a person-to-person basis are required to provide each independent contractor with sufficient quantities of the consumer information bulletins, as well as a list of household hazardous materials.) Verify that during the course of a sale of household hazardous material by a contractor retailer, the customer is provided with a copy of both the list and the consumer information booklet; in subsequent sales to the same customer, the list and booklet is noted as being available if desired. Verify that all materials are made available to customers at no charge. (NOTE: Consumer information booklets must contain at a minimum the following types of information: information on the kinds of products considered to be household hazardous materials, options for use and the proper disposal of household hazardous products, emergency phone numbers in case of a spill, and an explanation of the groundwater concerns related to the household hazardous materials program. Retailers may print their own information booklets so long as the text of the booklets is identical to that provided by the Department.)

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
Anhydrous Ammonia	
HM.5.4.IA. Anhydrous ammonia must meet storage and handling requirements (IAC 21- 43.6) [Added May 1998].	Verify that personnel who handle, transfer, transport, or otherwise work with ammonia are trained once each calendar year prior to handling to understand the properties of ammonia, to become competent in safe operating practices, and to take appropriate actions in the event of a leak or an emergency. Verify that canisters are not opened until ready for use and are discarded after use. Verify that canisters are discarded and replaced when the shelf life expiration date marked on the canister is exceeded. Verify that anhydrous ammonia is not vented into the air. Verify that anhydrous ammonia is vented into 10 gal of water for each gallon of liquid ammonia or fraction thereof which is contained in the hose or vessel to be vented.

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
HM.10. PERSONNEL TRAINING	
HM.10.1.IA. Federal facilities that employ independent contractors must comply with specific reporting requirements (IAC 347-120.1).	Verify that an federal facility that furnishes or specifies that a hazardous chemical will be used at the workplace complies with its duty to notify persons who would normally be deemed an independent contractors.

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
HM.20. RELEASES OF HAZARDOUS MATERIALS	
HM.20.1.IA. Guidelines for reporting hazardous conditions should be followed when a hazardous condition occurs (Management Practice Guidelines for Reporting Hazardous Conditions, Issued by the Department of Natural Resources).	Verify that the federal facility follows the guidelines for reporting a hazardous condition if, without intervention, the following can occur: - the hazardous substance has the potential to leave the property via overland runoff, or through a drain, tile line, culvert, or other conduit - the hazardous substance has the potential to reach a water or the state, either surface or groundwater - the hazardous substance can be detected in the air at the boundaries of the property by either senses or monitoring - people other than the responsible party's employee can be potentially exposed to the hazardous substance - local officials respond to the incident - the amount of hazardous substance released exceeds the Federal reportable quantity (see U.S. TEAM Guide). Verify that even if the spill is not reported, it is cleaned up to avoid creating a hazardous condition at a later date.
HM.20.2.IA. Federal facilities that manufacture, store, handle, transport, or dispose of a hazardous substance where there is an occurrence of a hazardous condition (see Definitions) must comply with notification requirements (IAC 605-104.2).	Verify that federal facilities which manufacture, store, handle, transport, or dispose of a hazardous substance (see Definitions) notify the Department of Natural Resources at (515) 281-8694 and the local police department or the office of the sheriff of the affected county of the occurrence of a hazardous condition as soon as possible but not later than 6 h after the onset of the hazardous condition or discovery of the hazardous condition. Verify that a written report of the hazardous condition is submitted to the Department of Natural Resources within 30 days and contains the following information: - the exact location of the hazardous condition - the time and date of onset or discovery of the hazardous condition - the name of the material, the manufacturer's name and the volume of each material involved in the hazardous condition in addition to contaminants within the material if they by themselves could cause a hazardous condition - the medium (land, water, or air) in which the hazardous condition occurred or exists - the name, address, and telephone number of the party responsible for the hazardous condition - the time and date of the verbal report to the Department of Natural Resources

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
	of the hazardous condition - the weather conditions at the time of the hazardous condition onset or discovery - the name, mailing address, and telephone number of the person reporting the hazardous condition - the name and telephone number of the person closest to the scene of the hazardous condition who can be contacted for further information and action - any other information such as the circumstances leading to the hazardous condition, visible effects, and contaminant measures taken that may assist in proper evaluation by the Department of Natural Resources. Verify that all subsequent findings and laboratory results are reported and submitted to the Department of Natural Resources as soon as they become available.
HM.20.3.IA. Samples taken and analyses made to document contamination from hazardous conditions must be conducted in accordance with specific rules (IAC 567-133.3(1)).	(NOTE: The USEPA or Department of Natural Resources may require specific sampling and analyses or other methods may be approved by the Department of Natural Resources for a specific situation.) Verify that samples taken and analyses performed to document contamination or cleanup levels for a specific situation are conducted in accordance with the following: - for samples: *A Compendium of Superfund Field Operations Methods*, USEPA, Office of Emergency and Remedial Response, Washington, DC 20460 (USEPA/ 540/P-87/001, Office of Solid Waste and Emergency Response Directive 93.55.0-14, December 1987) - for analyses: *Test Methods for Evaluation of Solid Waste, Physical-Chemical Metho*ds (SW-846), USEPA, Third Edition, November 1986, as revised through December 1988. (NOTE: Until the Department of Natural Resources adopts rules regarding certification of laboratories, analyses must be conducted by a laboratory that certifies to the Department that the appropriate analytical procedure is utilized, or a laboratory which is approved under the USEPA's Contract Laboratory Program. Upon adoption of rules by the Department of Natural Resources regarding certification or laboratories, all analyses must be made at a certified laboratory.)
HM.20.4.IA. Contamination from hazardous conditions must be prevented (IAC 567-133.4(1)).	Verify that in cases where an active source of contamination is identified, which is readily corrected, the source is removed, repaired, or otherwise contained, or the contaminating practices ceased, immediately upon discovery of the source. Verify that readily accessible contaminants are promptly removed to avoid or minimize further contamination in the groundwater.

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
HM.20.5.IA. When the contamination from hazardous conditions presents an aggravated risk, specific actions must be taken (IAC 567-133.4(2)).	Verify that when the contamination presents an aggravated risk, the preventative, investigatory, and remedial measures listed in HM.20.3.IA are taken and the following actions are taken by the responsible parties, if necessary, to protect the public health or environment: - provide alternate water supplies - install security fencing or other measures limiting access - take extraordinary measures to control the source of the release - remove the hazardous substances to an approved site for storage, treatment, or disposal - place physical barriers deterring the spread of the release - recommend to appropriate authorities the evacuation of threatened persons - use other materials to restrain the spread of the contaminant or to mitigate its effects - execute damage control or salvage operations.
HM.20.6.IA. When the contamination from hazardous conditions presents a significant risk, investigatory and remedial measures must be implemented (IAC 567-133.4(3)).	Verify that the responsible party determines 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. Verify that a site assessment plan is submitted to the Department of Natural Resources within 45 days of notice by the Department of Natural Resources, unless a shorter time is required or a longer time is authorized by the Department of Natural Resources. Verify that the site assessment is conducted within a reasonable time and a remedial action plan is submitted to the Department of Natural Resources, within the time directed or approved by the Department of Natural Resources. Verify that 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 is implemented to the extent reasonable and necessary to prevent or minimize release to the groundwater. (NOTE: Passive cleanup may be allowed in extraordinary circumstances.)

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
HM.25. EMERGENCY PLANNING	
HM.25.1.IA. Federal facilities subject to the requirements of Section 302, *Emergency Planning and Community Right-to-Know Act*, 42 USC 11002, must comply with specific notification requirements (IAC 605-104.1).	Verify that federal facilities subject to the planning notification requirement [Section 302 of 42 USC 11002] notify the Department of Public Defense, Emergency Management Division, that the facilities are subject to the requirements of Section 302, *Emergency Planning and Community Right-to-Know Act*, 42 USC. 11002. Verify that notification is made on the Iowa Tier Two form and submitted to the Division of Labor Services by 1 March for covered chemicals in its possession.
HM.25.2.IA. Federal facilities must meet specific release reporting and notification requirements (IAC 605-104.2).	Verify that federal facilities subject to the requirements of Section 313, *Emergency Planning and Community Right-to-Know Act*, 42 USC 11023, submit the toxic chemical release form for the pervious calendar year by 1 July of the following year. Verify that each release subject to the requirements of Section 304, *Emergency Planning and Community Right-to-Know Act*, 42 USC 11004, is reported to the Department of Natural Resources. Verify that notification of releases is telephoned to the Department at 515-281-8694 immediately with a written follow-up emergency notice made within 30 days.

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
HM.30. RIGHT-TO-KNOW	
HM.30.1.IA. Federal facilities which are required to prepare or have available a material safety data sheet for a hazardous chemical under the *Occupational Safety and Health Act* of 1970 must comply with specific reporting requirements (IAC 605-104.3).	Verify that federal facilities required to prepare or have available a material safety data sheet for a hazardous chemical under the *Occupational Safety and Health Act* of 1970 submit a list of each chemical required to be submitted under Section 311, *Emergency Planning and Community Right-to-Know Act*, 42 USC 11021. Verify that the list is submitted to the Department of Employment Services, Labor Services Division, in addition to the appropriate local emergency planning committee and the fire department in whose jurisdiction the facility is located. Verify that federal facilities required to prepare or have available a material safety data sheet for a hazardous chemical under the *Occupational Safety and Health Act* of 1970 submit emergency and hazardous chemical inventory information required to be submitted under Section 312, *Emergency Planning and Community Right-to-Know Act*, 42 USC 11022. Verify that the information is submitted to the Department of Employment Services, Labor Services Division in addition to the appropriate local emergency planning committee and the fire department in whose jurisdiction the facility is located by March 1 for the chemicals in its inventory the preceding calendar year. Verify that the information is submitted on the Iowa Tier Two form.

SECTION 4

HAZARDOUS WASTE MANAGEMENT

Iowa Supplement, April 2000

This section covers the state requirements for Hazardous Waste Management and is intended to supplement the U.S. TEAM Guide. Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.

State Adoptions of Federal Regulations

The State of Iowa has adopted the following Federal regulations:

- 40 Code of Federal Regulations (CFR) 260, as amended through 15 July 1985, provided that underground source of drinking water means an aquifer or its portion which meets either of the following requirements:
    1. supplies any public water system
    2. contains a sufficient quantity of groundwater to supply a public water system and meets either of the following:
        a. currently supplies drinking water for human consumption
        b. contains fewer than 10,000 mg/L total dissolved solids (Adopted in Iowa Administrative Code (IAC) 567-141.1.)

- 40 CFR 261, as amended through 23 October 1985, provided that any general reference to 40 CFR 124 means IAC 567-141.13 (Adopted in IAC 567-141.2.)

- 40 CFR 262, as amended through 15 July 1985, provided that:
    1. advance notification of international shipments required by 40 CFR 262.50(b) is made to USEPA administrator rather than to the Director
    2. if an exception report is required by 40 CFR 262.42, the generator sends a copy of the exception report to all of the following:
        a. the Director
        b. the state agency administering the hazardous waste program where the facility designated on the manifest is located
        c. the state agency administering the hazardous waste program where for the facility to which the shipment may have been delivered (Adopted in IAC 567-141.3.)

- 40 CFR 263, as amended through 1 April 1983, provided that if a hazardous waste in transit is discharged in the state, the transporter shall notify local and state offices as required in Chapter 131 of these rules (see HW.100.1. in this supplement) (Adopted in IAC 567-141.4.)

- 40 CFR 264, as amended through 15 July 1985, provided that:
    1. an independent certified public accountant, eligible to practice in Iowa, writes the reports required in the following sections:
        a. 264.143(f)(3)(ii) and (iii)
        b. 264.145(f)(3)(ii)
        c. 264.147(f)(3)(ii) and (iii)
    2. the certification of closure requirement under 264.115 is performed by both an independent professional engineer registered in Iowa and the owner or operator
    3. an independent professional land surveyor, registered in Iowa, prepares and certifies the survey plat indicating the location and dimension of the disposal areas in accordance with 264.119
    4. any reference to 40 CFR 124 means IAC 567-141.13 (Adopted in IAC 567-141.5.)

- 40 CFR 265, as amended through 15 July 1985, provided that:
    1. an independent certified public accountant, eligible to practice in Iowa, writes the reports required in the following sections:
        a. 265.143(e)(3)(ii) and (iii)
        b. 265.145(e)(3)(ii)
        c. 265.147(f)(3)(ii) and (iii)
    2. the certification of closure requirement under 265.115 is performed by both an independent professional engineer registered in Iowa and the owner or operator
    3. an independent professional land surveyor, registered in Iowa, prepares and certifies the survey plat indicating the location and dimension of the disposal areas in accordance with 264.119
    4. any reference to 40 CFR 124 means IAC 567-141.13(Adopted in IAC 567-141.6.).

- 40 CFR 270, as amended through 24 April 1984, provided that a permit required by the USEPA for hazardous waste management facilities may serve in lieu of a state permit until its expiration or replacement by a state permit (Adopted in IAC 567-141.14.).

Unless specifically stated otherwise, references in 40 CFR 260 through 40 CFR 265 to USEPA or regional administrator are deemed to be references to the Iowa Department of Natural Resources.

Definitions

- *Containment* - any chemical, ion, radionuclide, synthetic organic compound microorganism, waste or other substance which does not occur naturally or which does occur naturally at a lower concentration, and includes all hazardous substances (IAC 567-148.2).

- *Department* - Iowa Department of Natural Resources (IAC 567-131.1).

- *Director* - the Director of the Iowa Department of Natural Resources.

- *Disposal* - the discharge, deposit, injection, dumping, spilling, leaking, or placing of a hazardous waste or hazardous substance into or on land or water so that the hazardous waste or hazardous substance, or a constituent of the hazardous waste or hazardous substance, may enter the environment or be emitted into the air or discharged into any waters, including groundwater (IAC 567-148.2).

- *Groundwater* - any water of the state which occurs beneath the surface of the earth in a saturated geologic formation of rock or soil (IAC 567-148.2).

- *Hazardous Condition* - any situation involving the actual, imminent, or probable spillage, leakage, or release of a hazardous substance onto the land, into a water of the state or into the atmosphere which, because of the quantity, strength and toxicity of the hazardous substance, its mobility in the environment and its persistence, creates an immediate or potential danger to the public health or safety or to the environment (IAC 567-131.1).

- *Hazardous Waste* - any substance or mixture or substances that presents a danger to the public health or safety and includes but is not limited to, a substance that is toxic, corrosive, or flammable, or that is an irritant or that, in confinement, generates pressure through decomposition, heat, or other means (IAC 567-131.1).

- *Water of the State* - any stream, lake, pond, marsh, watercourse, waterway, well, spring, reservoir, aquifer, irrigation system, drainage system, and any other body or accumulation of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof (Iowa Code 455B.171(26)).

HAZARDOUS WASTE MANAGEMENT GUIDANCE FOR IOWA CHECKLIST USERS	
	REFER TO CHECKLIST ITEMS:
Missing Checklist Items	HW.2.1.IA.
State-Specific Hazardous Waste Requirements	HW.5.1.IA
All Sizes of Generators	HW.10.1.IA
Transportation of Hazardous Waste	HW.100.1.IA
All TSDFs	
General	HW.105.1.IA through HW.105.3.IA
Additional State-Specific Requirements	HW.175.1.IA

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
HW.2 **MISSING CHECKLIST ITEMS**	
HW.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
HW.5. STATE-SPECIFIC HAZARDOUS WASTE REQUIREMENTS	
HW.5.1.IA. All persons who generate or transport hazardous waste or own or operate a treatment, storage, and disposal facility (TSDF) must notify the Department IAC 567-140.3).	Verify that all persons who generate or transport hazardous waste or own or operate a TSDF notify the Department of the activity.

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
HW.10. ALL SIZES OF GENERATORS	
HW.10.1.IA. All hazardous waste generators must meet specific notification requirements in the event of a hazardous condition (IAC 567-131.2).	Verify that as soon as possible, but not later than 6 h after the occurrence or discovery of a hazardous condition, the generator notifies the Department and the local police department or the office of the sheriff of the affected county. Verify that a written report disclosing the details of the hazardous occurrence is submitted to the Department within 30 days of the initial notification.

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
HW.100. TRANSPORTATION OF HAZARDOUS WASTE	
HW.100.1.IA. All hazardous waste transporters must meet specific notification requirements in the event of a hazardous condition (IAC 567-131.2).	Verify that as soon as possible, but not later than 6 h after the occurrence or discovery of a hazardous condition, the transporter notifies the Department and the local police department or the office of the sheriff of the affected county. Verify that a written report disclosing the details of the hazardous occurrence is submitted to the Department within 30 days of the initial notification.

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
ALL TSDFs **HW.105. General**	
HW.105.1.IA. All TSDFs must have a permit (IAC 567-140.4),	Verify that all TSDFs have a permit issued by the Department.
HW.105.2.IA. All hazardous waste TSDFs must meet specific notification requirements in the event of a hazardous condition (IAC 567-131.2).	Verify that as soon as possible but not later than 6 h after the occurrence or discovery of a hazardous condition, the TSDF notifies the Department and the local police department or the office of the sheriff of the affected county. Verify that a written report disclosing the details of the hazardous occurrence is submitted to the Department within 30 days of the initial notification.
HW.105.3.IA. Written approval of the Director is required for specific changes in status of TSDFs 567 IAC 148.6(5)).	Verify that Director approval is obtained prior to any of the following changes: - any substantial change in the use of the TSDF - sale, conveyance, or transfer of title of the TSDF.

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
ALL TSDFs **HW.175. Additional State- Specific Requirements**	
HW.175.1.IA. Hazardous waste must not be disposed of in wells (IAC 567-141.7).	Verify that hazardous waste is not disposed of in wells.

SECTION 5

NATURAL RESOURCES MANAGEMENT

Iowa Supplement, April 2000

This section covers the state requirements for Natural Resources Management and is intended to supplement the U.S. TEAM Guide. Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.

Definitions

- *Agricultural Levees of Dikes* - levees or dikes constructed to provide limited flood protection to land used primarily for agricultural purposes (Iowa Administrative Code (IAC) 567-70.2).

- *Backwater* - the increase in water surface level immediately upstream from any structure, dam, obstruction, or deposit, erected, used, or maintained in the floodway or on the flood plains caused by the resulting reduction in conveyance area (IAC 567-70.2).

- *Building* - all residential housing including mobile homes, cabins, factories, warehouses, storage sheds, and other walled, roofed structures constructed for occupation by people or animals or for storage of materials (IAC 567-70.2).

- *Channel* - a natural or artificial flow path of a stream with definite bed and banks to collect and conduct the normal flow of water (IAC 567-70.2).

- *Channel Change* - either of the following:
  1. the alteration of the location of a channel of a stream, or
  2. a substantial modification of t he size, slope, or flow characteristics of a channel of a stream for a purpose related to the use of the stream's flood plain surface rather than for the purpose of actually using the water itself, or putting the water to a new use.

  Diversions of water subject to the permit requirements of Iowa Code sections 455B.268 and 455B.269 usually are not channel changes. Increasing the cross sectional area of a channel by less than 10 percent is not considered a substantial modification of the size, slope, or flow characteristics of a channel of a stream (IAC 567-70.2).

- *Dam* - a barrier which impounds or stores water (IAC 567-70.2).

- *Development* - a structure, dam, obstruction, deposit, excavation, or flood control work in a floodway or flood plain (IAC 567-70.2).

- *Drainage District Ditch* - a channel located within the boundaries of a drainage district and excavated to establish a design channel-bottom profile for efficient conveyance of water discharged from agricultural tile systems and open drains (IAC 567-70.2).

- *Elevating* - raising buildings by fill or other means to or above a minimum level of flood protection (IAC 567-70.2).

- *Encroachment Limits* - the boundaries of the floodway established in the flood plains and designating the width of the channel and minimum width of the overbank areas needed for the conveyance of the 100-yr floodplain (IAC 567-70.2).

- *Endangered Species* - any species of fish, plant life, or wildlife which is in danger of extinction throughout all or a significant part of its range (IAC 571-77.1).

- *Equal and Opposite Conveyance* - the location of development offsets from stream banks so that flood plain lands on each side of a stream convey a share of the flood flows proportionate to the total conveyance available on each respective side of the stream (IAC 567-70.2).

- *Flood Control Works* - physical structures such as dams, levees, floodwalls, and channel improvements or relocations undertaken to provide moderate to high degree of flood protection to existing or proposed structures or land uses (IAC 567-70.2).

- *Flood Hazard Area* - the area including the flood plains and the river or stream channel (IAC 567-70.2).

- *Flood Plain* - the land adjacent to a stream which has been or may be inundated by a flood having the magnitude of the regional flood (IAC 567-70.2).

- *Flood Proofing* - a combination of structural provisions, changes, or adjustments in construction to buildings, structures, or properties subject to flooding primarily for the reduction or elimination of flood damages (IAC 567-70.2).

- *Floodway Fringe* - those portions of the flood plains located landward of the encroachment limits (IAC 567-70.2).

- *Height of Dam* - the vertical distance from the top of the dam to the natural bed of the stream or watercourse measured at the downstream toe of the dam or to the lowest elevation of the outside limit of the dam if it is not across a watercourse (IAC 567-70.2).

- *Minimum Level of Flood Protection* - the elevation corresponding to the water surface profile of the regulatory flood associated with a damage potential classification plus any freeboard specified in these rules (IAC 567-70.2).

- *Probable Maximum Flood* - the flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible in the region, and is derived from probable maximum precipitation, the theoretical greatest depth of precipitation for a given duration that is physically possible over a particular drainage area at a certain time of year. The probable maximum precipitation within designated zones in Iowa has been determined by the National Weather Service. The probably maximum flood for any location within Iowa is determined by the Department (IAC 567-70.2).

- *Protected Stream* - a stream designated by the Department, including streams designated as protected pursuant to IAC 567-72.51 and listed in IAC 567-72.50 (2). Streams hydrologically connected to protected streams are not protected streams unless specifically listed as protected streams (IAC 567-72.50(1)).

- *Regional Flood* - a flood representative of the largest floods which have been observed on streams in Iowa (IAC 567-70.2).

- *Repair and Maintenance of a Drainage District Ditch* - the restoration of the original grade line, cross sectional area, or other design specifications of a drainage district ditch lawfully established as part of a drainage district formed and operating under the provisions of Iowa Code chapter 468 (IAC 567-70.2).

- *Road Projects* - the construction and maintenance of any bridges, culverts, road embankments, and temporary stream crossings (IAC 567-70.2).

- *Rural Areas* - any area not defined or designated as an urban area (IAC 567-70.2).

- *Special Concern Species* - any species about which problems of status or distribution are suspected, but not documented, and for which no special protection is afforded under this rule (IAC 571-77.1).

- *Stream* - a watercourse that either drains an area of at least 2 mi^2 or has been designated as a protected stream (IAC 567-70.2).

- *Threatened Species* - any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (IAC 571-77.1).

- *Urban Areas* - incorporated municipalities (IAC 567-70.2).

- *Watercourse* - any lake, river, creek, ditch, or other body of water or channel having definite banks and bed with visible evidence of the flow or occurrence of water, except such lakes or ponds without outlet to which only one landowner is riparian (IAC 567-70.2).

NATURAL RESOURCES MANAGEMENT GUIDANCE FOR IOWA CHECKLIST USERS	
	REFER TO CHECKLIST ITEMS:
Missing Checklist Items	NR.2.1.IA
Land Management	NR.10.1.IA through NR.10.14.IA
Wildlife	NR.20.1.IA

NATURAL RESOURCES MANAGEMENT GUIDANCE FOR IOWA APPENDIX USERS	
REFER TO APPEMDIX NUMBER:	**REFER TO APPENDIX ITEMS:**
5-1	Endangered, Threatened, and Special Concern Animals Species of Iowa
5-2	Endangered, Threatened, and Special Concern Plants of Iowa

COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
NR.2 **MISSING CHECKLIST ITEMS**	
NR.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
LAND MANAGEMENT **NR.10.** **Flood Plains**	
NR.10.1.IA. Federal facilities must obtain a permit for certain kinds of development in floodways or flood plains (IAC 567-70.4(1)).	Verify that any development in a floodway or flood plain that exceeds the thresholds listed in NR.10.3.IA through NR.10.14.IA, and is not otherwise regulated by a Department flood plain management order or a Department-approved, locally adopted flood plain management ordinance, has a Department flood plain development permit.
NR.10.2.IA. Federal facilities must submit engineering plans for developments in floodways and flood plains (IAC 567-70.4(3)).	Verify that the engineering plans contain information specified by the Department, including specifications, operation procedures, and other information relating to environmental aspects. Verify that the engineering plans are certified by a registered professional engineer, or, if applicable, a registered land surveyor (NOTE: These requirements may be waived by the Department if it determines that engineering data is not required to determine that the project conforms to all applicable administrative and statutory criteria; or if adequate engineering data used to evaluate the dimensions and effects of the project are already available to the engineering staff.)
NR.10.3.IA. Department approval is necessary for development on flood plains in certain instances (IAC 567-71.1).	Verify that the construction, operation, and maintenance of bridges, culverts, temporary stream crossings, and road embankments are approved by the Department in the following instances: - in rural areas, bridges, culverts, road embankments, and temporary stream crossings in or on the floodway of any river or stream draining more than 100 mi^2 (channel modifications associated with bridge, culvert, or roadway projects may need approval) - road embankments located in a rural area in the floodway or flood plains, but not crossing the channel of a river or stream draining more than 10 mi^2, where no works occupy more than 3 percent of the cross sectional area of the channel at bankfull stage or where such works obstruct more than 15 percent of the total cross sectional area of the flood plain at any stage (in determining a 15 percent occupancy of the flood plain, the concept of equal and opposite conveyance applies) - in urban areas, bridges, culverts, road embankments, and temporary stream crossings in or on the floodway or flood plains of any river or stream more than 2 mi^2.

COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
NR.10.4.IA. Department approval is necessary for channel changes in specific instances (IAC 567-71.2).	Verify that the construction, operation, and maintenance of channel changes in rural areas are approved by the Department in the following instances: - channel changes not otherwise associated with road projects in or on the floodway of any stream draining more than 10 mi^2 at the location of the channel change - channel changes associated with road projects in or on the floodway of any stream draining more than 10 mi^2 at the location of the channel change whereby either more than 500 ft length of the existing channel is being altered or the length of existing channel being is reduced by more than 25 percent - in urban areas channel changes on any river or stream draining more than 2 mi^2 at the location of the channel change - channel changes at any location on any river or stream designated as a protected stream.
NR.10.5.IA. Department approval for construction, operation, or maintenance of dams in floodways or flood plains is required when the dams exceed certain thresholds (IAC 567-71.3).	Verify that Department approval is obtained for the construction, operation, and maintenance of dams in floodways or flood plains in rural areas when the dimensions and effects of the dam exceed the following thresholds: - any dam designed to provide a sum of permanent and temporary storage exceeding 50 acre-feet at the top of dam elevation, or 25 acre-feet if the dam does not have an emergency spillway, and which has a height of 5 ft or more - any dam designed to provide permanent storage in excess of 18 acre-feet and which has a height of 5 ft or more - any dam across a stream draining more than 10 mi^2 - any dam located within 1 mi. of an incorporated municipality, if the dam has a height of 10 ft or more, stores 10 acre-feet or more at the top of dam elevation, and is situated such that the discharge from the dam flows through the incorporated area. Verify that Department approval is obtained for the construction, operation, and maintenance of dams in floodways or flood plains in urban areas when the dimensions and effects of the dam exceed the following thresholds: - any dam designed to provide a sum of permanent and temporary storage exceeding 50 acre-feet at the top of dam elevation, or 25 acre-feet if the dam does not have an emergency spillway, and which has a height of 5 ft or more - any dam designed to provide permanent storage in excess of 18 acre-feet and which has a height of 5 ft or more - any dam located within 1 mi. of an incorporated municipality, if the dam has a height of 10 ft or more, stores 10 acre-feet or more at the top of dam elevation, and is situated such that the discharge from the dam flows through the incorporated area.

COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
	Verify that Department approval is obtained for modification or alteration of any dam or appurtenant structure beyond the scope of ordinary maintenance or repair, or any change in operating procedures, if the dimensions or effects of the dam exceed the applicable thresholds in this rule. (NOTE: Approval is required to maintain a pre-existing dam only if the Department determines that the dam poses a significant threat to the well-being of the public or environment and should therefore be removed or repaired and safely maintained.) (NOTE: Public Road embankments with culverts which impound water only in temporary storage are exempt from the above rules.)
NR.10.6.IA. Department approval is necessary for construction, operation, and maintenance of levees or dikes in specific instances (IAC 567-71.4).	Verify that in rural areas, any levees or dikes located on the flood plain of floodway of any stream or river draining more than 10 mi^2 are approved by the Department. Verify that in urban areas, any levees or dikes along any river or stream draining more than 2 mi^2 are approved by the Department.
NR.10.7.IA. Department approval is necessary for the construction, operation, and maintenance of waste or water treatment facilities in certain circumstances (IAC 567-71.5).	Verify that in rural areas, any waste or water treatment facilities on the flood plains or floodway of any river or stream draining more than 10 mi^2 are approved by the Department. Verify that in urban areas, any waste or water treatment facilities on the flood plains or floodway of any river or stream draining more than 2 mi^2 are approved by the Department.
NR.10.8.IA. Department approval is necessary in certain instances for the construction, operation, and maintenance of sanitary landfills (IAC 567-71.6).	Verify that any sanitary landfills in rural areas that are located on the flood plain or floodway of any stream draining more than 10 mi^2 at the landfill site are approved by the Department. Verify that any sanitary landfills located on the flood plain or floodway of any stream draining more than 2 mi^2 at the landfill site in urban areas are approved by the Department.
NR.10.9.IA. Department approval is necessary for construction, use, and maintenance of buildings and for placement of fill in specific	Verify that in urban areas construction, use, and maintenance of buildings in the floodway or flood plain of any stream draining more than 2 mi^2 at the location of the structure is approved by the Department as follows: - construction of any new building (new construction includes replacement or

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: April 2000
thresholds (IAC 567-71.7).	relocation of an existing building and placement and grading of fill materials in a manner that creates an elevated building site) - any addition which increases the original floor area of a building by 25 percent or more, and all additions constructed after 4 July 1965 are added to any proposed addition in determining whether the total increase in original floor space exceeds 25 percent - lowering a floor of a building (NOTE: Approval is not required for elevating an existing building. However, when a building is elevated the lowest floor must be elevated to the appropriate minimum protection level.) - reconstruction of any portion of a building if the cost of reconstruction exceeds 50 percent of the market value of the existing building or if reconstruction increases the market value by more than 50 percent. (NOTE: These thresholds must be met in order for the Department to grant approval to buildings and associated fill in rural areas within 2 mi. of municipal corporate limits. Department approval must be granted in rural areas not within 2 mi. of municipal corporate limits, with the exception that approval is required only when the drainage area at the location of the building or associated fill is over 10 mi^2.) Verify that new construction, additions, lowering, or reconstruction and associated fill as described in the first verify statement above in buildings and associated fill are approved by the Department, without regard to the drainage area if the proximity of the building to a dam regulated by the Department is as follows: - adjacent to an impoundment if the lowest floor level including any basement is lower than the top of the dam - downstream form a dam at any location where flooding can be reasonably anticipated from principal or emergency spillway discharges. (NOTE: If the dam does not substantially comply with high hazard criteria, approval is required for a building and associated fill at any location where flooding can be reasonably anticipated from overtopping and failure of the dam.)
NR.10.10.IA. Department approval is necessary for the construction, operation, and maintenance of pipeline crossings under certain circumstances (IAC 567-71.8).	(NOTE: Department approval is not required for the construction, operation, and maintenance of buried pipeline crossings if the natural contours of the channel and flood plain are maintained.) Verify that the construction, operation, and maintenance of all other pipeline is approved by the Department in the following instances: - in rural areas, pipeline crossings on any river or stream draining over 100 mi^2 - in urban areas, pipeline crossings on any river or stream draining more than 2 mi^2.

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NR.10.11.IA. Department approval is necessary in certain instances for the construction, operation, and maintenance of stream bank protective devices (IAC 567-71.9).	(NOTE: Stream bank protective devices include wing dikes, jetties, et cetera.) Verify that, in rural areas, the construction, operation, and maintenance of stream bank protective devices is approved by the Department in the following instances: - all stream bank protective devices along any river or stream draining more than 100 mi^2 - stream bank protective devices along any river or stream draining between 10 and 100 mi^2 where the cross-sectional area of the river or stream channel is reduced more than 3 percent. Verify that, in urban areas, the construction, operation, and maintenance of stream bank protective devices is approved by the Department in the following instances: - stream bank protective devices along any river or stream draining over 100 mi^2 - stream bank protective devices along any river or stream draining between 2 and 100 mi^2 where the cross-sectional area of the river or stream channel is reduced more than 3 percent.
NR.10.12.IA. Department approval is required for all boat docks located in any stream other than a lake and do not float on the water's surface (IAC 567-71.10).	Verify that all boat docks that are located in any stream other than a lake and which do not float on the surface of the water are approved by the Department. (NOTE: Recreational nonfloating type boat docks located on the Mississippi and Missouri rivers, and the conservation pools of the Coralville, Rathbun, Red Rock, and Saylorville reservoirs do not require Departmental approval, other than a permit obtained from the Parks, Recreation, and Preserves Division of the Department.)
NR.10.13.IA. Department approval for excavations is necessary under certain circumstances (IAC 567-71.11).	Verify that excavations in rural areas are approved by the Department in the following instances: - excavation in the channel on any river or stream draining more than 10 mi^2 where said excavation increases the cross sectional area of said channel below bankfull stage by more than 10 percent - excavation on any flood plain of any river or stream draining more than 10 mi^2 where said excavation is within 100 ft of the normal stream or river bank. (NOTE: The cross sectional area of the channel is determined based on the current engineering plans, or the original engineering plans, if performed by a drainage district. If an original plan is not available, the current engineering plan must be used to determine the original cross sectional area of the channel. The drainage district must submit a copy of the engineering plan for increasing the cross sectional area of the channel to the Department prior to approval by the board of

COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Iowa Supplement	
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	supervisors or trustees regardless of the size of the increase.) (NOTE: Excavation in relation to highway projects are exempt except as otherwise provided for in NR.10.3.IA.) (NOTE: Excavation for the repair and maintenance of a drainage district ditch is not considered an excavation within the intent of this rule if the drainage area of the ditch at the location of the proposed work is less than 100 mi^2.) Verify that excavations on the floodway of any stream draining more than 2 mi^2 in urban areas are approved by the Department.
NR.10.14.IA. Department approval is necessary for the construction, operation, and maintenance of miscellaneous structures, obstructions, or deposits in specific instances (IAC 567-71.12).	Verify that any miscellaneous structures, obstructions, or deposits on the floodway or flood plain of any stream draining more than 10 mi^2 in rural areas where such works obstruct more than 3 percent of the cross sectional area of the stream channel at bankfull stage or where such works obstruct more than 15 percent of the total cross sectional area of the flood plain at any stage are approved by the Department. (NOTE: In determining a 15 percent obstruction of the flood plain, the concept of equal and opposite conveyance applies.) Verify that, in urban areas, miscellaneous structures, obstructions, or deposits on the floodway or flood plains of any river or stream draining over 2 mi^2 are approved by the Department.

COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
NR.20. WILDLIFE	
NR.20.1.IA. State-listed endangered and threatened species may be collected only under specific conditions (IAC 571-77.4).	Verify that species of plant, fish, or wildlife protected by the state (see Appendices 5-1 and 5-2) are not collected, held, salvaged, or possessed without a scientific collecting permit or education project permit. Verity that the habitat of state-protected species is protected. (NOTE: Persons may buy or offer to buy a part or product of a species of fish or wildlife appearing on the state or Federal lists as long as it is imported from a legal source outside the state and required documentation is provided.)

Appendix 5-1

Endangered, Threatened, and Special Concern Animal Species of Iowa
(Source: IAC 571-77.2)

Common Name	Scientific Name
Endangered Mammals	
Indiana Bat*	*Myotis sodalis*
Plains Pocket Mouse	*Perognathus flavescens*
Red-backed Vole	*Clethrionomys gapperi*
Bobcat	*Felis rufus*
Endangered Birds	
Red-shouldered Hawk	*Buteo lineatus*
Northern Harrier	*Circus cyaneus*
Peregrine Falcon*	*Falco peregrinus*
Piping Plover**	*Charadrius melodus*
Common Barn Owl	*Tyto alba*
Least Tern*	*Sterna antillarum*
Bald Eagle*	*Haliaeetus leucocephalus*
King Rail	*Rallus elegans*
Short-eared Owl	*Asio flammeus*
Endangered Fish	
Lake Sturgeon	*Acipenser fulvescens*
Pallid Sturgeon*	*Scaphirhynchus albus*
Pugnose Shiner	*Notropis anogenus*
Weed Shiner	*Notropis texanus*
Pearl Dace	*Semotilus margarita*
Freckled Madtom	*Noturus nocturnus*
Bluntnose Darter	*Etheostoma chlorosomum*
Least Darter	*Etheostoma microperca*
Endangered Reptiles	
Yellow Mud Turtle	*Kinosternon flavescens*
Wood Turtle	*Clemmys insculpta*
Great Plains Skink	*Eumeces obsoletus*
Slender Grass Lizard	*Ophisaurus attenuatus*
Yellowbelly Water Snake	*Nerodia erythrogaster*
Western Hognose Snake	*Heterodon nasicus*
Speckled Kingsnake	*Lampropeltis getulus*
Copperhead	*Agkistrodon contortrix*
Prairie Rattlesnake	*Crotalus viridis*
Massasauga Rattlesnake	*Sistrurus catenatus*
Endangered Amphibians	
Blue-Spotted Salamander	*Ambystoma laterale*
Mudpuppy	*Necturus maculosus*
Crawfish Frog	*Rana areolata*
Endangered Butterflies	
Dakota Skipper	*Hesperia dacotae*

Common Name	Scientific Name
Ringlet	*Coenonympha tullia*
Endangered Land Snails	
Iowa Pleistocene Snail*	*Discus macclintocki*
Minnesota Pleistocene Ambersnail	*Novisuccinea new species A*
Iowa Pleistocene Ambersnail	*Novisuccinea new species B*
Frigid Ambersnail	*Catinella gelida*
Briarton Pleistocene Vertigo	*Vertigo briarensis*
Bluff Vertigo	*Vertigo meramecensis*
Iowa Pleistocene Vertigo	*Vertigo new species*
Endangered Fresh Water Mussels	
Spectacle Case	*Cumberlandia monodonta*
Slippershell	*Alasmidonta viridis*
Buckhorn	*Tritogonia verrucosa*
Ozark Pigtoe	*Fusconaia ozarkensis*
Bullhead	*Plethobasus cyphyus*
Ohio River Pigtoe	*Pleurobema sintoxia*
Slough Sandshell	*Lampsilis teres teres*
Yellow Sandshell	*Lampsilis teres anodontoides*
Higgin's-Eye Pearly Mussel*	*Lampsilis higginsi*
Threatened Mammals	
Least Shrew	*Cryptotis parva*
Grasshopper Mouse	*Onychomys leucogaster*
Spotted Skunk	*Spilogale putorius*
River Otter	*Lutra canadensis*
Threatened Birds	
Long-Eared Owl	*Asio otus*
Henslow's Sparrow	*Ammodramus henslowii*
Threatened Fish	
Chestnut Lamprey	*Ichthyomyzon castaneus*
American Brook Lamprey	*Lampetra appendix*
Grass Pickerel	*Esox americanus*
Blacknose Shiner	*Notropis heterolepis*
Western Sand Darter	*Ammocrypta clara*
Black Redhorse	*Moxostoma duquesnei*
Burbot	*Lota lota*
Orangethroat Darter	*Etheostoma spectabile*
Threatened Reptiles	
Stinkpot	*Sternotherus odoratus*
Ornate Box Turtle	*Terrapene ornata*
Diamondback Water Snake	*Nerodia rhombifera*
Western Worm Snake	*Carphophis amoneus*
Smooth Green Snake	*Opheodrys vernalis*
Threatened Amphibians	
Central Newt	*Notophthalmus viridescens*
Threatened Butterflies	
Powesheik Skipperling	*Oarisma powesheik*
Byssus Skipper	*Problema byssus*
Mulberry Wing	*Poanes massasoit*

Common Name	Scientific Name
Silvery Blue	*Glaucopsyche lygdamus*
Baltimore	*Euphydryas phaeton*
Threatened Snails	
Midwest Pleistocene Vertigo	*Vertigo hubrichti*
Occult Vertigo	*Vertigo occulta*
Threatened Fresh Water Mussels	
Cylinder	*Anodontoides ferussacianus*
Strange Floater	*Strophitus undulatus*
Creek Heelsplitter	*Lasmigona compressa*
Purple Pimpleback	*Cyclonaias tuberculata*
Butterfly	*Ellipsaria lineolata*
Ellipse	*Venustaconcha ellipsiformis*
Mammals of Special Concern	
Southern Bog Lemming	*Synaptomys cooperi*
Birds of Special Concern	
Forester's Tern	*Sterna forsteri*
Black Tern	*Chlidonias niger*
Fish of Special Concern	
Pugnose Minnow	*Notropis emiliae*
Pirate Perch	*Aphredoderus sayanus*
Butterflies of Special Concern	
Dreamy Duskywing	*Erynnis icelus*
Sleepy Duskywing	*Erynnis brizo*
Columbine Duskywing	*Erynnis lucilius*
Wild Indigo Duskywing	*Erynnis baptisiae*
Ottoe Skipper	*Hesperia ottoe*
Leonardus Skipper	*Hesperia l. leonardus*
Pawnee Skipper	*Hesperia leonardus pawnee*
Beardgrass Skipper	*Atrytone arogos*
Zabulon Skipper	*Poanes zabulon*
Broad-Winged Skipper	*Poanes viator*
Sedge Skipper	*Euphyes dion*
Two-Spotted Skipper	*Euphyes bimacula*
Dusted Skipper	*Atrytonopsis hianna*
Salt-and-Pepper Skipper	*Amblyscirtes hegon*
Pipevine Swallowtail	*Battus philenor*
Zebra Swallowtail	*Eurytides marcellus*
Olympia White	*Euchloe olympia*
Purplish Copper	*Lycaena helloides*
Acadian Hairstreak	*Satyrium acadicum*
Edward's Hairstreak	*Satyrium edwardsii*
Hickory Hairstreak	*Satyrium caryaevorum*
Striped Hairstreak	*Satyrium liparops*
Swamp Metalmark	*Calephelis mutica*
Regal Fritillary	*Speyeria idalia*
Baltimore	*Euphydryas phaeton ozarkae*

*Qualifier denoting a species on the Federal endangered species list.
**Qualifier denoting a species on the Federal threatened species list.

Appendix 5-2

Endangered, Threatened, and Special Concern Plants of Iowa
(Source: IAC 571-77.3)

Common Name	Scientific Name
ENDANGERED PLANT SPECIES	
Pale False Foxglove	*Agalinus skinneriana*
Blue Giant-Hyssop	*Agastache foeniculum*
Bearberry	*Arctostaphylos uva-ursi*
Black Chokeberry	*Aronia melanocarpa*
Eared Milkweed	*Asclepias engelmanniana*
Mead's Milkweed**	*Asclepias meadii*
Narrow-Leaved Milkweed	*Asclepias stenophylla*
Ricebutton Aster	*Aster dumosus*
Large-Leaved Aster	*Aster macrophyllus*
Schreber's Aster	*Aster schreberi*
Fern-Leaved False Foxglove	*Aureolaria pedicularia*
Matricary Grape Fern	*Botrychium matricariifolium*
Poppy Mallow	*Callirhoe triangulata*
Cordroot Sedge	*Carex chordorrhiza*
Large-Bracted Corydalis	*Corydalis curvisiliqua*
Silky Prairie-Clover	*Dalea villosa*
Swamp-Loosestrife	*Decodon verticillatus*
Northern Panic-Grass	*Dichanthelium boreale*
Roundleaved Sundew	*Drosera rotundifolia*
False Mermaid	*Floerkea proserpinacoides*
Bog Bedstraw	*Galium labradoricum*
Povertygrass	*Hudsonia tomentosa*
Northern St. Johnswort	*Hypericum boreale*
Pineweed	*Hypericum gentianoides*
Winterberry	*Ilex verticillata*
Black-Based Quillwort	*Isoetes melanopoda*
Water-Willow	*Justicia americana*
Dwarf Dandelion	*Krigia virginica*
Cleft Conobea	*Leucospora multifida*
Whiskbroom Parsley	*Lomatium foeniculaceum*
Running Clubmoss	*Lycopodium clavatum*
Bog Clubmoss	*Lycopodium inundatum*
Annual Skeletonweed	*Lygodesmia rostrata*
Water Marigold	*Megalodonta beckii*
Northern Lungwort	*Mertensia paniculata*
Bigroot Pricklypear	*Opuntia macrorhiza*
Clustered Broomrape	*Orobanche fasciculata*
Ricegrass	*Oryzopsis pungens*
Cinnamon Fern	*Osmunda cinnamomea*
Purple Cliffbrake	*Pellaea atropurpurea*
Arrow Arum	*Peltandra virginica*
Pale Green Orchid	*Platanthera flava*
Eastern Prairie Fringed	*Platanthera leucophaea*

Common Name	Scientific Name
Orchid**	
Clammyweed	*Polansia jamesii*
Crossleaf Milkwort	*Polygala cruciata*
Purple Milkwort	*Polygala polygama*
Jointweed	*Polygonella articulata*
Douglas' Knotweed	*Polygonum douglasii*
Three-Toothed Cinquefoil	*Potentilla tridentata*
Canada Plum	*Prunus nigra*
Frenchgrass	*Psoralea onobrychis*
Pink Shinleaf	*Pyrola asarifolia*
Prickly Rose	*Rosa acicularis*
Meadow Spikemoss	*Selaginella eclipes*
Rough-Leaved Goldenrod	*Solidago patula*
Bog Goldenrod	*Solidago uliginosa*
Yellow-Lipped Ladies-Tresses	*Spiranthes lucida*
Pickering Morning-Glory	*Stylisma pickeringii*
Rough-Seeded Fameflower	*Talinum rugospermum*
Waxy Meadowrue	*Thalictrum revolutum*
Long Beechfern	*Thelypteris phegopteris*
Large-Leaved Violet	*Viola incognita*
Rusty Woodsia	*Woodsia ilvensis*
Yellow-Eyed Grass	*Hypericum gentianoides*
THREATENED PLANT SPECIES	
Northern Wild Monkshood**	*Aconitum noveboracense*
Round-Stemmed False Foxglove	*Agalinus gattingerii*
Nodding Wild Onion	*Allium cernuum*
Fragrant False Indigo	*Amorpha nana*
Virginia Snakeroot	*Aristolochia serpentaria*
Woolly Milkweed	*Asclepias lanuginosa*
Showy Milkweed	*Asclepias speciosa*
Forked Aster	*Aster furcatus*
Rush Aster	*Aster junciformis*
Flax-Leaved Aster	*Aster linariifolius*
Water Parsnip	*Berula erecta*
Kittentails	*Besseya bullii*
Bog Birch	*Betula pumila*
Pagoda Plant	*Blephilia ciliata*
Leathery Grapefern	*Botrychium multifidum*
Little Grapefern	*Botrychium simplex*
Sweet Indian-Plantain	*Cacalia suaveolens*
Poppy Mallow	*Callirhoe alcaeoides*
Pipsissewa	*Chimaphila umbellata*
Golden Saxifrage	*Chrysosplenium iowense*
Dayflower	*Commelina erecta*
Spotted Coralroot	*Corallorhiza maculata*
Bunchberry	*Cornus canadensis*
Golden Corydalis	*Corydalis aurea*
Pink Corydalis	*Corydalis sempervirens*

Common Name	Scientific Name
Showy Lady's-Slipper	*Cypripedium reginae*
Slim-Leaved Panic-Grass	*Dichanthelium linearifolium*
Jeweled Shooting Star	*Dodecatheon amethystinum*
Glandular Wood Fern	*Dryopteris intermedia*
Marginal Shield Fern	*Dryopteris marginalis*
Woodland Horsetail	*Equisetum sylvaticum*
Slender Cottongrass	*Eriophorum gracile*
Yellow Trout Lily	*Erythronium americanum*
Queen of the Prairie	*Filipendula rubra*
Blue Ash	*Fraxinus quadrangulata*
Black Huckleberry	*Gaylussacia baccata*
Oak Fern	*Gymnocarpium dryopteris*
Green Violet	*Hybanthus concolor*
Twinleaf	*Jeffersonia diphylla*
Creeping Juniper	*Juniperus horizontalis*
Intermediate Pinweed	*Lechea intermedia*
Hairy Pinweed	*Lechea villosa*
Prairie Bush Clover**	*Lespedeza leptostachya*
Twinflower	*Linnaea borealis*
Western Parsley	*Lomatium orientale*
Wild Lupine	*Luminus perennis*
Tree Clubmoss	*Lycopodium dendroideum*
Rock Clubmoss	*Lycopodium porophilum*
Hairy Waterclover	*Marsilea vestita*
Bog Buckbean	*Menyanthes trifoliata*
Winged Monkeyflower	*Mimulus alatus*
Yellow Monkeyflower	*Mimulus glabratus*
Partridge Berry	*Mitchella repens*
Pinesap	*Monotropa hypopithys*
Small Sundrops	*Oenothera perennis*
Little Pricklypear	*Opuntia fragilis*
Royal Fern	*Osmunda regalis*
Philadelphia Panic-Grass	*Panicum philadelphicum*
Slender Beardtongue	*Penstemon gracilis*
Hooker's Orchid	*Platanthera hookeri*
Northern Bog Orchid	*Platanthera hyperborea*
Western Prairie Fringed Orchid**	*Platanthera psycodes*
Purple Fringed Orchid	*Platanthera psycodes*
Pink Milkwort	*Polygala incarnata*
Silverweed	*Potentilla anserina*
Shrubby Cinquefoil	*Potentilla fruitcosa*
Pennsylvania Cinquefoil	*Potentilla pensylvanica*
One-Sided Shinleaf	*Pyrola secunda*
Meadow Beauty	*Rhexia virginica*
Beaked Rush	*Rhynchospora capillacea*
Northern Currant	*Ribes hudsonianum*
Shining Willow	*Salix lucida*

Common Name	Scientific Name
Bog Willow	*Salix pedicellaris*
Low Nutrush	*Scleria verticillata*
Buffaloberry	*Sheperdia argentea*
Scarlet Globemallow	*Sphaeralcea coccinea*
Slender Ladies-Tresses	*Spiranthes lacera*
Oval Ladies-Tresses	*Spiranthes ovalis*
Hooded Ladies-Tresses	*Spiranthes romanzoffiana*
Spring Ladies-Tresses	*Spiranthes vernalis*
Rosy Twisted-Stalk	*Streptopus roseus*
Fameflower	*Talinum parviflorum*
Large Arrowgrass	*Triglochin maritimum*
Small Arrowgrass	*Triglochin palustre*
Low Sweet Blueberry	*Vaccinium angustifolium*
Velvetleaf Blueberry	*Vaccinium myritilloides*
False Hellebore	*Vaccinium myritilloides*
Kidney-Leaved Violet	*Viola renifolia*
Oregon Woodsia	*Woodsia oregana*
SPECIAL CONCERN PLANT SPECIES	
Balsam Fir	*Abies balsamea*
Three-seeded Mercury	*Acalypha gracilens*
Three-seeded Mercury	*Acalypha ostryifolia*
Mountain Maple	*Acer spicatum*
Moschatel	*Adoxa moschatellina*
Water Plantain	*Alisma gramineum*
Wild Onion	*Allium mutabile*
Amaranth	*Amaranthus arenicola*
Lanceleaf Ragweed	*Ambrosia bidentata*
Saskatoon Serviceberry	*Amelanchier alnifolia*
Low Serviceberry	*Amelanchier sanguinea*
Raccoon Grape	*Ampelopsis cordata*
Pearly Everlasting	*Anaphalis margaritacea*
Sand Bluestem	*Andropogon hallii*
Broomsedge	*Andropogon virginicus*
Purple Angelica	*Angelica atropurpurea*
Purple Rockcress	*Arabis divaricarpa*
Green Rockcress	*Arabis missouriensis*
Lakecress	*Armoracia lacustris*
Fringed Sagewort	*Artemisia frigida*
Common Mugwort	*Artemisia vulgaris*
Pawpaw	*Asimina triloba*
Curved Aster	*Aster falcatus*
Hairy Aster	*Aster pubentior*
Prairie Aster	*Aster turbinellus*
Standing Milkvetch	*Astragalus adsurgens*
Bent Milkvetch	*Astragalus distortus*
Missouri Milkvetch	*Astragalus missouriensis*
Blue Wild Indigo	*Baptisia australis*
Yellow Wild Indigo	*Baptisia tinctoria*

Common Name	Scientific Name
Prairie Moonwort	*Botrychium campestre*
Watershield	*Brasenia schreberi*
Buffalograss	*Buchloe dactyloides*
Poppy Mallow	*Callirhoe papaver*
Water-Starwort	*Callitriche heterophylla*
Grass Pink	*Calopogon tuberosus*
Low Bindweed	*Calystegia spithamaea*
Clustered Sedge	*Carex aggregata*
Back's Sedge	*Carex backii*
Bush's Sedge	*Carex bushii*
Carey's Sedge	*Carex careyana*
Flowerhead Sedge	*Carex cephalantha*
Field Sedge	*Carex conoidea*
Crawe's Sedge	*Carex crawei*
Fringed Sedge	*Carex crinita*
Double Sedge	*Carex diandra*
Douglas' Sedge	*Carex douglasii*
Dry Sedge	*Carex foena*
Thin Sedge	*Carex gracilescens*
Delicate Sedge	*Carex leptalea*
Mud Sedge	*Carex limosa*
Hoplike Sedge	*Carex lupuliformis*
Yellow Sedge	*Cares lurida*
Intermediate Sedge	*Carex media*
Backward Sedge	*Carex retroflexa*
Richardson's Sedge	*Carex richardsonii*
Rocky Mountain Sedge	*Carex saximontana*
Sterile Sedge	*Carex sterilis*
Soft Sedge	*Carex tenera*
Deep Green Sedge	*Carex tonsa*
Tuckerman's Sedge	*Carex tuckermanii*
Umbrella Sedge	*Carex umbellata*
Wild Oats	*Chasmanthium latifolium*
Pink Turtlehead	*Chelone obliqua*
Fogg's Goosefoot	*Chenopodium foggii*
Missouri Goosefoot	*Chenopodium missouriensis*
Coast Blite	*Chenopodium rubrum*
Bugbane	*Cimicifuga racemosa*
Hill's Thistle	*Cirsium hillii*
Swamp Thistle	*Cirsium muticum*
Wavy-Leaved Thistle	*Cirsium undulatum*
Western Clematis	*Clematis occidentalis*
Blue-Eyed Mary	*Collinsia verna*
Cancer-Root	*Conopholis americana*
Fireberry Hawthorn	*Crataegus chrysocarpa*
Red Hawthorn	*Crataegus coccinea*
Two-Fruited Hawthorn	*Crataegus disperma*
Hawthorn	*Crataegus pruinosa*

Common Name	Scientific Name
Hawksbeard	*Crepis runcinata*
Prairie Tea	*Croton monanthogynus*
Crotonopsis	*Crotonopsis elliptica*
Waxweed	*Cuphea viscosissima*
Dodder	*Cuscuta indecora*
Small White Lady's-Slipper	*Cypripedium candidum*
Carolina Larkspur	*Delphinium carolinianum*
Sessile-Leaved Tick Trefoil	*Desmodium sessilifolium*
Fingergrass	*Digitaria filiformis*
Buttonweed	*Diodia teres*
Purple Coneflower	*Echinacea purpurea*
Waterwort	*Elatine triandra*
Purple Spikerush	*Eleocharis atropurpurea*
Green Spikerush	*Eleocharis olivacea*
Oval Spikerush	*Eleocharis ovata*
Dwarf Spikerush	*Eleocharis parvula*
Few-Flowered Spikerush	*Eleocharis pauciflora*
Wolf's Spikerush	*Eleocharis wolfii*
Interrupted Wildrye	*Elymus interruptus*
Dwarf Scouring Rush	*Equisetum scirpoides*
Ponygrass	*Eragrostis reptans*
Tall Cottongrass	*Eriophorum angustifolium*
Tawny Cottongrass	*Eriophorum virginicum*
Upland Boneset	*Eupatorium sessilifolium*
Spurge	*Euphorbia commutata*
Missouri Spurge	*Euphorbia missurica*
Slender Fimbristylis	*Fimbristylis autumnalis*
Umbrella Grass	*Fuirena simplex*
Rough Bedstraw	*Galium asprellum*
Small Fringed Gentian	*Gentianopsis procera*
Northern Cranesbill	*Geranium bicknellii*
Spring Avens	*Geum vernum*
Early Cudweed	*Gnaphalium purpureum*
Limestone Oak Fern	*Gymnocarpium robertianum*
Bitterweed	*Helenium amarum*
Mud Plantain	*Heteranthera limosa*
Water Stargrass	*Heteranthera reinformis*
Hairy Goldenaster	*Heterotheca villosa*
Common Mare's-Tail	*Hippuris vulgaris*
Canadian St. Johnswort	*Hypericum canadense*
Drummond St. Johnswort	*Hypericum drummondii*
White Morning Glory	*Ipomoea lacunosa*
Sumpweed	*Iva annua*
Alpine Rush	*Juncus alpinus*
Toad Rush	*Juncus bufonius*
Soft Rush	*Juncus effusus*
Green Rush	*Juncus greenii*
Edged Rush	*Juncus marginatus*

Common Name	Scientific Name
Vasey's Rush	*Juncus vaseyi*
Potato Dandelion	*Krigia dandelion*
Pinweed	*Lechea racemulosa*
Duckweed	*Lemna perpusilla*
Creeping Bush Clover	*Lespedeza repens*
Silvery Bladder-Pod	*Lesquerella ludoviciana*
Wild Flax	*Linum medium*
Brook Lobelia	*Lobelia kalmii*
False Loosestrife	*Ludwigia peploides*
Crowfoot Clubmoss	*Lycopodium digitatum*
Adder's-Mouth Orchid	*Malaxis unifolia*
Globe Mallow	*Malvastrum hispidum*
Two-Flowered Melic-Grass	*Melica mutica*
Ten-petaled Blazingstar	*Mentzelia decapetala*
Millet Grass	*Milium effusum*
Rock Sandwort	*Minuartia michauxii*
Naked Mitrewort	*Mitella nuda*
Scratchgrass	*Muhlenbergia asperifolia*
Water Milfoil	*Myriophyllum heterophyllum*
Rough Water Milfoil	*Myriophyllum pinnatum*
Water Milfoil	*Myriophyllum verticillatum*
Glade Mallow	*Napaea dioica*
Showy Evening Primrose	*Oenothera speciosa*
Northern Adder's-Tongue Fern	*Ophioglossum vulgatum*
Louisiana Broomrape	*Orobanche ludoviciana*
Mountain Ricegrass	*Oryzopsis asperifolia*
Gattinger's Panic-Grass	*Panicum gattingeri*
White Beardtongue	*Penstemon albidus*
Cobaea Penstemon	*Penstemon cobaea*
Tube Penstemon	*Penstemon tubiflorus*
Cleft Phlox	*Phlox bifida*
Annual Ground Cherry	*Physalis pubescens*
Heart-Leaved Plantain	*Plantago cordata*
Wood Orchid	*Platanthera clavellata*
Green Fringed Orchid	*Platanthera lacera*
Plains Bluegrass	*Poa arida*
Chapman's Bluegrass	*Poa chapmaniana*
Weak Bluegrass	*Poa lanugida*
Bog Bluegrass	*Poa paludigena*
Meadow Bluegrass	*Poa wolfii*
Hairy Solomon's-Seal	*Polygonatum pubescens*
Large-Leaved Pondweed	*Potamogeton amplifolius*
Ribbonleaf Pondweed	*Potamogeton epihydrus*
White-Stemmed Pondweed	*Potamogeton praelongus*
Spiralled Pondweed	*Potamogeton spirillus*
Tussock Pondweed	*Potamogeton strictifolius*
Vasey's Pondweed	*Potamogeton vaseyi*
Bird's-Eye Primrose	*Primula mistassinica*

Common Name	Scientific Name
Prionopsis	*Prionopsis ciliata*
Mermaid Weed	*Proserpinaca palustris*
Dwarf Cherry	*Prunus besseyi*
Hortulan Plum	*Prunus hortulana*
Sand Cherry	*Prunus pumila*
Lemon Scurfpea	*Psoralea lanceolata*
Crowfoot	*Ranunculus circinatus*
Gmelin's Crowfoot	*Ranunculus gmelinii*
Buckthorn	*Rhamnus alnifolia*
Dwarf Sumac	*Rhus copallina*
Northern Gooseberry	*Ribes hirtellum*
Yellow Cress	*Rorippa sinuata*
Swamp Rose	*Rosa palustris*
Tooth-Cup	*Rotala ramosior*
Dewberry	*Rubus hispidus*
Western Dock	*Rumex occidentalis*
Widgeon Grass	*Ruppia maritima*
Prairie Rose Gentian	*Sabatia campestris*
Sage Willow	*Salix candida*
Sassafras	*Sassafras albidum*
Tumblegrass	*Schedonnardus paniculatus*
Scheuchzeria	*Scheuchzeria palustris*
Sensitive Briar	*Schrankia nuttallii*
Hall's Bulrush	*Scirpus hallii*
Prairie Bulrush	*Scirpus maritimus*
Pedicelled Bulrush	*Scirpus pedicellatus*
Smith's Bulrush	*Scirpus smithii*
Torrey's Bulrush	*Scirpus torreyi*
Veiny Skullcap	*Scutellaria nervosa*
Wild Stonecrop	*Sedum ternatum*
Rock Spikemoss	*Selaginella rupestris*
Butterweed	*Senecio glabellus*
False Golden Ragwort	*Senecio pseudaureus*
Knotweed Bristlegrass	*Setaria geniculata*
Virginia Rockcress	*Sibara virginica*
Prairie Dock	*Silphium terebinthinaceum*
Burreed	*Sparganium androcladum*
Great Plains Ladies-Tresses	*Spiranthes magnicamporum*
Clandestine Dropseed	*Sporobolus clandestinus*
Rough Hedge-Nettle	*Stachys aspera*
Needle-and-Thread	*Stipa comata*
White Coralberry	*Symphoriocarpos albus*
Eared False Foxglove	*Tomanthera auriculata*
Spiderwort	*Tradescantia virginiana*
Humped Bladderwort	*Utricularia gibba*
Flat-Leaved Bladderwort	*Utricularia intermedia*
Small Bladderwort	*Utricularia minor*
Valerian	*Valeriana edulis*

Common Name	Scientific Name
American Brookline	*Veronica americana*
Marsh Speedwell	*Veronica scutellata*
Maple-Leaved Arrowwood	*Viburnum acerifolium*
Black Arrowwood	*Viburnum molle*
Black Haw	*Viburnum prunifolium*
Spurred Violet	*Viola adunca*
Lance-Leaved Violet	*Viola lanceolata*
Macloskey's Violet	*Viola macloskeyi*
Pale Violet	*Viola striata*
Summer Grape	*Vitis aestivalis*
Frost Grape	*Vitis vulpina*

* Qualifier denoting a species on the Federal endangered species list.
** Qualifier denoting a species on the Federal threatened species list.

SECTION 6

OTHER ENVIRONMENTAL ISSUES

Iowa Supplement, April 2000

This section covers the state requirements for Other Environmental Issues and is intended to supplement the U.S. TEAM Guide. Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.

Definitions

- *Director* - the director of the Environmental Protection Division under the Department of Natural Resources.

- *Disposal* - the discharge, deposit, injection, dumping, spilling, leaking, or placing of a hazardous waste or hazardous substance into or on land or water so that the hazardous waste or hazardous substance, or a constituent of the hazardous waste or hazardous substance, may enter the environment or be emitted into the air or discharged into any waters, including groundwater.

- *Hazardous Substance* - a hazardous substance as defined in 42 U.S.C. 9601, and any element, compound, mixture, solution, or substance designated pursuant to 40 CFR 302.4.

- *Hazardous Waste* - a waste or combination of wastes as defined in Iowa Code section 455B.411.

- *Hazardous Waste or Hazardous Substance Disposal Site* - real property which has been used for the disposal of hazardous waste or azides substances either illegally or prior to regulation as a hazardous substance under Iowa Code subsection 455B.411(4) and any adjoining real property and groundwater affected by the disposal activity.

OTHER ENVIRONMENTAL ISSUES
GUIDANCE FOR IOWA CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:
The NEPA Process	
Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.	
NEPA Missing Checklist Items	O1.2.1.IA.
Environmental Noise	
Env Noise Missing Checklist Items	O2.2.1.IA.
State-Specific Requirements	O2.5.1.IA.
IRP	
Refer to the U.S. TEAM Guide and the DOD Component Supplements for additional Federal, DOD, and service-specific requirements.	
IRP Missing Checklist Items	O3.2.1.IA.
IRP	O3.20.1.IA.
Pollution Prevention	
Iowa has a program which requires that consumers be provided information about hazardous household products (see HM.5.IA, the U.S. TEAM Guide, and the DOD Component Supplements for Federal, DOD, and service-specific requirements).	
P2 Missing Checklist Items	O4.2.1.IA.
Program Management	
Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.	

COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
O1.2 NEPA MISSING CHECKLIST ITEMS	
O1.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
O2.2 ENV NOISE MISSING CHECKLIST ITEMS	
O2.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
ENVIRONMENTAL NOISE **O2.5.** **State-Specific Requirements**	
O2.5.1.IA. Motor vehicles must be equipped with mufflers (Iowa Code Annotated, Section 321.436).	Verify that motor vehicles are equipped with mufflers in good working order. Verify that muffler cutouts, bypasses, and other muffler-circumventing devices are not installed or operated on motor vehicles.

COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
O3.2 IRP MISSING CHECKLIST ITEMS	
O3.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
IRP **O3.20.** **State-Specific Requirements**	
O3.20.1. Hazardous waste or hazardous substance disposal sites may require action by the federal facility (IAC 567-148.5).	Determine whether the federal facility has a known or suspected hazardous waste or hazardous substance disposal site. Determine whether the hazardous waste of hazardous substance disposal site has been classified as one of following: - classification a: causing or presenting an imminent danger of causing irreversible or irreparable damage to the public health or the environment - classification b: significant threat to the environment--action required - classification d: site properly closed--requires continued management - classification e: site properly closed, no evidence of present or potential adverse impact--no further action required. Verify that the federal facility meets any requirements imposed by the Director. Verify that written approval is obtained from the Director prior to any substantial change in the use of a listed site or prior to selling, conveying, or transferring the title of a listed site.

COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
O4.2 P2 MISSING CHECKLIST ITEMS **O4.2.1.IA.** Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

SECTION 7

PESTICIDE MANAGEMENT

Iowa Supplement, April 2000

This section covers the state requirements for Pesticide Management and is intended to supplement the U.S. TEAM Guide. Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.

Definitions

- *Active Ingredient* -
  1. in the case of a pesticide other than a plant growth regulator, defoliant or desiccant, an ingredient which will prevent, destroy, repel, or mitigate insects, nematodes, fungi, rodents, weeds, or other pests
  2. in the case of a plant growth regulator, an ingredient which, through physiological action, will accelerate or retard the rate of growth or rate of maturation or otherwise alter the behavior of ornamental or crop plants or the produce thereof
  3. in the case of a defoliant, an ingredient which will cause the leaves or foliage to drop from a plant
  4. in the case of a desiccant, an ingredient which will artificially accelerate the drying of plant tissue (*Pesticide Act* of Iowa 206.2).

- *Adulterated* - applies to any pesticide if its strength or purity falls below the professed standard or quality as expressed on labeling or under which it is sold, or if any substance has been substituted wholly or in part for the article, or if any valuable constituent of the article has been wholly or in part abstracted (*Pesticide Act* of Iowa 206.2).

- *Antidote* - the most practical immediate treatment in case of poisoning, and includes first aid treatment (*Pesticide Act* of Iowa 206.2).

- *Bulk Pesticide* - any registered pesticide which is transported or held in an individual container in undivided quantities of greater than 55 gal liquid measure or 100 lb net dry weight (Iowa Administrative Code (IAC) 21-44.1).

- *Bulk Repackaging* - the transfer of a registered pesticide from one bulk container (containing undivided quantities of greater than 55 gal liquid measure or 100 lb net dry weight) in an unaltered state in preparation for sale or distribution to another person (IAC 21-44.1).

- *Certified Applicator* - any individual who is certified under this chapter as authorized to use any pesticide (*Pesticide Act* of Iowa 206.2).

- *Certified Commercial Applicator* - a pesticide applicator or individual who applies or uses a pesticide or device on any property of another for compensation (*Pesticide Act* of Iowa 206.2).

- *Certified Handler* - a person employed by a licensed commercial applicator, noncommercial applicator, public applicator, or pesticide dealer who handles pesticides in other than unopened containers for the purposes of preparing, mixing, or loading pesticides for application by another person, repackaging bulk pesticides or disposing of pesticide-related wastes from these activities (IAC 21-45.1).

- *Certified Private Applicator* - a certified applicator who uses or supervises the use of any pesticide which is classified for restricted use on property owned or rented by the applicator or the applicator's employer or, if

applied without compensation other than trading of personal services between producers of agricultural commodities, on the property of another person (*Pesticide Act* of Iowa 206.2).

- *Chemigation* - the application of a chemical to land or plants, if the chemical is injected into water used in an irrigation distribution system as provided in rules adopted by the department (*Pesticide Act* of Iowa 206.2).

- *Chemigation Permit* - a permit issued by the Department authorizing a person to apply a chemical to land or plants, if the chemical is injected into water used in an irrigation distribution system as provided in rules adopted by the Department (*Pesticide Act* of Iowa 206A.1).

- *Commercial Applicator* - a person, corporation, or employee of a person or corporation who enters into a contract or an agreement for the sake of monetary payment and agrees to perform a service by applying a pesticide but does not include a farmer trading work with another, a person employed by a farmer not solely as a pesticide applicator who applies pesticide as an incidental part of the person's general duties, or a person who applies pesticide as an incidental part of a custom farming operation (*Pesticide Act* of Iowa 206.2).

- *Defoliant* - any substance or mixture of substances intended for causing the leaves or foliage to drop from the plant with or without causing abscission (IAC 21-45.1).

- *Department* - the Pesticide Bureau of the Iowa Department of Agriculture and Land Stewardship (IAC 21-45.100).

- *Desiccant* - any substance or mixture of substances intended for artificially accelerating the drying of plant tissue (IAC 21-45.1).

- *Device* - any instrument or contrivance intended for trapping, destroying, repelling, or mitigating insects, birds, or rodents or destroying, repelling, or mitigating fungi, nematodes, weeds, or such other pests as may be designated by the secretary, but not including equipment used for the application of pesticides when sold separately therefrom (IAC 21-45.1).

- *Distribute* - to offer for sale, hold for sale, sell, barter, or supply pesticides in this state (IAC 21-45.1).

- *Fungi* - all nonchlorophyll-bearing thallophytes, that is, all nonchlorophyll-bearing plants of a lower order than mosses or liverworts, as for example, rusts, smuts, mildew, molds, yeasts, and bacteria except those on or in living man or other animals (IAC 21-45.1).

- *Fungicide* - any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any fungi (IAC 21-45.1).

- *Hazard* - a probability that a given pesticide will have an adverse effect on man or the environment in a given situation, the relative likelihood of danger or ill effect being dependent on a number of interrelated factors being present at any given time (*Pesticide Act* of Iowa 206.2).

- *Herbicide* - any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any undesirable weed or plant (IAC 21-45.1).

- *Inert Ingredient* - an ingredient which is not an active ingredient (*Pesticide Act* of Iowa 206.2).

- *Ingredient Statement* - is either:
    1. a statement of the name and percentage by weight of each active ingredient, together with the total percentage of the inert ingredients, in the pesticide
    2. when the pesticide contains arsenic in any form, the ingredient statement shall also include percentages of total and water soluble arsenic, each calculated as elemental arsenic (*Pesticide Act* of Iowa 206.2).

- *Injection Location* - a site where a chemical is applied through an irrigation distribution system (*Pesticide Act* of Iowa 206A.7).

- *Insect* - any of the numerous small invertebrate animals generally having the body more or less obviously segmented, for the most part belonging to the class Insecta, comprising six-legged, usually winged forms, as for example, beetles, bugs, bees, flies and to other allied classes of anthropods whose members are wingless and usually have more than six legs, as for example, spiders, mites, ticks, centipedes, and wood lice (IAC 21-45.1).

- *Insecticide* - any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects and related forms which may be present in any environment whatsoever (IAC 21-45.1).

- *Irrigation Distribution System* - a mechanism containing a conduit, including but not limited to a hose or pipe, which connects directly to a source of groundwater or surface water through which water is drawn and applied for purposes of farming (*Pesticide Act* of Iowa 206A.1).

- *Label* - the written, printed, or graphic matter on, or attached to, the pesticide or device, or the immediate container thereof, and the outside container or wrapper of the retail package, if any there be, of the pesticide or device (*Pesticide Act* of Iowa 206.2).

- *Labeling* - all labels and other written, printed, or graphic matter:
    1. upon the pesticide or device or any of its containers or wrappers
    2. accompanying the pesticide or device at any time
    3. to which reference is made on the label or in literature accompanying the pesticide or device (*Pesticide Act* of Iowa 206.2).

- *Misbranded* - applies to:
    1. any pesticide or device if its labeling bears any statement, design, or graphic representation rela tive thereto, or to its ingredients, which is false or misleading in any particular
    2. any pesticide that is an imitation of, or is offered for sale under, the name of another pesticide
    3. any pesticide if its labeling bears any reference to registration under this chapter, when not so registered
    4. any pesticide if the labeling accompanying it does not contain directions for use which are necessary and if complied with adequate for the protection of the public
    5. any pesticide if the label does not contain a warning or caution statement which may be necessary and if complied with adequate to prevent injury to living persons and other vertebrate animals
    6. any pesticide if the label does not bear an ingredient statement on that part of the immediate container and on the outside container or wrapper, if there is to be one, through which the ingredient statement on the container cannot be clearly read, of the retail package which is presented or displayed under customary conditions of purchase
    7. any pesticide if any word, statement, or any other information required by or under authority of this chapter to appear on the label or labeling is not prominently placed thereon with such conspicuousness as compared with other words, statements, designs, or graphic matter in the labeling and in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use
    8. any pesticide if in the case of an insecticide, nematocide, fungicide, or herbicide when used as directed or in accordance with commonly recognized practice it shall be injurious to living persons or other vertebrate animals, or vegetation, except weeds, to which it is applied, or to the persons applying such pesticide
    9. any pesticide if in the case of a plant growth regulator, defoliant, or desiccant when used as directed it shall be injurious to living man or other vertebrate animals, or vegetation to which it is applied, or to the person applying such pesticide; provided, that physical or physiological effects on plants or parts thereof shall not be deemed to be injury, when this is the purpose for which the plant growth regulator, defoliant, or desiccant was applied, in accordance with the label claims and recommendations (*Pesticide Act* of Iowa 206.2).

- *Mobile Containers* - containers designed and used for transporting pesticide materials (IAC 21-44.1).

- *Nematocide* - any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating nematodes or subterranean pests (IAC 21-45.1).

- *Nematode* - invertebrate animals of the phylum nemathelminthes and class nematoda, that is, unsegmented round worms with elongated, fusiform or saclike bodies covered with cuticle and inhabiting soil, water, plants or plant parts; may also be called nemas or eelworms (IAC 21-45.1).

- *Noncommercial Applicator* - any person who applies restricted use pesticides on lands or property owned, rented, or leased by the applicator or the applicator's employer. This definition shall not apply to private applicators using restricted use pesticides in the production of agricultural commodities (IAC 21-45.1).

- *Nonmobile Containers* - all containers not defined as mobile (IAC 21-44.1).

- *Permanent Pesticide Storage and Mixing Site* - site where pesticides are being stored for more than 30 days per year and at which more than 300 gal of liquid pesticide or 300 lb of dry pesticide are being mixed, repackaged, or transferred from one container to another within a 30-day period (IAC 21-44.1).

- *Permit* - a written certificate, issued by the secretary or the secretary's agent under rules adopted by the department authorizing the use of certain state restricted use pesticides (*Pesticide Act* of Iowa 206.2).

- *Person* - any individual, partnership, association, corporation, or organized group of persons whether incorporated or not (*Pesticide Act* of Iowa 206.2).

- *Pesticide* - any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating directly or indirectly any insects, rodents, nematodes, fungi, weeds, and other forms of plant and animal life or viruses, except viruses on or in living persons, which the secretary shall declare to be a pest; and any substances intended for use as a plant growth regulator, defoliant or desiccant (*Pesticide Act* of Iowa 206.2).

- *Pesticide Dealer* - any person who distributes restricted use pesticides; pesticide for use by commercial or public pesticide applicators; or general use pesticides labeled for agricultural or lawn and garden use with the exception of dealers whose gross annual pesticide sales are less than ten thousand dollars for each business location owned or operated by the dealer (*Pesticide Act* of Iowa 206.2).

- *Plant Growth Regulator* - any substance or mixture of substances intended, through physiological action, for accelerating or retarding the rate of growth or rate of maturation, or for otherwise altering the behavior of ornamental or crop plants or the produce thereof, but shall not include substances to the extent that they are intended as plant nutrients, trace elements, nutritional chemicals, plant inoculants, and soil amendments (*Pesticide Act* of Iowa 206.2).

- *Public Applicator* - an individual who applies pesticides as an employee of a state agency, county, municipal corporation, or other governmental agency. This term does not include employees who work only under the direct supervision of a public applicator (*Pesticide Act* of Iowa 206.2).

- *Registrant* - the person registering any pesticide or device or who has obtained a certificate of license from the department pursuant to the provisions of this chapter (*Pesticide Act* of Iowa 206.2).

- *Restricted-Use Pesticide* - any pesticide restricted as to use by rule of the secretary as adopted under section 206.20 (*Pesticide Act* of Iowa 206.2).

- *Rodent* - any animal of the order Rodentia, including but not limited to, rats, mice, rabbits, gophers, prairie dogs, and squirrels (IAC 21-45.1).

- *Rodenticide* - any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating rodents or any other vertebrate animal which the secretary shall designate to be a pest (IAC 21-45.1).

- *Secondary Containment* - any structure used to prevent runoff or leaching of pesticide materials (IAC 21-44.1).

- *State Restricted-Use Pesticide* - a pesticide which is restricted for sale, use, or distribution under section 455B.491 (*Pesticide Act* of Iowa 206.2).

- *Toxic to Humans* - not generally recognized as safe as provided by the United States Food and Drug Administration pursuant to 21 C.F.R. pt. 182 (*Pesticide Act* of Iowa 206.2).

- *Under the Direct Supervision Of* - the act or process whereby the application of a pesticide is made by a competent person acting under the instructions and control of a certified applicator or a state licensed commercial applicator who is available if and when needed, even though such certified applicator is not physically present at the time and place the pesticide is applied (*Pesticide Act* of Iowa 206.2).

- *Unreasonable Adverse Effects on the Environment* - any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide (*Pesticide Act* of Iowa 206.2).

- *Use of a Pesticide Contrary To Its Labeling* - to use any registered pesticide in a manner not permitted by the labeling, provided that the phrase shall not include:
    1. applying a pesticide for agricultural or horticultural purposes only at any dosage, concentration, or frequency less than that specified on the labeling
    2. applying a pesticide for agricultural or horticultural purposes only against any target pest not specified on the labeling if the application is to the crop, animal, or site specified on the labeling unless the labeling specifically states that the pesticide may be used only for the pests specified on the labeling; or
    3. employing any method of application not prohibited by the labeling for agricultural or horticultural purposes only
    4. mixing pesticides or mixing pesticide with a fertilizer when such mixture is not prohibited by the labeling for agricultural or horticultural purposes only (IAC 21-45.1).

- *Weed* - any plant which grows where not wanted (IAC 21-45.1).

PESTICIDE MANAGEMENT GUIDANCE FOR IOWA CHECKLIST USERS	
	REFER TO CHECKLIST ITEMS:
Missing Checklist Items	PM.2.1.IA
Pesticide Applicators	PM.5.1.IA through PM.5.4.IA
Pesticide Application	
General: Labeling	PM.10.1.IA
General: Notification in Urban Areas	PM.10.2.IA
General: Specific Pesticide Application	PM.10.3.IA through PM.10.8.IA
Equipment	PM.15.1.IA
Agriculture	PM.20.1.IA and PM.20.2.IA
Other	PM.35.1.IA and PM.35.2.IA
Documentation	PM.40.1.IA
Storage/Mixing/Handling	PM.45.1.IA through PM.45.3.IA
Transportation	PM.50.1.IA
Disposal	PM.55.1.IA
Bulk Pesticides	PM.60.1.IA through PM.60.2.IA
Specific Requirements for Counties and Local Areas	PM.65.1.IA

PESTICIDE MANAGEMENT GUIDANCE FOR IOWA APPENDIX USERS	
REFER TO APPENDIX NUMBER:	**REFER TO APPENDIX ITEMS:**
7-1	Atrazine Management Areas

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
PM.2 **MISSING CHECKLIST ITEMS**	
PM.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
PM.5. PESTICIDE APPLICATORS	
PM.5.1.IA. Pesticide applicators must meet specific licensing requirements (IAC 21-45.22 (1), (2), (7), (9), and 45.30).	(NOTE: Iowa adopts the Federal restricted use pesticide list in 40 CFR 162.31, as of 1 July 1983. See U. S. TEAM Guide.) Verify that commercial, noncommercial, and public applicators are properly licensed. Verify that the applicator is complying with the conditions of the license. Verify that prior to any application of a restricted-use pesticide, a commercial, noncommercial, or public applicator is certified. Verify that an uncertified applicator applies restricted-use pesticide under the direct supervision of a certified applicator. Verify that certified applicators acting in a supervisory role demonstrate a practical knowledge of Federal and state supervisory requirements. (NOTE: The licensing requirements do not apply to the following individuals: - persons using hand-powered or self-propelled equipment not exceeding seven and one-half horsepower to apply pesticides to lawns, ornamental shrubs, or trees not to exceed 12 ft high, as an incidental part of taking care of household lawns and yards - an employee of a public agency who applies pesticides classified for general use and which are in ready-to-use formulations.)
PM.5.2.IA. Employees of licensed applicators must be certified to perform specific activities (IAC 21-45.22(15)).	Verify that anyone employed by a licensed commercial applicator, licensed noncommercial applicator, or a licensed public applicator to handle pesticides in open containers for the purposes of preparing, mixing, or loading pesticides for application by another person, repackaging bulk pesticides, or disposing of pesticide-related wastes from these activities, is a certified handler . Verify that a certified handler works under the direct supervision of a certified commercial, certified noncommercial, or certified public applicator employed by the same firm or agency.
PM.5.3.IA. Unlicensed persons applying general use pesticides must comply with	Verify that an unlicensed individual applying a general use pesticide has provided the secretary with evidence that the application is under the direct supervision of a licensed commercial or public applicator.

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specific requirements (IAC 21-45.29).	licensed commercial or public applicator.
PM.5.4.IA. Private pesticide applicators must be certified (IAC 21-45.22(3)).	Verify that a private applicator is certified by the Department of Agriculture and Land Stewardship. Verify that the applicator is in compliance with the certification requirements

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
PESTICIDE APPLICATION **PM.10.** **General: Labeling**	
PM.10.1.IA. Pesticide application must be conducted according to labeling requirements (*Pesticide Act* of Iowa 206.11).	Verify that pesticide use is consistent with its labeling.
General: **Notification in Urban Areas**	
PM.10.2.IA. Commercial and public applicators who apply pesticides within urban areas in municipalities must comply with specific notification procedures (IAC 21-45.50).	Verify that a commercial or public applicator who applies pesticides within urban areas posts notification signs at the start of the application and for at least 24 h following the application, or longer if required by the reentry directions on the label. Verify that the material used for the signs, as well as the information conveyed by them, complies with state requirements. Verify that notification signs for an application to a residential lawn: - project at least 12 in. above the top of the grass line or 18 in. to the top of the signs - are posted on a lawn or yard between 2 and 5 ft from the sidewalk or street, or in the case of open backyards, between 2 and 5 ft from the back lot line - if landscaping or other obstructions prevent compliance with the letter of this rule, the sign must be posted in a way that reasonably complies with the rule's intent. Verify that notification signs for an application to a golf course: - are posted in a conspicuous manner near the first tee of any nine hole course - are constructed of a weather-resistant material and a minimum size of 8.5 in. by 11 in. - the signs must read: PESTICIDES ARE PERIODICALLY APPLIED TO THE GOLF COURSE. IF DESIRED, YOU MAY CONTACT YOUR GOLF COURSE SUPERINTENDENT OR PERSON IN CHARGE FOR FURTHER INFORMATION. - the sign must be displayed prior to the application of any pesticide on the

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	golf course and left in place for at least 24 h following any pesticide application. Verify that notification signs for parks, athletic fields, playgrounds, or other similar recreational property are conspicuously posted immediately adjacent to areas within the property where pesticides have been applied, and at or near the entrances to the property where pesticides have been applied. Verify that notification signs for an application to public rights-of-way of highways, roads, streets, alleys, sidewalks, and recreational trails within the corporate limits of municipalities have the following characteristics: - posted in a manner that provides reasonable notice to the occupants of properties immediately adjacent to the area being treated - at least one sign is posted at both the beginning and the end of each residential block - placed in a manner to be readable from the adjacent property - a minimum of two signs are posted to denote the beginning and the end of the area to be treated. (NOTE: The requirements of this rule do not apply to the application of pesticides within a structure or within 6 ft of the outside perimeter of a structure, nor to pesticide applications made by a homeowner or tenant to their property.) (NOTE: In lieu of the requirement for public notification, an federal facility may maintain a registry of persons requesting to receive notification prior to pesticide application and provide notification to those individuals at least 24 h prior to a pesticide application made adjacent to their property.)
General: **Specific Pesticide Applications**	
PM.10.3.IA. Pesticide applicators using thallium must comply with specific requirements (IAC 21-45.23).	Verify that the use of thallium or any thallium compound is limited to an federal facility in its official duties in pest control, to regularly licensed pest control operators for use in their own service work, or in conjunction with research or chemical laboratories in their respective fields.
PM.10.4.IA. Pesticide applicators using dichloro diphenyl trichloroethane or dichloro diphenyl dichloroethane must comply with specific requirements (IAC 21-	Verify that pesticides Verify that the applicator is in compliance with the certification requirements containing dichloro diphenyl trichloroethane or dichloro diphenyl dichloroethane are not used except for control of pests of public health importance and pests subject to state and Federal quarantines.

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45.32).	
PM.10.5.IA. Pesticide applicators using inorganic arsenic must have the approval of the Department (IAC 21-45.33).	Verify that formulations of inorganic arsenic are not used or distributed as a pesticide except as permitted by the Department.
PM.10.6.IA. Pesticide applicators must not use the pesticide heptachlor to prevent, destroy, or repel mosquitoes or flies (IAC 21-45.34).	Verify that a pesticide applicator does not use or distribute heptachlor to prevent, destroy, or repel mosquitoes or flies.
PM.10.7.IA. Pesticide applicators using lindane must comply with specific requirements (IAC 21-45.35).	Verify that formulations of pesticides containing lindane or crystalline lindane are not used or distributed when the lindane is to be vaporized through the use of thermal vaporizing devices.
PM.10.8.IA. Pesticide applicators using any pesticide containing the active ingredient atrazine must comply with specific requirements (IAC 21-45.51).	Verify that all pesticides containing the active ingredient atrazine, or any combination of active ingredients including atrazine, are used by certified applicators only. Verify that the application rate for the actual active ingredient atrazine is limited to 3 lb or less actual active ingredient per acre per calendar year. Verify that pesticides or any other substance with the active ingredient atrazine are not applied within 50 ft of a sinkhole, well, cistern, lake, water impoundment, or other similar areas. Verify that pesticides, or any other substance containing the active ingredient atrazine, are not mixed, loaded, or repackaged within 100 ft of any well, cistern, sinkhole, streambed, lake, water impoundment, or other similar areas. Verify that atrazine mixing, loading, and equipment cleanout is carried out in a manner that meets the secondary containment requirements, or in the field of application, provided all other restrictions are followed regarding the application of atrazine, or rinsates containing atrazine, to labeled use areas. Verify that equipment and container wash waters are applied to labeled use areas,

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000** or used as part of dilution makeup water and applied to labeled use areas, in accordance with the label instructions or any other restrictions that might apply. (NOTE: Persons conducting research with atrazine are exempt from the use limitations described in this rule provided that such research is under the supervision of a federal or state agency or educational institution authorized to conduct research and properly certified.)

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REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
PESTICIDE APPLICATION **PM.15. Equipment**	
PM.15.1.IA. Federal facilities that wash pesticide handling equipment at a permanent pesticide mixing and storage site (see Definitions) must comply with specific requirements (IAC 21-44.10(2), (4), (5)).	Verify that any washing of pesticide handling equipment is conducted within an area which drains to a watertight containment structure. Verify that any drainage into a containment structure is monitored and properly managed. Verify that any rinsates and minor spillages which have accumulated in the secondary containment structure are disposed of as provided by the product's original labeling. Verify that the federal facility is equipped with adequate personal protective equipment as required by each label of each pesticide handled, and as needed for the number of employees handling these pesticides.

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REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
PESTICIDE APPLICATION **PM.20. Agriculture**	
PM.20.1.IA. Chemigation must be permitted and meet specific requirements (*Pesticide Act* of Iowa 206A.2, 206A.5 - 206A.8).	Verify that a chemigation permit has been issued to the titleholder or the person responsible for day-to-day management of any land subject to chemigation. Verify that the conditions of the chemigation permit are complied with. Verify that a chemigation applicator is properly certified and complying with certification requirements. Verify that the permit holder has posted a notice warning the public that chemicals are applied in an irrigation distribution system, and that chemicals are being to land by means of chemigation. Verify that this notice names any restricted-use pesticide applied in the irrigation distribution system. Verify that either a permit holder or a certified applicator promptly reports a suspected case of contamination related to the use of chemigation on land serviced by an irrigation distribution system. (NOTE: The permit and licensing requirements of this regulation do not apply to a titleholder of land enclosed within a facility serviced by an irrigation distribution system, a person responsible for the day-to-day management of the facility, or an applicator within the facility.)
PM.20.2.IA. Pesticide application using the pesticide Command 6EC must comply with specific requirements (IAC 21-45.46).	Verify that the pesticide Command 6EC herbicide USEPA registration number 279-3054, or any identically formulated compound, is soil incorporated immediately following application. (NOTE: The method of application must be limited to ground equipment.)

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REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
PESTICIDE APPLICATION **PM.35.** **Other**	
PM.35.1.IA. Applicators of rodenticides must comply with specific requirements (IAC 21-45.20)	Verify that before an applicator uses the rodenticides sodium fluoracetate (1080), thallium sulfate, or phosphorous pastes, the applicator notifies the Department of the following: - the location or site where the rodenticide is to be used - date the application is to be made - the amount of hazardous rodenticide to be used.
PM.35.2.IA. Aquatic pesticide applicators must comply with specific requirements (IAC 567-66.1).	Verify that only applicators holding a Category 5 permit (i.e. aquatic pest control certification permit) apply aquatic pesticides to any water designated as Class A, Class C, high quality, or high quality resource.

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
PESTICIDE APPLICATION **PM.40. Documentation**	
PM.40.1.IA. All commercial and certified-commercial applicators must comply with record keeping requirements (IAC 21-45.26).	Verify that commercial and certified-commercial applicators maintain pesticide application records for a period of 3 yr from the date of application which include the following: - the name and license number of the licensee - the name and address of the landowner or customer - address of the place of application of restricted use pesticide - date of pesticide application - trade name of pesticide product used - the quantity of pesticide product used and the concentration or rate of application - if applicable, the temperature and the direction and estimated velocity of wind at time of application to any outdoor area.

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Iowa Supplement	
REGULATORY REQUIRMENTS:	**REVIEWER CHECKS: April 2000**
PM.45. STORAGE/MIXING/ HANDLING	
PM.45.1.IA. Storage, mixing, and repackaging of pesticides must comply with specific requirements (IAC 21-44.2 - 44.4, 44.8, 44.10).	Verify that any mixing, repackaging, and transfer of pesticides at a permanent storage and mixing site is done within a containment area. Verify that the site is paved with asphalt or concrete, that it is elevated above the surrounding area or curbed so as not to receive runoff that would overload the recovery system, and that it slopes to a discharge point that allows materials to flow to a watertight containment structure. Verify that design plans for the construction of any facilities required under these rules are submitted to the Department prior to the start of construction. Verify that upon completion of construction, the federal facility certifies that the construction was completed consistent with the plans submitted for approval. Verify that containers used for pesticide storage and handling are constructed of materials compatible with the pesticide stored and the conditions of storage, and maintained in a manner so as to minimize the possibility of a spill. Verify that liquid pesticides that are spilled, leaked, or otherwise unchecked during the normal operations of storage and mixing sites, are discharged or drain into a watertight catch basin from which discharges are to be promptly recovered. Verify that dry pesticides that are spilled or otherwise unchecked during normal operations of storage and mixing sites are located within an operational containment area that is curbed and watertight to facilitate the recovery of any spilled product. Verify that the Iowa Department of Natural Resources, the county sheriff, or the local police are contacted as soon as possible, but not later than 6 h after the onset or discovery of the spill. (NOTE: The field mixing and transferring of pesticides, including field rinsing of equipment, is exempted from the on-site containment provisions of this chapter. Rinsates must be field applied at rates compatible with pesticide product labeling. No mixing and transferring of pesticides and rinsing equipment may be conducted on public highways, roads, and streets.) Verify that anyone who stores a pesticide or a pesticide container does so in a manner so as not to cause injury to humans, vegetation, crops, livestock, wildlife, pollinating insects, or to pollute any water supply or water way.

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Iowa Supplement	
REGULATORY REQUIRMENTS:	**REVIEWER CHECKS: April 2000**
	Verify that pesticides are mixed and repackaged in a manner that prevents unreasonable adverse effects to humans or the environment. Verify that the federal facility is equipped with adequate personal protective equipment as required by each label of each pesticide handled.
PM.45.2.IA. Storage and mixing of liquid fertilizers and liquid soil conditioners must comply with specific requirements (IAC 21- 44.54, 44.55, 44.57(1)).	Verify that any loading, unloading, and mixing of liquid fertilizer or liquid soil conditioners, unless performed in the field of application, is done within a containment area. Verify that the containment area is paved with asphalt, concrete, or other impervious material, and large enough to prevent spillage onto unprotected areas. Verify that the containment area slopes to a recovery system that allows collected materials to move to a secondary containment structure. Verify that the containment area uses curbs or other means to prevent spilled materials from running out of the containment area. Verify that all liquid fertilizer and soil conditioner storage facilities are located within a secondary containment structure. Verify that the secondary containment structure is constructed in accordance with state requirements. Verify that upon completion of construction, the federal facility certifies that the construction was completed consistent with the plans submitted for approval.
PM.45.3.IA. Storage and mixing of nonliquid fertilizers or nonliquid soil conditioners must comply with specific requirements (IAC 21- 44.54, 44.56, 44.57(2)-(4), (6)).	Verify that any loading or mixing of nonliquid fertilizers or nonliquid soil conditioners at permanent storage sites is done in an area paved with asphalt, concrete, or other impervious materials. Verify that the containment area is constructed, using curbs or other means, to prevent run-on or runoff of storm water generated by a 4-in. rain, and that it contains a recessed catch basin so that contaminated water can be moved to storage tanks or a secondary containment area. Verify that all nonliquid fertilizer and soil conditioner materials are stored within an area which drains into a secondary containment structure. Verify that the secondary containment structure is constructed in accordance with state requirements. Verify that upon completion of construction, the federal facility certifies that the

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Iowa Supplement	
REGULATORY REQUIRMENTS:	**REVIEWER CHECKS: April 2000**
	construction was completed consistent with the plans submitted for approval. Verify that contaminated water or other materials is field applied at normal fertilizer rates or used in a liquid mixing operation. Verify that fertilizers and soil conditioners are handled in a manner that minimizes dust and vapors from movement off of the site. (NOTE: A spill containment structure is not required if loading, unloading, or mixing of a nonliquid fertilizer or nonliquid soil conditioners is done entirely within an enclosed building and no washing operations are conducted within the enclosed area.) (NOTE: Loading/unloading nonliquid fertilizer or nonliquid soil conditioners is exempt from the containment area provisions provided any materials spilled during the loading/unloading operations are promptly cleaned up and fed back into the loading/unloading system.)

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
PM.50. TRANSPORTATION	
PM.50.1.IA. Pesticides shipped or delivered for experimental use must comply with specific requirements (IAC 21-45.18).	Verify that a pesticide shipped to an federal facility for experimental use is delivered under the supervision of a Federal or state agency authorized by law to conduct research.

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
PM.55. **DISPOSAL**	
PM.55.1.IA. Persons who discard pesticides or pesticide containers must comply with specific requirements (*Pesticide Act* of Iowa 206.11, IAC 21-44.10(4)).	Verify that anyone who discards a pesticide or a pesticide container does so in a manner so as not to cause injury to humans, vegetation, crops, livestock, wildlife, pollinating insects, or to pollute any water supply or water way. Verify that any rinsates and minor spillages which have accumulated in the secondary containment structure are disposed of as provided by the product's original labeling.

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
PM.60. BULK PESTICIDES	
PM.60.1.IA. Storage, mixing, handling, or packaging of bulk pesticides must be accomplished within a containment area (IAC 21-44.2, 44.4, 44.7(3)).	Verify that any mixing, repackaging, or transfer of pesticides from one container to another performed at a permanent pesticide storage and mixing site is done within a containment area. Verify that the designated site is paved with asphalt or concrete, that it is elevated above the surrounding area or curbed so as not to receive runoff that would overload the recovery system, and that it slopes to a discharge point that allows materials to flow to a watertight containment structure. Verify that precipitation is not allowed to accumulate in the secondary containment facility. (NOTE: Construction of containment areas must be done in accordance with approved plans and be certified after completion of construction.)
PM.60.2.IA. Federal facilities that handle pesticide storage containers must comply with specific requirements (IAC 21-44.2, 44.7, 44.8, 44.9, 44.10(3)).	Verify that containers used for pesticide storage and handling are constructed of materials compatible with the pesticide stored and the conditions of storage and maintained in a manner so as to minimize the possibility of a spill. Verify that all nonmobile bulk pesticide storage containers are located within a watertight secondary containment facility. Verify that mobile bulk pesticide containers are secured to prevent significant movement during transportation. Verify that the bulk storage containers are anchored, as necessary, to prevent floatation or instability in the event of discharge into the secondary containment facility. Verify that the bulk pesticide storage container bears a registered product label affixed in a prominent location on the container and designed to remain intact and legible through active use of the container. Verify that the bulk pesticide storage containers have locking devices and that all valves are closed and locked when the facility is left unattended. Verify that containers, pipes, and valves are protected against reasonably foreseeable risks of damage by trucks and other moving vehicles. Verify that prior to refilling, bulk pesticide containers are thoroughly cleaned, except when a sealed or dedicated recyclable bulk pesticide container is refilled

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REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
	with the same labeled pesticide product as the preceding product. Verify that liquid pesticides that are spilled, leaked, or otherwise unchecked during the normal operations of storage and mixing sites are discharged or drain into a watertight catch basin from which discharges are to be promptly recovered. Verify that dry pesticides which are spilled or otherwise unchecked during normal operations of storage and mixing sites are located within an operational containment area that is curbed and watertight to facilitate the recovery of any spilled product. Verify that the Iowa Department of Natural Resources, the county sheriff, or the local police are contacted as soon as possible, but not later than 6 h, after the onset or discovery of a spill. Verify that adequate personal protective equipment, as required by each label on each pesticide handled, is available.

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
PM.65. SPECIFIC REQUIREMENTS FOR COUNTIES AND LOCAL AREAS	
PM.65.1.IA. Pesticide applicators using any pesticide containing the active ingredient atrazine must comply with specific requirements (IAC 21-45.51).	Verify that the application of atrazine is limited to no more than 1.5 lb of the actual active ingredient atrazine per acre per calendar year in the following designated areas: - Allamakee, Clayton, Dubuque, Floyd, Humboldt, Jackson, and Winneshiek counties - all areas within the townships of the counties listed in Appendix 7-1.

Appendix 7-1

Atrazine Management Areas
(Source: IAC 21-45.51)

Counties	Townships
Black Hawk	Poyner
Bremer	Douglas, Fredericka, Jackson, Jefferson, Lafayette, Polk, and Washington
Butler	Bennezette, Butler, Coldwater, Dayton, Fremont, and Pittsford
Cerro Gordo	Owen and Portland
Chickasaw	Bradford, Chickasaw, and Deerfield
Clinton	Elk River, and Hampshire
Delaware	Bremen, Colony, Delhi, Elk, Milo, North Fork, Oneida, South Fork, and Union
Fayette	Auburn, Clermont, Dover, Eden, Fairfield, Illyria, Pleasant Valley, Union, Westfield, and Windsor
Howard	Albion, Chester, Forest City, New Oregon, and Vernon Springs
Jones	Castle Grove, Clay, Hale, Lovell, Oxford, Richland, Washington, and Wyoming
Kossuth	Sherman
Linn	Marion
Mitchell	Burr Oak, Cedar, Liberty, Mitchell, Newberg, Osage, Otranto, Rock, Saint Ansgar, Union, and West Lincoln
Pocahontas	Garfield
Worth	Barton and Kensett
Wright	Grant, Lincoln, and Wall Lake

SECTION 8

PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT

Iowa Supplement, April 2000

This section covers the state requirements for POL Management and is intended to supplement the U.S. TEAM Guide. Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.

Definitions

- *Applicator* - any person who conducts a commercial enterprise for the purpose of applying, depositing, or spraying a used or recycled oil onto a roadway or land area for dust suppression or weed control (Iowa Administrative Code (IAC) 567-143.2).

- *Container* -any vessel of 60 gal or less capacity used for storing or transporting liquid (Iowa Administrative Code (IAC) 661-5.314(101)).

- *Contaminated* - waste oil mixed with hazardous waste as defined by the *Resource Conservation and Recovery Act* or with incompatible waste including, but not limited to: antifreeze, solvents, paints, pesticides, or household hazardous materials. Minimal amounts of vehicle fuel are not considered an incompatible waste (IAC 567-119.2).

- *Customer* - any individual who purchases oil or generates waste oil for personal or family purposes, including a farmer or farm household (IAC 567-119.2).

- *Department* - the Department of Natural Resources (IAC 567-119.2).

- *Division* - the Waste Management Authority Division of the Department (IAC 567-119.2).

- *Lubricating Oils* - engine lubricating oils, hydraulic fluids, and gear oils, excluding marine and aviation oils (IAC 567-119.2).

- *Recycled Oil* - oil which is reused, for any purpose, including the purpose for which the oil was originally used. Recycled oil includes oil which is refined, reclaimed, burned, or reprocessed (IAC 567-143.2).

- *Recycling* - the preparation of used oil for reuse as a petroleum product by rerefining, reprocessing, reclaiming, or other means or to use used oil as a substitute for a petroleum product made from new oil, provided that the preparation or use is operationally safe, environmentally sound, and complies with all Federal and state laws (IAC 567-119.2).

- *Retailer* - a person offering for sale or selling a petroleum-based or synthetic oil to the ultimate consumer or user of the product, as an over-the-counter product or whereby the consumer is charged separately for the oil product when coupled with a service (IAC 567-119.2).

- *Secondary Containment Tank* - a tank having an inner and outer wall with an interstitial space (annulus) between and having means for monitoring the interstitial space for a leak in either wall (IAC) 661-5.314(101)).

- *Supplier* - a person who is a broker or agent that collects, supplies, or markets used or recycled oils for the purpose of road oiling, dust suppression, or weed control (IAC 567-143.2).

- *Tank* - any vessel of more than 60 gal capacity used for storing or transporting liquid (IAC) 661-5.314(101)).

- *Used Oil* - oil which has been refined from crude oil, has then been used, and as a result of the use is contaminated by physical or chemical impurities (IAC 567-143.2).

- *Waste Oil* - any petroleum-based or synthetic oil which through its use, storage, or handling has become unsuitable for its original purpose due to the presence of chemical or physical impurities. Waste oil, includes, but is not limited to, the following:
    1. spent lubricating fluids which have been removed from an engine crankcase, transmission, gearbox, or differential or an automobile, bus, truck, vessel, plane, heavy equipment, or machinery powered by an internal combustion engine
    2. spent industrial oils, including compressor, turbine, bearing, hydraulic, metalworking, and electrical oils.

  Waste oil does not include oil which has been contaminated or contains polychlorinated biphenyl of 5 ppm or greater (IAC 567-119.2).

- *Waste Oil Collection Site* - any commercial, municipal, or nonprofit establishment or operation which has a waste oil collection tank on the premises, and accepts waste oil for temporary storage prior to the recycling of that which is collected (IAC 567-119.2).

- *Waste Oil Collector* - any sanitary landfill operator, sanitary disposal project operator, oil retailer, or other individual who operates a waste oil collection site (IAC 567-119.2).

PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT
GUIDANCE FOR IOWA CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:
Missing Checklist Items	PO.2.1.IA
Discharges/Spills	PO.15.1.IA and PO.15.2.IA
POL Storage	
Used Oil	PO.60.1.IA
Used Oil Marketing	PO.85.1.IA through PO.85.4.IA
Dust Suppression With Used Oil	PO.90.1.IA through PO.90.4.IA
State Specific Used Oil Requirements	PO.95.1.IA through PO.95.3.IA
State Specific POL Requirements	

(NOTE: Iowa requires that consumers be provided with information about hazardous household products; several of these hazardous household materials are POL products, including motor oils and motor oil additives, motor oil filters, diesel fuel additivies, degreasers, solvents, paints, lacquers, thinners, spot and stain removers with petroleum base, and petroleumbased fertilizers (see HM.5.IA).)

COMPLIANCE CATEGORY: PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
PO.2 **MISSING CHECKLIST ITEMS**	
PO.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT Iowa Supplement	
REGULATORY REQUIRMENTS:	**REVIEWER CHECKS: April 2000**
PO.15. DISCHARGES/SPILLS	
PO.15.1.IA. Guidelines for reporting discharges/spills should be followed when a hazardous condition occurs (Management Practice).	Verify that the federal facility follows these guidelines for reporting a discharge/spill, if without intervention, the following can occur: - the discharge/spill has the potential to leave the property via overland runoff, or through a drain, tile line, culvert, or other conduit - the discharge/spill has the potential to reach a water or the state, either surface or groundwater - the discharge/spill can be detected in the air at the boundaries of the property by either senses or monitoring - people other than the responsible party's employee can be potentially exposed to the discharge/spill - local officials respond to the incident. Verify that even if the spill need not be reported following the above guidance, it is cleaned up to avoid creating a hazardous condition at a later date.
PO.15.2.IA. Notification procedures must be followed when a discharge/ spill occurs (IAC 455B.386 and 567-131(2) and (3)).	Verify that the Department and the local police department or the office of the sheriff of the affected county are notified of the occurrence of a discharge/spill as soon as possible, but not less than 6 h after the onset of the discharge/spill or discovery of the discharge/spill. Verify that when written notification of a discharge/spill is required, it is submitted to the Department and contains the following information: - the exact location of the discharge/spill - the time and date of onset or discovery of the discharge/spill - the name of the material, the manufacturer's name, and the volume of each material involved in the discharge/spill in addition to contaminants within the material if they by themselves could cause a hazardous condition - the medium (i.e., land, water, or air) in which the discharge/spill occurred or exists - the name, address, and telephone number of the party responsible for the discharge/spill - the time and date of the verbal report to the Department of the discharge/spill - the weather conditions at the time of the discharge/spill onset or discovery - the name, mailing address, and telephone number of the person reporting the discharge/spill - the name and telephone number of the person closest to the scene of the discharge/spill who can be contacted for further information and action - any other information, such as the circumstances leading to the discharge/spill, visible effects, and containment measures taken that may

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REGULATORY REQUIRMENTS:	**REVIEWER CHECKS:** **April 2000**
	assist in proper evaluation by the Department. Verify that all subsequent findings and laboratory results are reported and submitted in writing to the Department as soon as they are available.

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REGULATORY REQUIRMENTS:	**REVIEWER CHECKS: April 2000**
PO.60. USED OIL	
PO.60.1.IA. Crankcase oil must meet drainage and storage requirements (IAC 661-5.214(101)).	Verify that crankcases are drained in buildings that have a means of controlling spills and containing leaks by diking or drainoff. Verify that drained crankcase oil is stored in buildings meeting the following standards: - quantities of excess of 660 gal are stored in approved enclosures of 2-h fire-resistive construction - tanks are vented to the outside - tanks are labeled with the words WASTE OIL - drainage lines terminating inside a building are equipped with a nonremovable type cap.

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REGULATORY REQUIRMENTS:	**REVIEWER CHECKS: April 2000**
PO.85. USED OIL MARKETING	
PO.85.1.IA. Suppliers of used or recycled oils to be used for the purpose of road oiling, dust control, or weed control must provide analysis of the oil (IAC 567-143.3).	Verify that suppliers of used or recycled oils to be used for the purpose of road oiling, dust control, or weed control provide analysis of the oil for polychlorinated biphenyl using the Test Methods for Evaluating Solid Wastes/USEPA Solid Waste 846, mobile lead using the USEPA Multiple Extraction Procedure Method 1330, and flash point using Second Edition July 1982 or equivalent methods.
PO.85.2.IA. Used or recycled oil suppliers must notify the Department and the applicators of the analysis results (IAC 567-143.4(1)).	Verify that used or recycled oil suppliers provide notification of the results of the required tests to the Department and to the applicators.
PO.85.3.IA. Used or recycled oil suppliers must retain copies of required records or reports for a period of at least 3 yr from the due date (IAC 567-143.4(4)).	Verify that used or recycled oil suppliers retain copies of the required records or reports for a period of at least 3 yr from the due date, and that all records are furnished upon request, and made available at all reasonable times for inspection, by any officer, employee, or representative of the Department
PO.85.4.IA. Used or recycled oil suppliers are subject to specific prohibitions (IAC 567-143.5(1)).	Verify that suppliers of used or recycled oil do not engage in the following prohibited activities: - blending or diluting a hazardous waste with a recycled oil to be used by an applicator for road oiling, dust control, or weed control - delivering used or recycled oil that is blended with a hazardous waste to an applicator - delivering used or recycled oil which exceeds the maximum contaminant levels specified in PO.90.4.IA.

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REGULATORY REQUIRMENTS:	**REVIEWER CHECKS: April 2000**
PO.90. DUST SUPPRESSION WITH USED OIL	
PO.90.1.IA. Applicators must notify the Department of the location and amount of oils used for road oiling, dust control, or weed control (IAC 567-143.4(2)).	Verify that applicators of recycled oil notify the Department of the location(s) and amount(s) of oils used for road oiling, dust control, or weed control.
PO.90.2.IA. Applicators must retain copies of the required records or reports at least 3 yr from the due date (IAC 567-143.4(4)).	Verify that recycled oil applicators retain copies of the required records or reports for at least 3 yr from the due date, and that all records are furnished upon request, and made available at all reasonable times for inspection, by any officer, employee, or representative of the Department.
PO.90.3.IA. Applicators are prohibited from applying recycled oil as a road oil, dust suppressant, or weed control agent under specific conditions (IAC 567-143.5(2)).	Verify that applicators do not apply recycled oil as a road oil, dust suppressant, or weed control agent under the following conditions: - the supplier of the oil does not provide notification or submit the required analysis to the applicator - the recycled oil is blended or diluted with a hazardous waste - analysis of a used or recycled oil exceeds the maximum contaminant levels specified in PO.90.4.IA.
PO.90.4.IA. Used or recycled oil used for the purpose of road oiling, dust control, or weed control must comply with maximum contaminant levels (IAC 567-143.6).	Verify that used or recycled oils are not used for road oiling, dust control, or weed control when analysis of the oil indicates that: - polychlorinated biphenyl is present at a level of 5 mg/L or greater - the mobile lead concentration is 5 mg/L or greater - the measured flash point is 140 °F (60 °C) or lower.

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REGULATORY REQUIRMENTS:	**REVIEWER CHECKS: April 2000**
PO.95. STATE-SPECIFIC USED OIL REQUIREMENTS	
PO.95.1.IA. Waste oil may not be accepted for final disposal at any sanitary landfill (IAC 567-119.3(1)).	Verify that waste oil is not accepted for final disposal at any sanitary landfills in the state. (NOTE: Sanitary landfills or sanitary disposal projects may accept waste oil for temporary storage or collection if the ultimate disposition of the oil is for recycling, and if they have obtained all of the necessary permits or permit conditions.)
PO.95.2.IA. Sanitary landfill operators, sanitary disposal project operators, commercial waste oil collectors, oil retailers, or other individuals who collect waste oil must comply with specific collection requirements (IAC 567-119.4(1)).	Verify that sanitary landfill operators, sanitary disposal project operators, commercial waste oil collectors, oil retailers, or other individuals who collect waste oil comply with the following collection requirements: - waste oil is accepted only when contained in closed, unbreakable, reusable (preferably) containers - waste oil collectors provide supervision of the collection process to minimize the risk of spills and to prevent customers from depositing contaminated waste oil into the collection tank. (NOTE: The above regulation does not preclude designating unsupervised drop-off sites for waste oil as long as the following conditions are met: - only sealed containers of 5 gal or less are accepted - the designated drop-off site is wholly or partially sheltered from the elements - customers drop off their containers only at the designated site and are not permitted to deposit their waste oil into a collection tank - the designated site is located on an impermeable surface engineered to contain potential spills - during noncollection hours, the tank is secured to prevent the contamination of the collected waste - a sign is placed on or near the waste oil collection tank, including the information that the tank is for waste oil collection only and that depositing other materials is prohibited - the ultimate disposition of waste oil collected is for recycling and reuse - there is no obligation to accept contaminated oil from the customer - reporting and cleanup requirements when actual or imminent oil spills pose a threat to the public health or the environment.)
PO.95.3.IA. Used oil retailers must comply with specific	Verify that used oil retailers comply with the following waste oil collection requirements:

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REGULATORY REQUIRMENTS:	**REVIEWER CHECKS:** **April 2000**
collection requirements (IAC 567-119.4(2)).	requirements: - a sign is placed at the point of sale informing the customer that it is unlawful to dispose of waste oil at a sanitary landfill, and that customers should return their waste oil to waste oil collection sites for recycling and reuse - retailers choosing to collect waste oil accept waste oil generated by residential households or farmers, but are not required to collect oil generated by commercial or municipal establishments - waste oil is accepted only during normal business hours. Verify that retailers who choose not to collect waste oil post a durable, legible sign at least 8.5 by 11 in. in size containing the following information: - the words RECYCLE USED OIL in bold lettering - a list of the benefits from recycling waste oil including, but not limited to, CONSERVES ENERGY, REUSES LIMITED RESOURCES, AND PROTECTS IOWA'S DRINKING WATER - at least 2 in. in length, the USEPA's oil recycling symbol - the words USED OIL IS A HOUSEHOLD HAZARDOUS MATERIAL and at least 2 in. in length, the household hazardous materials program symbol - the groundwater protection hotline telephone number referenced as a source for more information on used oil recycling - the warning that the disposal of waste oil in a landfill or its deposit or discharge into any state waterway is unlawful - the name, address, and location of at least one used oil collection site located in the county in which the retailer is located, and if more than one used oil collection site exists in the county, then the nearest collection site is posted on the sign.

SECTION 9

SOLID WASTE MANAGEMENT

Iowa Supplement, April 2000

This section covers the state requirements for Solid Waste Management and is intended to supplement the U.S. TEAM Guide. Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.

Definitions

- *Coal Combustion Residue* - any solid waste produced by the burning of coal, either by itself or in conjunction with natural gas or other carbon-based fuels. It includes, but is not limited to, bottom ash, fly ash, slag and flue gas desulfurization system material generated by coal combustion and associated air pollution control equipment (Iowa Administrative Code (IAC) 567-103.7) [Added April 1999].

- *Commission* - the environmental protection commission (IAC 567-100.2).

- *Compost* - organic material resulting from biological decomposition of waste which can be used as a soil conditioner or soil amendment (IAC 567-100.2).

- *Composting* - the controlled, biological decomposition of selected solid organic waste materials under aerobic conditions resulting in an innocuous final product (IAC 567-100.2).

- *Construction and Demolition Waste* - waste building materials including wood, metals, and rubble which result from construction or demolition of structures. Such waste also includes trees (IAC 567-100.2).

- *Construction and Demolition Waste Disposal Site* - a sanitary landfill which accepts only construction and demolition wastes (IAC 567-100.2).

- *Contaminated Animal Carcasses* - waste including carcasses, body parts, and bedding of animals that were exposed to infectious agents during research, production of biologicals, or testing of pharmaceuticals (IAC 567-100.2).

- *Contaminated Sharps* - all discarded sharp items derived from patient care in medical, research, or industrial facilities including glass vials containing materials defined as infectious, suture needles, hypodermic needles, scalpel blades, and Pasteur pipettes (IAC 567-100.2).

- *Cultures and Stocks of Infectious Agents* - specimen cultures collected from medical and pathological laboratories, cultures and stocks of infectious agents from research and industrial laboratories, wastes from research and industrial laboratories, wastes from the production of biological agents, discarded live and attenuated vaccines, and culture dishes and devices used to transfer, inoculate, or mix cultures (IAC 567-100.2).

- *Department* - the Iowa Department of Natural Resources (IAC 567-100.2).

- *Downgradient* - direction of decreasing hydraulic head (IAC 567-100.2).

- *Downgradient Well* - well which has been installed downgradient of the site and is capable of detecting the migration of contaminants from the site (IAC 567-100.2).

- *Firewood Processing Facilities* - facilities which process or allow the public to process trees into firewood (IAC 567-100.2).

- *Garbage* - 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 includes all such substances from all public and private establishments and from all residencies (IAC 567-100.2).

- *Groundwater Flow Path* - the route of water (and contaminant) travel within the groundwater system (IAC 567-100.2).

- *High Water Table* - the position of the water table which occurs in the spring in years of normal or above normal precipitation (IAC 567-100.2).

- *Human Blood and Blood Products* - human serum, plasma, other blood components, bulk blood, or containerized blood in quantities greater than 20 mL (IAC 567-100.2).

- *Hydraulic Head* - the energy contained at a point in the groundwater system. Hydraulic head is measured as the elevation to which water rises in a piezometer (IAC 567-100.2).

- *Incineration* - the processing and burning of waste for the purpose of volume and weight reduction in facilities designed for such use (IAC 567-100.2).

- *Infectious* - containing pathogens with sufficient virulence and quantity so that exposure to an infectious agent by a susceptible host could result in an infectious disease when the infectious agent is improperly treated, stored, transplanted, or disposed of (IAC 567-100.2).

- *Infectious Waste* - waste which is infectious, including but not limited to contaminated sharps, cultures and stocks of infectious agents, blood and blood products, pathological waste, and contaminated animal carcasses from hospitals or research laboratories (IAC 567-100.2).

- *Land Application* - a method through which sludge is applied to the ground surface. Land application may include subsurface injection (IAC 567-100.2).

- *Land Pollution* - 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 (IAC 567-100.2).

- *Landfill Property* - the entire area of the landfill including the disposal site and any other contiguous property proposed for actual landfill use (IAC 567-100.2).

- *Leachate* - a liquid that has percolated through or drained from a solid waste landfill (IAC 567-100.2).

- *Local Governments* - those counties or municipalities using the sanitary disposal project (IAC 567-100.2).

- *Lower Explosive Limit* - the lowest percent by volume of a mixture of explosive gases in air that will propagate a flame at 25 °C and atmospheric pressure (IAC 567-100.2).

- *Monitoring Well* - 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 (IAC 567-100.2).

- *Municipal Solid Waste Landfill (MSWLF)* - a discrete area of land or an excavation that receives household waste, and that is not a land application site, surface impoundment, injection well, or waste pile, as those terms are defined under Title 40, Code of Federal Regulations, Part 257.2. An MSWLF also may receive other types

of *Resource Conservation and Recovery Act*, Subtitle D wastes, such as commercial solid waste, nonhazardous dry sludge, and industrial solid waste. An MSWLF may be publicly or privately owned. An MSWLF may be a new MSWLF site, and existing MSWLF site, or a lateral expansion (IAC 567-100.2).

- *Open Burning* - any burning of combustible materials where the products of combustion are emitted into the open air without passing through a chimney or stack (IAC 567-100.2).

- *Open Dump* - any exposed accumulation of solid waste at a site other than a sanitary disposal project operating under a permit from the Department (IAC 567-100.2).

- *Open Dumping* - the depositing of solid wastes on the surface of the ground or into a body or stream of water (IAC 567-100.2).

- *Operating Area* - the immediate portion of a sanitary disposal project used for unloading and handling of solid waste to prepare it for processing or final disposal (IAC 567-100.2).

- *Operator* - an employee of the sanitary disposal project who is employed and assigned to operate the equipment used on the site (IAC 567-100.2).

- *Pathological Waste* - human tissues and body parts that are removed during surgery or autopsy (IAC 567-100.2).

- *Planning Area* - 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 (IAC 567-100.2).

- *Processing Facility* - 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 (IAC 567-100.2).

- *Recycling* - 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 (IAC 567-100.2).

- *Refuse* - putrescible and nonputrescible wastes including but not limited to garbage, rubbish, ashes, and incinerator ash, incinerator residues, street cleanings, market and industrial solid wastes, and sewage treatment wastes in dry or semisolid form (IAC 567-100.2).

- *Refuse Collection Service* - a publicly or privately operated agency, business, or service engaged in the collecting and transporting of solid waste for disposal purposes (IAC 567-100.2).

- *Rubbish* - 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 (IAC 567-100.2).

- *Rubble* - stone, brick, or similar inorganic material (IAC 567-100.2).

- *Salvageable Material* - discarded material no longer of value for its original purpose but which has value if reclaimed (IAC 567-100.2).

- *Salvaging* - the systematic removal of salvageable material in a formal and orderly manner as a part of the normal operating procedure of sanitary disposal project (IAC 567-100.2).

- *Sanitary Disposal* - a method of treating solid waste so that it does not produce a hazard to the public health or safety or create a nuisance (IAC 567-100.2).

- *Sanitary Disposal Project* - defined in Iowa Code section 455B.301 (IAC 567-100.2).

- *Sanitary Landfill* - 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 (IAC 567-100.2).

- *Sanitary Landfill Operator* - 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 (IAC 567-100.2).

- *Scavenging* - the uncontrolled removal of materials from the unloading or working area of a sanitary disposal project (IAC 567-100.2).

- *Sewage Sludge* - defined in IAC 567-67 (IAC 567-100.2).

- *Site* - any location, place, tract, or 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-ft wide perimeter surrounding the working areas or the property line if it is closer than 100 ft to the working areas (IAC 567-100.2).

- *Sludge* - any solid, semisolid, or liquid waste generated from a commercial or industrial wastewater treatment plant, water supply treatment plant, air pollution control facility, or any other such waste having similar characteristics and effects (IAC 567-100.2).

- *Solid Waste* - defined in Iowa Code section 455B.301 (IAC 567-100.2).

- *Solid Waste Collection* - the gathering of solid waste from public and private places (IAC 567-100.2).

- *Solid Waste Incinerator Operator* - 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 (IAC 567-100.2).

- *Solid Waste Storage* - the holding of solid waste pending intermediate or final disposal (IAC 567-100.2).

- *Solid Waste Transportation* - the conveying of solid waste from one place to another by means of vehicle, rail, car, water vessel, conveyor or other means (IAC 567-100.2).

- *Structural Components* - liners, leachate collection systems, final covers, run-on/runoff systems, and any other component used in the construction and operation of the MSWLF that is necessary for protection of human health and the environment (IAC 567-100.2).

- *Tire* - for the purpose of these rules, every tire in which compressed air is designed to support the load, and every tire of rubber or other resilient material which does not depend upon compressed air for the support of the load (IAC 567-117.2).

- *Toxic and Hazardous Wastes* - 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 (IAC 567-100.2).

- *Transfer Station* - a fixed or mobile intermediate solid waste disposal facility for transferring loads of solid waste, with or without reduction of volume, to another transportation unit (IAC 567-100.2).

- *Tree Chipping Facilities* - facilities which chip trees and brush for the purpose of mulch production (IAC 567-100.2).

- *Trees* - trunks, limbs, stumps, or branches from trees or shrubs, and untreated, uncoated, chemically unchanged wood wastes. This does not include wood products which are part of an otherwise defined waste or have been contaminated by coatings, treatments, or metals (IAC 567-100.2).

- *Upgradient* - direction of increasing hydraulic head (IAC 567-100.2).

- *Upgradient Well* - 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 (IAC 567-100.2).

- *Waste Reduction* - 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 (IAC 567-100.2).

- *Waste Tire* - tire that is no longer suitable for its originally intended purpose because of wear, damage, or defect (IAC 567-117.2).

- *Water Table* - the water surface below the ground at which the unsaturated zone ends and the saturated zone begins (IAC 567-100.2).

- *Yard Waste* - debris such as grass clippings, leaves, garden waste, brush, and trees. Yard waste does not include tree stumps (IAC 567-100.2).

SOLID WASTE MANAGEMENT
GUIDANCE FOR IOWA CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:
Missing Checklist Items	SO.2.1.IA
Gerneral	SO.5.1.IA and SO.5.2.IA
Permits/Notifications/Exemptions	SO.6.1.IA
Storage/Collection of Solid Waste	SO.10.1.IA through SO.10.3.IA
Recycling	SO.25.1.IA through SO.25.3.IA
Medical Waste	
Transportation	SO.115.1.IA
Treatment/Disposal	SO.120.1.IA and SO.120.2.IA
Landfills	
Sanitary Landfills: Plans	SO.135.1.IA
Sanitary Landfills: General Operating Requirements	SO.135.2.IA through SO.135.13.IA
Sanitary Landfills: Hydrologic Monitoring Systems	SO.135.14.IA through SO.135.17.IA
Sanitary Landfills: Leachate Control Systems	SO.135.18.IA through SO.135.20.IA
Sanitary Landfills: Closure Requirements	SO.135.21.IA through SO.135.26.IA
Sanitary Landfills: Postclosure Requirements	SO.135.27.IA and SO.135.28.IA
Sanitary Landfills: Specific Operating Requirements for Landfills Accepting All Solid Wastes	SO.135.29.IA
Sanitary Landfills: Specific Requirements for Landfills Accepting Specific Types of Solid Wastes	SO.135.30.IA and SO.135.31.IA
Sanitary Landfills: Specific Requirements for Landfills Accepting Municipal Sewage Sludge	SO.135.32.IA and SO.135.33.IA
Coal Combustion Residue Landfills	SO.135.34.IA through SO.135.38.IA
Construction/Demolition Landfills	SO.140.1.IA
Yard Waste/Composting	
Yard Waste Composting Facilities	SO.165.1.IA through SO.165.17.IA
Solid Waste Composting Facilities	SO.165.18.IA through SO.165.35.IA
Recordkeeping and Reporting	SO.165.36.IA and SO.165.37.IA
Other Treatment/Processing Units	
Equipment	SO.175.1.IA
Dumping or Holding Floors or Pits	SO.175.2.IA through SO.175.4.IA
Compaction Equipment	SO.175.5.IA
Hammermills	SO.175.6.IA through SO.175.8.IA
Hydropulping or Slurrying Equipment	SO.175.9.IA
Air Classifiers	SO.175.10.IA
Metals Separation Equipment	SO.175.11.IA and SO.175.12.IA
Sludge Processing	SO.175.13.IA and SO.175.14.IA
Operating Requirements for All Processing Facilities	SO.175.15.IA through SO.175.23.IA
Closure Requirements for Sanitary Disposal Projects with Processing Facilities	SO.175.24.IA

SOLID WASTE MANAGEMENT GUIDANCE FOR IOWA APPENDIX USERS	
REFER TOAPPENDIX NUMBER:	**REFER TOAPPENDIX ITEMS:**
9-1	Cummulative Limits Soil Cation Exchange Capacities

COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
SO.2 **MISSING CHECKLIST ITEMS**	
SO.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000 [Reorganized October 1999]**
SO.5. **GENERAL**	
SO.5.1.IA. Public or private agencies may not dump or deposit or permit the dumping or depositing of any solid waste at any place other than a sanitary disposal project (IAC 567-101.3) [Moved in structural reorganization of SO.5 October 1999].	Verify that private and public agencies do 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 Department.
SO.5.2.IA. No deposited material may be excavated, disrupted, or removed from any active or discontinued sanitary landfill or closed dump (IAC 567-101.7) [Moved in structural reorganization of SO.5 October 1999].	Verify that no deposited material is excavated, disrupted, or removed from any active or discontinued sanitary landfill or closed dump without first notifying the Department in writing. Verify that notification includes 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. Verify that an excavation is confined to an area consistent with the number of pieces of digging equipment and trucks used for haulage. Verify that adequate measures are taken during excavation to control dust, odors, fires, rodents, insects, and blowing litter. Verify that disposal of all solid waste resulting from excavation is in conformity with applicable requirements.

COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000 [Reorganized October 1999]**
SO.6 PERMITS/ NOTIFICATIONS/ EXEMPTIONS	
SO.6.1.IA. A sanitary disposal project may not be constructed or operated without a valid permit (IAC 567-102.1 and 102.8).	Verify that no public or private agency constructs or operates a sanitary disposal project without obtaining a permit from the Department. (NOTE: A permit is not valid after 60 days following transfer of title, unless the permit has been transferred by the Department to the new title holder.)

COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
SO.10. STORAGE/COLLECTION OF SOLID WASTE	
SO.10.1.IA. Containers used for the storage of solid wastes must be covered, leakproof, durable, and easily cleaned (IAC 567-104.9(1)(a)).	Verify that containers used for the storage of solid wastes (except salvaged materials) including refuse derived fuels are covered, leakproof, durable, and of easily cleanable construction.
SO.10.2.IA. Facilities for the storage of solid wastes must be constructed in a specific manner (IAC 567-104.9(1)(b)).	Verify that facilities used for the storage of all solid wastes (except municipal sewage sludge and salvaged materials) including refuse derived fuels, meet the following requirements: - have a smooth, impervious, easily cleaned base - provide leachate collection - prevent runoff entering the facility from adjacent areas - are enclosed to prevent blowing litter and roofed to prevent precipitation into any solid waste.
SO.10.3.IA. Containers and facilities used for the storage of salvaged materials must be designed in a specific manner (IAC 567-104.9(2)).	Verify that containers and facilities used for the storage of salvaged materials are designed and constructed to prevent odor, litter, leaching, and vector problems. Verify that the acceptability of any container is based on the materials being stored, duration of storage, and conditions of storage.

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SO.25. RECYCLING	
SO.25.1.IA. Recycling operation plans must meet specific requirements (IAC 567-106.1).	Verify that recycling operation plans include the following: - 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 - method of processing reclaimed salvageable materials and the disposition of salvageable materials - transfer points to which salvageable materials will be moved, the capacities of the transfer points, and frequency of interchange. Verify that the recycling operation meets the design criteria specified in the operation plan.
SO.25.2.IA. All recycling operations must follow specific operating requirements (IAC 567-106.2).	Verify that the following operating requirements are met in all recycling operations: - material which cannot be recycled or removed during processing is handled in a manner which does not create pollution or a nuisance and is disposed of by another method - solid waste is unloaded at the operating areas only when an operator is on duty at that area and solid waste is deposited in storage containers inside the site under the supervision of an attendant or operator - the operating area for solid waste is as small as practicable and is surrounded with appropriate barriers to prevent litter from blowing beyond the operating area - the site is fenced to control access and a gate is provided at the entrance to the site and is kept locked when an attendant or operator is not on duty - a copy of the permit, engineering plans, and reports are kept at the site at all times - sites not open to the public have a permanent sign posted at the site entrance specifying the name of the operation, the site permit number, that the site is not open to the public, and the name and telephone number of the responsible official. (NOTE: Recycling operations which handle only paper, cans, and bottles are exempt from SO.25.1.IA, SO.25.2.IA, IAC 567-102, and 104 (permits and processing, respectively) if the operation has no mechanical processing facilities or

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	if the operation receives on average less than 2 tons of paper, cans, and bottles per day. Such operations must 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.)
SO.25.3.IA. Recycling operations must be closed in conformance with an approved closure plan (IAC 567-106.4).	Verify that all recycling operations are closed in conformance with their approved closure plan.

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MEDICAL WASTE **SO.115. Transportation**	
SO.115.1.IA. Infectious waste transporters must have a permit (Iowa Code Annotated 455B.503).	Verify that infectious waste collection and transportation facilities are permitted prior to initial operation. Verify that the permit addresses, at a minimum, the following areas: - operator safety - recordkeeping and tracking procedures - best available appropriate technologies - emergency response and remedial action procedures - waste minimization procedures - long-term liability.

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MEDICAL WASTE **SO.120. Treatment/Disposal**	
SO.120.1.IA. Infectious waste treatment and disposal facilities must have a permit (Iowa Code Annotated 455B.502 and 455B.504).	Verify that infectious waste treatment and disposal facilities are permitted before their initial operation. Verify that infectious waste treatment and/or disposal facilities meet the permit requirements that address (at a minimum) the following areas: - operator safety - recordkeeping and tracking procedures - best available appropriate technologies - emergency response and remedial action procedures - waste minimization procedures - long-term liability.
SO.120.2.IA. Infectious waste treatment and disposal facilities must meet specific conditions (Iowa *Acts* of 1990, Section 5, Chapter 1191, Part 2, as amended by Iowa *Acts* of 1991, Section 7, Chapter 242).	Verify that infectious waste treatment and disposal facilities are not constructed or operated unless the following conditions are met: - the facility is designed to accept only medical waste generated in the state and communities within 75 mi of the state boarders - the facility is subject to monitoring and stack testing at least every 3 yr - the facility incorporates the best available control technology to ensure that the emissions from the facility approach the goal of zero emissions - the facility requires large generators for which the facility provides treatment or disposal to certify that the generator submitted a comprehensive plan to the Department providing for reduction or recycling of infectious waste at the source - the facility requires small quantity generators, or a representative of the small quantity generators, for which the facility provides treatment or disposal, to participate in the development of the comprehensive plan submitted by the city, county, or public agency - the facility has an established means of treating or disposing of any residue or ash which remain following treatment of waste.

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LANDFILLS **SO.135. Sanitary Landfills: Plans**	
SO.135.1.IA. Sanitary landfills must meet specific siting criteria (IAC 567-103.2(1)(m)).	Verify that sanitary landfill siting meets the following criteria: - 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 - situated that the base of the proposed site is at least 4 ft above the high water table unless a greater separation is needed to ensure that there is 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 - outside a flood plain or shoreland, unless proper engineering and sealing of the site render it acceptable and prior approval of the Department under Title V of these rules and when necessary the U.S. Army Corps of Engineers is obtained - situated to assure no adverse effect on any well within 1000 ft 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 ft 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 - situated to ensure that 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 1 mi 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 ensure no adverse effect on the water system - at least 20 ft from the adjacent property line unless there is a written agreement with the owner of the abutting property and, for new permit applications and associated reports submitted after 27 April 1977, the report verifies that the portion to be filled is at least 50 ft from the adjacent property line - beyond 500 ft from any existing habitable residence unless there is written agreement with the owner of the residence and the site is screened by natural objects, plantains, fences, or by other appropriate means.
Sanitary Landfills: General Operating Requirements	

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SO.135.2.IA. Solid wastes must be unloaded in the sanitary landfill operating area only when an operator is present (IAC 567-103.2(2)(a)).	Verify that solid waste is unloaded at the sanitary landfill operating area only when an operator in on duty at the area and that solid waste is deposited in storage containers inside the site under the supervision of an attendant or operator.
SO.135.3.IA. Access to the sanitary landfill must be restricted (IAC 567-103.2(2)(b)).	Verify that access to the sanitary landfill is restricted and a gate is provided at the entrance to the site and is locked when an attendant or operator is not on duty.
SO.135.4.IA. A copy of the permit, engineering plans and reports must be kept at the sanitary landfill site at all times (IAC 567-103.2(2)(c)).	Verify that a copy of the permit, engineering plans, and reports are kept at the site at all times unless the Department determines that this is unnecessary. Verify that the sanitary landfill operation is in compliance with he permit and engineering plans.
SO.135.5.IA. Sanitary landfill sites not open to the public must post signs containing specific information (IAC 567-103.2(2)(d)).	Verify that sites not open to the public have permanent signs posted at the entrance specifying: - name of operation - site permit number - that the site is not open to the public - the name and telephone number of the responsible official.
SO.135.6.IA. Solid waste may not be deposited in sanitary landfills in a manner that causes pollution of the ground or surface waters (IAC 567-103.2(2)(e)).	Verify that solid waste is not deposited in such a manner that material or leaching therefrom causes pollution of ground or surface waters.
SO.135.7.IA. Sanitary landfills must have an all weather fill area and cover material must be available for winter	Verify that an all-weather fill area is accessible for solid waste disposal during all weather conditions under which solid waste is received and disposed of at the site. Verify that cover material is available at the sanitary landfill for winter and wet

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and wet weather (IAC 567-103.2(2)(f) and (g)).	weather operations.
SO.135.8.IA. Sanitary landfill sites must be graded and provided with drainage facilities (IAC 567-103.2(2)(h)).	Verify that each sanitary landfill site is graded and provided with drainage facilities which minimize flow of surface water onto and into the portion of the site being filled, prevent soil erosion, and prevent ponding of water.
SO.135.9.IA. The finished surface of a sanitary landfill site must be repaired, covered with soil and seeded upon completion (IAC 567-103.2(2)(i)).	Verify that the finished surface of the site is 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, and, if necessary, seeded slopes are covered with straw or similar material to prevent erosion.
SO.135.10.IA. Sanitary landfills must be inspected annually by a professional engineer (IAC 567-103.2(2)(j)).	Verify that sanitary landfills are staked as necessary and inspected annually or as otherwise specified in the permit, by a professional engineer registered in Iowa. Verify that a brief report by the engineer indicating areas of conformance or nonconformance with the approved plans and specifications is submitted to the Department by the permit holder within 30 days of the inspections.
SO.135.11.IA. The Department must be promptly notified of any pockets, seams or layers of sand or other highly permeable material are encountered at the sanitary landfill (IAC 567-103.2(2)(k)).	Verify that the Department is promptly notified by the permit holder if any pockets, seams or layers of sand, or other highly permeable material is encountered at the sanitary landfill. Verify that a professional engineer registered in Iowa certifies that all sands encountered are totally excavated or sealed off properly or otherwise handled as explicitly provided for in the permit before solid waste is disposed of in that area of the site.
SO.135.12.IA. The total volume of leachate collected at the sanitary landfill each month must be recorded (IAC 567-103.2(2)(l)).	Verify that the total volume of leachate collected at the sanitary landfill each month is recorded. Verify that the elevation of leachate in the landfill is provided to the Department in accordance with the schedule specified in the permit.

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SO.135.13.IA. Sanitary landfills must control methane gas (IAC 567-103.2(15)).	Verify that the concentration of methane gas generated by a sanitary landfill does not exceed 25 percent of the lower explosive limit for methane in facility structures (excluding gas control or recovery system components). Verify that the concentration of methane gas does not exceed the lower explosive limit for methane at the facility property boundary. Verify that sanitary landfills monitor quarterly for compliance with the above statements and that an annual report is submitted by 30 November summarizing the methane gas monitoring results and any action taken resulting from gas levels exceeding the limits during the previous year. Verify that if methane gas levels exceed the specified limits, the following actions are taken: - immediately takes all necessary steps to ensure protection of human health and notifies the director - within 7 days after detection submits to the director a report stating the methane gas levels detected and a description of the steps taken to protect human health - within 60 days of detection, implements a plan for remediation of the methane gas releases and sends a copy of the remediation plan to the director, and the plan describes the nature and extent of the problem and the proposed remedy.
Sanitary Landfills: Hydrologic Monitoring Systems	
SO.135.14.IA. Sanitary landfills must maintain and operate hydrologic monitoring systems (IAC 567-103.2(3)).	Verify that solid waste disposal facilities operate and maintain hydrologic monitoring systems which include a sufficient number of groundwater monitoring wells and surface water monitoring points which determine the impact, if any, that the sanitary landfill is having on the adjacent water. Verify that the hydrologic monitoring systems enable early detection of the escape of pollutants from a sanitary landfill.
SO.135.15.IA. Sanitary landfill hydrologic monitoring systems must meet specific operating requirements (IAC 567-103.2(4)).	Verify that all sampling is conducted in accordance with an approved sampling protocol. Verify that the elevation of water in each monitoring well is measured monthly and recorded to the nearest 0.01 ft, and that level measurements are made before a well is evacuated for sample collection.

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	is evacuated for sample collection. Verify that the water level or flow rate of each surface water body sampled is measured and recorded at the time of sample collection. Verify that during the first year of operation of the hydrologic monitoring system, samples are collected quarterly from each groundwater monitoring well and surface water monitoring point. Verify that samples taken during the first year of operation are analyzed for the following parameters, plus any additional parameter deemed necessary by the Department: - arsenic, dissolved - barium, dissolved - cadmium, dissolved - chromium, total dissolved - lead, dissolved - mercury, dissolved - magnesium, dissolved - zinc, dissolved - copper, dissolved - benzene - carbon tetrachloride - 1,2-dichloroethanne - trichloroethylene - 1,1,1-trichloroethane - 1,1-dichlorooethylene - paradichlorobenzene. Verify that, during the first year samples are analyzed for the following parameters, and that, after the first year each monitoring point is sampled semiannually as specified in the facility's operation permit and analyzed for the following parameters: - chloride - specific conductance (field measurement) - pH (field measurement) - ammonia nitrogen - iron, dissolved - chemical oxygen demand - temperature (field measurement) - any additional parameters deemed necessary by the Department. Verify that one sample per year from each monitoring point collected in a quarter specified in the facility's operation permit is analyzed for the following parameters: - total organic halogen

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	- phenols - any additional parameters deemed necessary by the Department.
SO.135.16.IA. Groundwater and surface water samples from the sanitary landfill must be analyzed in certified laboratories (IAC 567-103.2(5) and (6)).	Verify that groundwater and surface water samples are analyzed only by laboratories that are certified by the State of Iowa. Verify that all analyses of parameters not covered in the *Safe Drinking Water Act* are performed according to methods specified in Solid Waste-846 or approved by the USEPA and that any analyticity method used on non-*Safe Drinking Water Act* parameters deviating from those specified in Solid Waste-846 or approved by USEPA are approved by the Department. Verify that all analyses are recorded on forms which, in addition to the analytical results, show the precision of the data set, bias, and limit of detection. Verify that for each parameter analyzed during the first year of operation of the hydrologic monitoring system, the mean and standard deviation for each upgrading monitoring well are determined using first-year data. Verify that for routine semiannual monitoring parameters, the mean and standard deviation are recalculated annually using all available analytical data. Verify that if the analytical results for a downgradient or an upgradient monitoring point are not within the control limits of two standard deviations above the mean parameter(s) level in a corresponding upgradient monitoring point, that this information is submitted to the Department within 30 days of receipt of the analytical results.
SO.135.17.IA. Sanitary landfill hydrologic monitoring systems must meet specific record keeping and recording requirements (IAC 567-103.2(8)).	(NOTE: Field records are sufficient to document whether the procedures and requirements specified in the sampling protocol are followed.) Verify that persons conducting the sampling record the names of persons conducting the sampling, that time and date each monitoring point is sampled, the required field measurement or test result, and that copies of these field records are sent the Department if requested. Verify that records are kept of analyses and the associated groundwater surface elevations for the active life and postclosure period of the facility and that these records are kept at the site or in the administrative files of the owner or operator and are available for review by the Department upon request in the county in which the landfill is operated. Verify that the Department is provided with copies of the quarterly monitoring analytical results by the dates specified in the facility's operation permit.

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	Verify that an annual report summarizing the effect the facility is having on groundwater and surface water quality is submitted to the Department by 30 November of each year and that the summary is prepared by an engineer registered in the State of Iowa and incorporated in the November semiannual engineer inspection report.
Sanitary Landfills: Leachate Control Systems	
SO.135.18.IA. Sanitary landfills must have a leachate control system in place prior to accepting waste (IAC 567-103.2(11)).	Verify that all landfills have a leachate collection, storage, and treatment disposal system in place prior to accepting waste and that this system is operated in conformance with the approved design during the active life of the site and during the postclosure period. Verify that the leachate collection system is designed to allow no more than 1 ft of head above the top of the landfill liner and that the system includes a method for measuring the leachate head in the landfill at the lowest area(s) of the collection system. Verify that the leachate collection system is equipped with valves which enable the flow of leachate from the facility to be shut of during periods of maintenance. Verify that the leachate collection system is cleaned out once every 3 yr, or more frequently if leachate head or the volume of leachate collected indicates that cleanout is necessary. Verify that a report of the methods and results of the cleanout are submitted at the time of permit renewal.
SO.135.19.IA. A sanitary landfill leachate storage system must meet specific requirements (IAC 567-103.2(11)(b)).	Verify that the leachate storage system is capable of storing at least 7 days' accumulation of leachate based on mathematical simulated volume using average precipitation. Verify that the leachate storage system is constructed of materials which are compatible with the expected leachate. Verify that the leachate storage system is accessible at all times of the year and under all weather conditions.
SO.135.20.IA. Sanitary landfill leachate treatment and disposal systems must meet	Verify that leachate is treated by the physical, chemical, or biological processes 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

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specific requirements (IAC 567-103.2(11)(c)).	effluent discharge limitation established by an National Pollutant Discharge Elimination System permit issued to the landfill. Verify that leachate recirculation systems minimize detrimental effects to vegetative cover, minimize erosion and damage to the soil cover, and promote rapid stabilization of the waste. Verify that the Department is notified when the initial construction of the leachate collection, storage, and treatment and discharge systems is completed, in order that an inspection is made to determine that the leachate control system is constructed as designed. (NOTE: The construction certification reports from the project engineer discussing quality assurance and quality control testing done to ensure that all materials and equipment for the leachate control system, in accordance with the approved engineering plans, must be submitted prior to the inspection.) Verify that the results of all testing, along with documentation of any failed tests, a description of the procedures used to correct the failures, and results of any retesting performed are included in the construction certification report.
Sanitary Landfills: **Closure Requirements**	
SO.135.21.IA. Sanitary landfills must be closed in a manner that minimizes the potential for postclosure release of pollutants (IAC 567-103.2(13)).	Verify that sanitary landfills close in a manner which minimizes the potential for postclosure release of pollutants to the air, groundwater, or surface waters.
SO.135.22.IA. Permanent surveying monuments must be installed in a closing sanitary landfill (IAC 567-103.2(13)(a)).	Verify that a minimum of two permanent surveying monuments are installed by a registered land surveyor from which the location and elevation of wastes, containment structures, and monitoring facilities are determined throughout the postclosure period.
SO.135.23.IA. The final cover of sanitary landfills must consist of specific elements (IAC 567-103.2(13)(b)).	Verify that the final cover meets the following criteria: - consists of not less than 2 ft of compacted soil with a permeability of 1×10^{-7} cm/sec or less as determined by appropriate laboratory analysis - the percent of standard or modified proctor density of moisture content is

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103.2(13)(b)).	consistent with expected field conditions and corresponds to a measured coefficient of permeability equal to or less than 1 x 10^{-7} cm/sec determined in the laboratory - the soil is placed in lifts not exceeding 8 in. in thickness - a minimum of one field density test is performed per lift per acre verifying the density determined by the laboratory analysis as correlated to permeability is achieved - the results of field density tests are submitted to the Department - the compacted soil is keyed into the bottom liner at the waste cell boundary. Verify that the final cover meets the following conditions consistent with establishing vegetation: - is not less than 2 ft of uncompacted soil, containing sufficient organic matter to support vegetation - is at least the root depth of the planned vegetative cover to prevent root penetration into the underlying soil layers - is placed as soon as possible to prevent desiccation, cracking, and freezing of the compacted soil layer. (NOTE: 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. The use of such material does not serve as a replacement for the compacted soil layer.) (NOTE: Alternate methods and materials may be permitted if shown to provide equal or superior performance. Landfills not closed in conformance with an approved closure plan may be required to apply additional cover.)
SO.135.24.IA. The final cover of sanitary landfills must meet specific requirements (IAC 567-103.2(13)(c) and (d)).	Verify that the final cover is designed and graded to meet specified drainage requirements. Verify that the final cover has a minimum slope of 5 percent and does not exceed a slope of 25 percent. Verify that the final cover is seeded as soon as practical upon completion with native grasses or other suitable vegetation to prevent soil erosion. Verify that if seeding is delayed due to summer or winter conditions, silt fences, or other structures are used to minimize erosion of the final cover until the next season suitable for planting.
SO.135.25.IA. An approved groundwater monitoring and	Verify that an approved groundwater monitoring system as required by the closure permit is in place and operating.

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leachate control system must be in place and operating at closing sanitary landfills (IAC 567-103.2(13)(e) and (f)).	permit is in place and operating. Verify that an approved leachate collection and treatment system as required by the closure permit is in place and operating.
SO.135.26.IA. An approved gas monitoring and collection or ventilation system must be in place and operating at closing sanitary landfills (IAC 567-103.2(13)(g)).	Verify that an approved landfill gas monitoring and collection or ventilation system as required by the closure permit and is in place or operating unless determined not necessary by the director.
Sanitary Landfills: Postclosure Requirements	
SO.135.27.IA. Sanitary landfills must follow specific postclosure requirements (IAC 567-103.2(10)).	Verify that at least 6 mo prior to closing the site a plan is submitted to the Department for approval detailing a 30-yr postclosure monitoring program. Verify that the Department reviews the facility's postclosure monitoring records at 5-yr intervals to determine in changes in the monitoring frequencies are required. Verify that the commission adopts rules on a site-specific basis identifying additional monitoring requirements for sanitary landfills for which the postclosure monitoring period is extended.
SO.135.28.IA. Sanitary landfills must follow specific postclosure requirements for 30 yr following the closure of the site (IAC 567-103.2(14)).	Verify that the following postclosure requirements are maintained for 30 yr following the closing of the sanitary landfill: - the diversion and drainage system is maintained to approved specifications preventing run-on and runoff from eroding or otherwise damaging the final cover - the integrity and effectiveness of the final cover is maintained by making repairs as necessary to correct the effects of settling, subsidence, erosion, or other events, and if damage to the compacted soil layer occurs, repairs are made to correct the damage and return it to its original specifications - the vegetative cover is reseeded as necessary to maintain good vegetative growth and any invading vegetation whose root system could damage the compacted soil layer is removed or destroyed immediately - the groundwater monitoring system is operated and maintained and complies with all applicable rules and closure permit requirements - the leachate collection, removal, and treatment systems are operated and maintained and comply with all applicable rules and closure permit

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	requirements - the landfill gas monitoring and collection system are operated and maintained and comply with all applicable rules and closure permit requirements - semiannual reports are submitted to the Department containing information concerning the general conditions at the site, groundwater monitoring results, amount or leachate collected and treated, information concerning the landfill gas monitoring and collection system, and other information as required by the closure permit - locations and elevations of all permanent monuments are determined at least once very 3 yr or more frequently in the event of obvious disturbance of the monument and reports are due by 30 April and 31 October for the proceeding 6-mo period - the permanent surveying monuments are maintained.
Sanitary Landfills: Specific Operating Requirements for Landfills Accepting all Solid Wastes	
SO.135.29.IA. Sanitary landfills accepting all solid wastes except toxic or hazardous waste must follow specific operation requirements (IAC 567-103.3(2)).	Verify that sanitary landfills accepting all solid wastes except toxic and hazardous wastes are operated in conformance with the general operating requirements of SO.135.2.IA through SO.135.12.IA and the following requirements: - immediately after solid waste is deposited, it is uniformly spread and compacted as densely as practicable in layers not exceeding 2 ft in depth and at an operating face slope which permits thorough compaction into cells - solid waste at the site is covered after each day of operation with a compacted layer of at least 6 in. of earth - at least 1 ft of intermediate cover of compacted earth is applied to any area of the site which is not utilized for further disposal of solid waste for more than one week - at least a 2-ft cover of compacted earth is applied to any area of the site which is not utilized for further disposal of solid waste for more than 2 mo and that the cover is graded to allow surface water runoff - the final cover is consistent with the proposed land use, but in no event is less than 2 ft.
Sanitary Landfills: Specific Requirements for Landfills Accepting Specific Types of Solid Waste	
SO.135.30.IA. Sanitary	Verify that sanitary landfills accepting only a specific type of solid waste comply

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landfills accepting only specific types of solid waste must meet specific requirements (IAC 567-103.5(1)).	with the following requirements in addition to the general operating requirements in SO.135.2.IA through SO.135.12.IA: - include information on the source of the solid waste and a description of the process which produces it in the plan of operation - a detailed analysis of solid waste deposited at the site, including tests which are 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 - engineering details how the site is designated, constructed, and operated to protect ground and surface water resources - if the ground and surface water information indicates that no danger of contamination of ground or surface waters exist, the director waives any rule requiring analysis and definition of subsurface geology.
SO.135.31.IA. Operating requirements for sanitary landfills accepting only specific types of solid waste vary according to the type of waste accepted at the landfill (IAC 567-103.5(2)).	Verify that the operating requirements for sanitary landfills accepting only specific types of solid waste vary according to the type of waste accepted. Verify that a plan of operation incorporating the general operating requirements of SO.135.2.IA through SO.135.12.IA and proposing minimum standards to be maintained at the site exists. Verify that the sanitary landfill is operated in conformance with the general operating requirements of SO.135.2.IA through SO.135.12.IA and the standards approved by the Department concerning: - daily, intermediate, and final cover - number and duties of personnel - storage and preliminary processing of solid waste - safety procedures and equipment - operating equipment - buildings and shelter.
Sanitary Landfills: Specific Requirements for Landfills Accepting Municipal Sewage Sludge	
SO.135.32.IA. Sanitary landfills accepting only sewage sludge must meet permit and plan requirements (IAC 567-103.6 (1)).	Verify that the sanitary landfill has a permit and operates within the conditions of the permit. Verify that the plan includes a description of the process(es) which produce the sludge and a description of the sources and characteristics of the treatment plant influent.

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	influent. Verify that the detailed analysis of the sludge to be disposed includes the following: - total residue and volatile residue - pH - total nitrogen, on a dry weight basis - ammonia nitrogen, on a dry weight basis - nitrate-nitrogen, on a dry weight basis - total phosphorous, on a dry weight basis - potassium, on a dry weight basis - the following metals, on a dry weight basis: arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc - any other tests required by the Department. Verify that collection and preservation of samples is done by the highest grade operator at the plant producing the sludge or the operator's designee and follows the plan requirements. Verify that the description of the disposal process includes the daily and annual loading of the sludge and the significant components and duration and frequency of use.
SO.135.33.IA. Sanitary landfills accepting only sewage sludge must meet operating requirements (IAC 567-103.6 (1)).	Verify that the sanitary landfill operates within the conditions specified in the operation plan. Verify that sludge is covered after each day of operation with a layer of at least 1 ft of earth and, in no event, is exposed for more that 24h. Verify that at least 2 ft of intermediate cover of earth is applied to any area which will not be utilized for further disposal of sludge for more than 1 week. Verify that the intermediate cover is graded to allow surface water runoff without creating erosion or pollution problems. Verify that final cover is constituent with the proposed land use and, in no event, is less that 2 ft. Verify that analyses of the sludge is performed and submitted to the Department on the schedule specified by the Department.
Coal Combustion Residue Landfill	

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SO.135.34.IA. Coal combustion residue landfills must have a valid permit (IAC 567-103.7(2) and 103.7(6)) [Added April 1999].	Verify that coal combustion landfills have a valid permit. (NOTE: The term for original permits and renewals is 10 yr.)
SO.135.35.IA. Coal combustion residue landfills must meet site requirements (IAC 567-103.7(1)) [Added April 1999].	Verify that the site of a coal combustion residue landfill is not a wetland, within a 100 yr flood plain, and does not have any sinkholes or similar karst features. Verify that coal combustion residue is not deposited within 300 ft of an inhabitable residence or a commercial enterprise, unless there is a written agreement with the property owner allowing a lesser distance. Verify that coal combustion residue is not deposited within 50 ft of the property boundary. Verify that coal combustion residue is at least 5 ft above the high groundwater table.
SO.135.36.IA. Coal combustion residue landfills must meet design requirements (IAC 567-103.7(3)) [Added April 1999].	Verify that coal combustion residue landfills have a method for ensuring protection of the groundwater and surface water. Verify that coal combustion residue landfills have a method of ash transportation that prevents blowing ash. Verify that surface runoff is diverted from all active or closed areas, both during the active life of the landfill and during the postclosure period. Verify that the landfill site is secured with a fence and gates to prevent unauthorized entry and deposition of wastes. Verify that the landfill site has all-weather access roads adequate to accommodate delivery vehicles and operating equipment.
SO.135.37.IA. Coal combustion residue landfills must meet operating requirements (IAC 567-103.7(4)) [Added April 1999].	Verify that coal combustion residue solid waste landfills submit an operation plan to the appropriate Department field office [not defined] prior to initiating operations. Verify that the operation plan includes the following: - identification of the area to be filled during the period for which a permit is

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	being requested - the method that will be used to prevent illicit municipal or putrescible solid wastes from being deposited as a result of mixing with authorized waste brought to the site - the frequency, extent, and method of spreading and compacting the waste; the optimum layer thickness; and the size and slope of the operating face - a description of the operating procedures that will be followed when wastes are brought to the site - plans to remove waste for beneficial use (if applicable). Verify that deposited waste is treated to control fugitive and erosion. Verify that at least one down gradient monitoring well is installed within 1 yr of initiating operations. Verify that, within one year of initiating operations, monitoring wells are sampled quarterly for the purpose of establishing the average baseline concentrations for each well. Verify that, within one year of completing the quarterly baseline monitoring, all monitoring wells are sampled annually. Verify that a report of the groundwater monitoring results is submitted to the Department by the end of the first year's operation and annually thereafter.
SO.135.38.IA. Coal combustion residue landfills must meet closure and postclosure requirements (IAC 567-103.7(5)) [Added April 1999].	Verify that the owner/operator submits a postclosure plan to the Department 180 days prior to closure. Verify that the plan lists the date of closure, actions that will be taken to close the site, final site contours, final cover design, and parties responsible for postclosure maintenance. Verify that final cover consists of not less than 2 ft of compacted soil and 1 ft of uncompacted soil capable of sustaining a growth of common grasses. Verify that the slope of the landfill area after final closure is not less than 3 percent nor more than 25 percent. Verify that a growth of common grasses is established on the final cover by the end of the first full growing season. Verify that one sample from each monitoring well is collected annually during the postclosure period and the results included in the annual report. Verify that, after closure, an annual inspection of the site is conducted and any differential settling, surface cracks, holes, erosion channels, or any interference

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	with surface drainage are corrected by restoration to the original condition. Verify that a report on the findings of the annual inspection and corrective actions taken is included in the annual report. (NOTE: Postclosure actions are required for 10 yr following closure.)

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SO.140. CONSTRUCTION/ DEMOLITION LANDFILLS	
SO.140.1.IA. Sanitary landfills which only accept construction and demolition waste must comply with specific requirements (IAC 567-103.4(2)).	Verify that sanitary landfills accepting only construction and demolition waste are operated in conformance with the general operating requirements of SO.135.2.IA through SO.135.12.IA and the following requirements: - immediately after solid waste is deposited, it is uniformly distributed and compacted as densely as practical - the waste is covered with a minimum of 1 ft of earth at least once every 7 days of operation and the day that cover is applied is specified in the plan - at least a 2-ft cover of compacted earth is applied to any area of the sanitary landfill which is not utilized for further disposal of solid waste for more than 2 mo and the cover is graded to allow surface water runoff - the final cover is consistent with the proposed land use but in no event is it less than 2 ft.

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YARD WASTE/ COMPOSTING **SO.165. Yard Waste Composting Facilities**	(NOTE: These regulations 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, these regulations do not apply. Tree chipping and firewood processing facilities are also not regulated.)
SO.165.1.IA. Burial of yard waste at a sanitary landfill is prohibited (IAC 567-105.1(2)).	Verify that the burial of yard waste at a sanitary landfill is prohibited. (NOTE: Yard waste that is separated at its source from other solid waste may be accepted by a sanitary landfill for the purposes of soil conditioning or composting.) Verify that the incineration of yard waste at a sanitary landfill is prohibited.
SO.165.2.IA. Yard waste and solid waste are allowed to be composted (IAC 567-105.1(1) and 105.2(1)).	Verify that yard waste composting involves only yard waste. (NOTE: Composting facilities that meet the requirements of this section (SO.165.) are exempt from permit requirements. Yard waste generated, composted, and disposed of on the same premises where it originated does not require a permit. This composting must not create a nuisance.) Verify that facilities involving in composting any solid waste other than yard waste have a permit. (NOTE: 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 includes composting sewage sludge, municipal solid waste, or any other waste with or without yard waste.)
SO.165.3.IA. The Department must be notified of the location of the facility in writing before a yard waste composting facility is opened (IAC 567-105.4(12)).	Verify that the Department is notified in writing of the location of the yard waste composting facility. Verify that the notification also contains the legal description of the site, the landowner, the responsible official, and capacity of the site.
SO.165.4.IA. General operating requirements apply to all	Verify that solid waste composting facilities are operated in conformance with IAC 567-102.1 to 102.13(7) (requirements for permits, construction and

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composting facilities (IAC 567-105.3).	operational plans, and operator certification). (NOTE: Yard waste composting facilities do not have to comply with 567-102, but they must keep records on the premises showing compliance with this rule.) (NOTE: Yard waste composting facilities do not have to comply with 567-102, but they must keep records on the premises showing compliance with this rule.) Verify that materials resulting from composting or similar processes are innocuous and contain no sharp particles which could cause injury to persons handling the compost. Verify that material which cannot be composted or which is removed during processing is handled in a manner which does not create pollution or a nuisance and is disposed of by another method provided. Verify that yard waste is unloaded at the operating areas only when an operator is on duty at that area. Verify that the operating area for composting is as small as practicable and is surrounded with appropriate barriers to prevent litter from blowing beyond the operating areas. Verify that the site is fenced to control access and a gate is provided at the entrance to the site and is kept locked when an attendant or operator is not on duty. Verify that emergency access is provide to the site. Verify that alleyways are maintained to provide access for fire fighting equipment.
SO.165.5.IA. Yard waste compost must be removed from containers (IAC 567-105.4(1)).	Verify that yard waste being composted is taken out of containers, and that yard waste is left in the bags only if the bags are biodegradable and the biodegradable bags are open by some means before composting.
SO.165.6.IA. The unloading area of yard waste composting facilities must have an all-weather surface (IAC 567-105.4(2)).	Verify that an all-weather surface is used for the unloading area in yard waste composting facilities and that the all-weather surface is made of materials that permit accessibility during periods of inclement weather.
SO.165.7.IA. The area of yard waste composting facil-	Verify that the area of the yard waste composting facility is large enough for the volume of yard waste composted.

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ities must be large enough for the volume of yard waste composted (IAC 567-105.4(3)).	volume of yard waste composted. Verify that one acre is used for every 6000 yd^3 of yard waste composted. Verify that windrows and alleys between windrows are kept distinct at all times. Verify that the composting facility determines the volume of yard waste accepted by using the following conversion factors: - 1 ton of grass = 5 yd^3 - 1 ton of leaves = 8 yd^3 - 1 ton wood chips = 7.9 yd^3.
SO.165.8.IA. Yard waste compost must be turned monthly (IAC 567-105.4(4)).	Verify that yard waste compost is turned at least once per month.
SO.165.9.IA. Yard waste composting must be done on a specifically-sloped surface (IAC 567-105.4(5)).	Verify that yard waste composting is done on a surface which is 1% to 3% slope.
SO.165.10.IA. Yard waste composting facilities must be 100 ft from any existing habitable residences (IAC 567-105.4(6)).	Verify that yard waste composting facilities are 100 ft from any existing habitable residences 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.
SO.165.11.IA. Ponding of water and water running onto the yard waste composting facility from adjacent land must be prevented (IAC 567-105.4(7) and (8)).	Verify that the ponding of water is prevented on yard waste composting facilities. Verify that measures are taken to prevent water from running onto the facility from adjacent land.
SO.165.12.IA. Yard waste composting facilities must have permanent entrance signs (IAC 567-105.4(9)).	Verify that yard waste composting facilities have permanent signs posted at the entrances specifying: - name of operation

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(IAC 567-105.4(9)).	- operating hours - name and telephone number of responsible official - materials which are accepted.
SO.165.13.IA. Litter must be confined to the property on which the yard waste composting facility is located (IAC 567-105.4(10)).	Verify that litter is confined to the property on which the yard waste composting facility is located. Verify that at the conclusion of each day of operation, any litter strewn beyond the confines of the operating area is collected and stored in covered leakproof containers or properly disposed.
SO.165.14.IA. Yard waste composting facilities must meet specific record-keeping requirements (IAC 567-105.4(11)).	Verify that yard waste composting facilities maintain the following records: - dates the compost is turned - volume of yard waste accepted - volume of compost removed form the site. Verify that the above records are maintained for a period of 2 yr after last use of the compost site. Verify that the above records are available at the site or city hall for inspection and evaluation by the Department at any time during normal operating hours.
SO.165.15.IA. Storage of finished yard waste compost is limited to 12 mo (IAC 567-105.4(14)).	Verify that storage of finished compost at yard waste composting facilities is limited to 12 mo.
SO.165.16.IA. When operation of a yard waste composting facility results in a discharge of wastewater the facility must obtain a sanitary disposal permit (IAC 567-105.4(15)).	Verify that when the operation of a yard waste composting facility results in the discharge of wastewater or if a runoff control basin is required, the facility obtains a sanitary disposal permit.
SO.165.17.IA. Land application of yard waste is allowed under specific con-	Verify that yard waste is taken out of containers and the containers are removed from the land application site.

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ditions (IAC 567-105.13).	Verify that the site is managed in a manner which prevents waste from leaving the property line. Verify that the land application does not exceed 20 tons per acre per year. Verify that yard waste is stored for a maximum of 2 wk (if necessary) before it is land applied. (NOTE: Yard waste compost may be applied at any rate. It is not subject to any application rates.)
Solid Waste Composting Facilities	
SO.165.18.IA. Detailed engineering drawings of the solid waste composting facility must be contained in the facility design plan (IAC 567-105.5(1)).	Verify that detailed engineering drawings of the solid waste composting site are contained in the facility design plan and that they include the following information: - all initial and permanent roads - buildings and equipment installed - unloading and holding areas - fences and gates - landscaping devices - personnel and maintenance facilities - sewer and water lines.
SO.165.19.IA. The solid waste composting facility design plan must meet specific requirements (IAC 567-105.5(2) through (5)).	Verify that the method of solid waste composting, the planned duration of solid waste composting, the method of removal of solid waste composted materials, and the final disposition of the solid waste composted material is specified in the facility design plan. Verify that the solid waste composting facility operates in compliance with the facility design plan.
SO.165.20.IA. Solid waste composting facilities must meet specific location requirements (IAC 567-105.5(6)).	Verify that the solid waste composting facility is located at least 500 ft 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.

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SO.165.21.IA. Solid waste compost must be unloaded only when an operator is present (IAC 5670105.3).	Verify that solid waste compost is unloaded at the composting facility only when an operator is on duty at the unloading area.
SO.165.22.IA. Measures must be taken to prevent water runoff from the adjacent land onto the solid waste composting facility (IAC 567-105.5(7)).	Verify that measures are taken which prevent water from running onto the solid waste composting facility from the land adjacent to the site.
SO.165.23.IA. Solid waste composting must take place on an impervious base which has specific characteristics (IAC 567-105.5(8) through (11)).	Verify that solid waste composting takes place on an impervious base that is able to support the load of the equipment used. Verify that the permeability coefficient of the base is less than 1×10^{-7} cm/sec (0.00028 ft/day) and that this is determined by permeameter testing of a minimum of two undisturbed samples. Verify that the base is constructed with asphaltic cement concrete, portland cement concrete, or similar materials which are able to support the equipment load and meet the permeability coefficient. Verify that the low permeability, thickness, and continuity of the base material is maintained. Verify that the area of the base is adequate for the volume of solid waste composted and that design calculations are submitted supporting the proposed area of the base (these calculations must show support for equipment load and composting process used).
SO.165.24.IA. Solid waste composting facilities must have detention basins which meet specific requirements (IAC 567-105.5(12) through (14)).	Verify that the solid waste composting facility's detention basin is designed to contain runoff from a 25-yr, 24-h precipitation event. Verify that the detention basin collects all runoff water resulting from the solid waste composting facility. Verify that the detention basin is located, constructed, and tested according to Chapter 18C of the *Iowa Wastewater Facilities Design Standards* (See 567-64.2(9)b).

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	Verify that one or more piezometers are used to determine the water table. Verify that if a clay liner is used in the detention basin, the coefficient of permeability is less than 1 x 10^{-7} cm/sec (0.00028 ft/day) and that this is determined by permeameter testing of a minimum of two undisturbed samples. Verify that if a synthetic liner is used in the detention basin, testing for leaks is done according to the manufacturer's directions or methods approved by the Department. Verify that the detention basin does not discharge to surface waters except as allowed by a National Pollutant Discharge Elimination System permit. Verify that a maintenance plan for the detention basin is submitted to the Department and that it addresses maintenance of design volume and repair of leaks. Verify that if a clay liner is used, the maintenance plan also addresses repair of cracks that form due to drying or as a result of the freeze/thaw cycle.
SO.165.25.IA. Processing of waste at the solid waste composting facility must meet specific requirements (IAC 567-105.6(1)).	Verify that if mechanical sorting, grinding, or other processing of waste occurs at the solid waste composting facility, the equipment is designed to prevent spilling of wastes, to facilitate easy cleaning, prevent blowing dirt of litter, or wetting of waste from precipitation or runoff.
SO.165.26.IA. Process water must be available to solid waste composting facilities when needed (IAC 567-105.6(2)).	Verify that process water is available as needed during times of low precipitation and for enclosed projects at solid waste composting facilities.
SO.165.27.IA. The method used to prevent discharge from the detention basin of the solid waste composting facility and the method used to provide temperature control must be specified (IAC 567-105.6(3) and (5)).	Verify that the method for preventing discharge from the detention basin of the solid waste composting facility is specified (sewer or hauling equipment). Verify that the method used to provide temperature control for proper composting and pathogen destruction at the solid waste composting facility is specified.

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SO.165.28.IA. Solid waste compost must be turned weekly (IAC 567-105.6(4)).	Verify that solid waste compost is turned at least once per week or that a system of air circulation is used to provide aeration.
SO.165.29.IA. When solid waste compost fails to meet the criteria for finished compost, specific actions must be taken (IAC 567-105.6(6)).	Verify that if the solid waste compost fails to meet the criteria for finished compost, the compost is either returned to process, disposed of in a landfill, or other approved disposal method.
SO.165.30.IA. Holding areas for solid waste compost must have an all-weather surface (IAC 567-105.6(7)).	Verify that all holding areas for solid waste composted material and storage of finished (cured) compost occurs on all-weather surfaces. Verify that the all-weather surfaces are accessible during periods of inclement weather.
SO.165.31.IA. Solid waste compost must pass through a screen with three-eighths inch or less-sized holes (IAC 567-105.6(10)).	Verify that solid waste compost is passed through a screen with holes that are three-eighths inch or less in size.
SO.165.32.IA. Equipment that is not dedicated to the solid waste compost project must be cleaned before removal from the site (IAC 567-105.6(11))	Verify that if equipment is not dedicated to the compost project, it is cleaned before removal from the site and that if sewage sludge is composted, the cleaning includes pathogen destruction by a hot soap spray or other germicidal product.
SO.165.33.IA. Finished solid waste compost must meet specific criteria (IAC 567-105.9 and 105.10).	Verify that only cured solid waste composting meeting the following criteria is considered finished compost which is ready for use: - compost is held at a temperature of 55 ^{o}C (l31 ^{o}F) for at least 2 wk for the purpose of pathogen destruction - other time periods are approved by the Department for aerated static piles or in-vessel composting if necessary. Verify that storage of finished solid waste compost is limited to 12 mo.

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SO.165.34.IA. Application rates for finished solid waste compost must meet specific requirements (IAC 567-105.12).	(NOTE: The following application rates apply to all composted materials meeting the criteria for finished solid waste compost, except yard waste.) Verify that land waste application rates for solid waste compost are not in excess of 30 tons/acre/yr dry weight and that the constituent levels do not exceed the levels listed in Appendix 9-1 per acre/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.) Verify that if the criteria mentioned above and in Appendix 9-1 is not met, a land application permit is obtained pursuant to IAC 567-121.3.
SO.165.35.IA. Solid waste composting facilities must be closed in conformance with specific regulations (IAC 567-105.8).	Verify that solid waste composting facilities are closed in conformance with their approved closure plans, this rule, the requirements of SO.175.24.IA, and the requirements of IAC 567-102. Verify that the Department, upon review of the closure plan, requires groundwater monitoring systems at the facility if deemed necessary.
Solid Waste Composting: Recordkeeping and Reporting	
SO.165.36.IA. Specific records must be maintained at the solid waste composting facility (IAC 567-105.6(8) and (9)).	Verify that the following records are maintained at the solid waste composting facility in order to monitor the operation and that the records are maintained on the premises for Departmental review upon inspection: - twice weekly temperature readings of compost piles, batches, or windrows - volume of waste accepted daily - volume or weight of compost removed from facility - documentation showing compliance with the application rates for finished compost, including application site legal descriptions. Verify that a copies of the permit, engineering plans, and reports are kept at the solid waste composting site at all times.
SO.165.37.IA. Solid waste	Verify that solid waste composting facilities meet the following reporting require-

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composting facilities must meet specific reporting requirements (IAC 567-105.7).	ments: - an annual report of the analytical results and record keeping is submitted to the Department on 1 July - the required records are condensed into monthly totals. - the twice weekly temperature reading from compost piles, batches, or windows.

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OTHER TREATMENT/ PROCESSING UNITS **SO.175. Equipment**	
SO.175.1.IA. Sanitary disposal projects with processing facilities must meet design specifications (IAC 567-104.1(2)).	Verify that all equipment that can be cleaned by washing is installed on reasonably smooth impermeable floors which are easily cleaned and which have drainage to a sanitary sewer unless other acceptable provisions are made to control process or wash water. Verify that all equipment is designed to prevent spilling of waste and to facilitate easy cleaning and is adequately enclosed to prevent blowing dust or litter or wetting of the waste from precipitation or runoff.
Dumping or Holding Floors or Pits	
SO.175.2.IA. Unloading area surfaces must be constructed of a specific material (IAC 567-104.2(1)).	Verify that all unloading area surfaces are constructed of impervious, reasonably smooth material that is easily cleaned, and has drainage to a sanitary sewer.
SO.175.3.IA. Unloading areas must have a certain storage capacity (IAC 567-104.2(2)).	Verify that all unloading areas have a storage capacity of at least one day's processing capacity.
SO.175.4.IA. Unloading areas must be adequately enclosed (IAC 567-104.2(3)).	Verify that all unloading areas are adequately enclosed and roofed to prevent blowing of dust or litter and to prevent precipitation or drainage onto any accumulated waste.
Compaction Equipment	
SO.175.5.IA. Compactors must be placed in specific	Verify that all compactors are located on reasonably smooth impermeable aprons designed to control wash water and area runoff, are easily cleaned, and avoid

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locations (IAC 567-104.3).	creation of fly or rodent habitats.
Hammermills	
SO.175.6.IA. Hammermills must be equipped with dust suppression equipment (IAC 567-104.4(1)).	Verify that all hammermills are equipped with adjustable water spray or other dust suppression equipment.
SO.175.7.IA. Hammermills must be provided with fire and explosion control or suppression devices (IAC 567-104.4(2)).	Verify that all hammermills are provided with fire and explosion control or suppression devices or equipment.
SO.175.8.IA. Solid waste that cannot be processed by the hammermill must be stored in a specific manner (IAC 567-104.4(3)).	Verify that solid waste that cannot be processed by the hammermill or is rejected by it is stored in enclosed leakproof containers.
Hydropulping or Slurrying Equipment	
SO.175.9.IA. Solid waste which cannot be processed by hydropulping or slurrying equipment must be stored in a specific manner (IAC 567-104.5).	Verify that solid waste that cannot be processed by hydropulping or slurrying equipment is stored in enclosed leakproof containers.
Air Classifiers	
SO.175.10.IA. Air classifiers must be equipped with dust suppression equipment (IAC	Verify that air classifiers are equipped with dust suppression equipment unless the air is recirculated.

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567-104.6).	
Metals Separation Equipment	
SO.175.11.IA. Metals separation equipment must be installed at a specific point of the process (IAC 567-104.7(1)).	Verify that metals separation equipment is installed at the point in the process which minimizes possible organic contamination of the metal.
SO.175.12.IA. Provisions must be made for storage of separated metals (IAC 567-104.7(2)).	Verify that provisions are made for storage of separated materials in enclosed leakproof containers.
Sludge Processing	
SO.175.13.IA. Sludges must be introduced into solid waste after resource recovery operations (IAC 567-104.8(1)).	Verify that any sludges are introduced into solid waste after any resource recovery operations.
SO.175.14.IA. Sludge addition equipment and storage facilities must meet specific standards (IAC 567-104.8(2)).	Verify that sludge addition equipment and storage facilities are sanitary and odor free.
Operating Requirements for All Processing Facilities	
SO.175.15.IA. Processing equipment must be cleaned daily (IAC 567-104.10(1)).	Verify that all processing equipment is cleaned daily unless the Department approves less frequent cleaning on a specific schedule stipulating component part, cleaning method, and schedule.

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SO.175.16.IA. Disposal of processed or rejected solid waste must meet appropriate disposal requirements (IAC 567-104.10(3)).	Verify that all processed or rejected solid waste is disposed of in conformance with appropriate disposal requirements.
SO.175.17.IA. Emergency access must be provided to material in solid waste storage facilities (IAC 567-104.10(4)).	Verify that emergency access is provided to the material in solid waste storage facilities.
SO.175.18.IA. Solid waste must follow specific storage time requirements (IAC 567-104.10(5)).	Verify that solid waste, except for composted materials, but including refuse derived fuels is not stored on the site for more than 72 h.
SO.175.19.IA. An operator must be on duty when solid waste is unloaded or stored (IAC 567-104.10(6)).	Verify that solid waste is unloaded at the operating areas only when an operator is on duty at the area. Verify that solid waste is deposited in storage containers inside the site under the supervision of an attendant or operator.
SO.175.20.IA. The solid waste operating area must be as small as practicable and surrounded by barriers (IAC 657-104.10(7)).	Verify that the operating area for solid waste is as small as practicable and is surrounded with appropriate barriers to prevent litter from blowing beyond the operating area.
SO.175.21.IA. The processing site must be fenced with a gate to provide access to the facility (IAC 567-104.10(8)).	Verify that the site is fenced to control access and a gate is provided at the entrance to the site and is kept locked when an attendant or operator is not on duty.
SO.175.22.IA. A copy of the	Verify that a copy of the permit, engineering plans, and reports are kept at the site

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REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
permit, engineering plans and reports must be kept on site (IAC 567-104.10(9)).	at all times.
SO.175.23.IA. Sites not opened to the public must have a sign posted with specific information (IAC 567-104.10(10)).	Verify that sites not open to the public have a permanent sign posted at the site entrance specifying: - name of operation - the site permit number - that the site is not open to the public - the name and telephone number of the responsible official.
Closure Requirements for Sanitary Disposal Projects with Processing Facilities	
SO.175.24.IA. Sanitary disposal projects with processing facilities must close in conformance with their approved closure plan (IAC 567-104.11).	Verify that all sanitary disposal projects with processing facilities close in conformance with their approved closure plan and the following rules: - all equipment, storage facilities, holding areas, and drainage collection systems are cleaned and decontaminated - all processed waste, stored waste, and waste from cleaning and decontaminating the facility is removed and disposed of in a permitted disposal facility - obtain a closure permit dependent upon the potential of the closed facility for environmental impact.

Appendix 9-1

Cumulative Limits
Soil Cation Exchange Capacities
(Source: IAC 567-105.12)

Metal	<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	1000 lb/ac	2000 lb/ac
Nickel (Ni)	125 lb/ac	250 lb/ac	500 lb/ac
Zinc (Zn)	250 lb/ac	500 lb/ac	1000 lb/ac

SECTION 10

STORAGE TANK MANAGEMENT

Iowa Supplement, April 2000

This section covers the state requirements for Storage Tank Management and is intended to supplement the U.S. TEAM Guide. Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.

Federal Regulations Adopted by Reference

See Appendix 10-1 for Federal Regulations and professional standards incorporated by reference.

Definitions

- *Aboveground Release* - any release to the surface of the land or to surface water. This includes, but is not limited to, releases from the aboveground portion of underground storage tank (UST) systems and aboveground releases associated with overfills and transfer operations as the regulated substance moves to or from a UST system (IAC 567-135.2).

- *Ancillary Equipment* - any devices including, but not limited to, such devices as piping, fittings, flanges, valves, and pumps used to distribute, meter, or control the flow of regulated substances to and from a UST (IAC 567-135.2).

- *Below-Ground Release* - any reference to the subsurface of the land and to groundwater. This includes but is not limited to, releases from the below-ground portions of an UST system and below-ground releases associated with overfills and transfer operations as the regulated substances moves to or from a UST (IAC 567-135.2).

- *Beneath the Surface of the Ground* - beneath the ground surface or otherwise covered with earthen materials (IAC 567-135.2).

- *Best Available Technology* - those practices which most appropriately remove, treat, or isolate contaminants from groundwater, soil, or associated environment, as determined through professional judgment considering actual equipment or technologies currently in use, published technical articles, site hydrogeology and research results, engineering and groundwater professional reference materials, consultation with experts in the field, capital and operating costs, and guidelines or rules of other regulatory agencies (IAC 567-135.2).

- *Best Management Practices* - maintenance procedures, schedule of activities, prohibition of practices, and other management practices, or a combination thereof, after problem assessment is determined to be the most effective means of monitoring and preventing additional contamination of the groundwater and soil (IAC 567-135.2).

- *Building* - any structure used for or intended for supporting or sheltering any use or occupancy. Each portion of a building separated by one or more area separation walls with a fire-resistive rating of at least 2 h may be considered a separate building (IAC 661-5.2) [Added June 1997].

- *Cathodic Protection* - a technique to prevent corrosion of a metal surface by making that surface the cathode of an electrochemical cell. For example, a tank system can be cathodically protected through the application of either galvanic anodes or impressed current (IAC 567-135.2).

- *Cathodic Protection Tester* - a person who can demonstrate an understanding of the principles and measurements of all common types of cathodic protection systems as applied to buried or submerged metal piping

and tank systems. At a minimum, such persons must have education and experience in soil resistivity, stray current, structure-to soil potential, and component electrical isolation measurements of buried metal piping and tank systems (IAC 567-135.2).

- *Certified Groundwater Professional* - a person certified pursuant to 1995 Iowa Code section 455G.18 and 567 to provide subsurface soil contamination and groundwater consulting services, or to contract to perform or supervise remediation or corrective action services at leaking underground storage tank sites (IAC 567-134.2) [Added June 1997].

- *Change-in-Service* - changing the use of a tank system from a regulated to a nonregulated use (IAC 567-135.2) [Added June 1997].

- *Chemicals of Concern* - the compounds derived from petroleum-regulated substances which are subject to evaluation for purposes of applying risk-based corrective action decision making. These compounds are benzene, ethylbenzene, toluene, and xylenes (BTEX) and naphthalene, benzo(a)pyrene, benz(a)anthracene, and chrysene. (IAC 567-135.2) [Added June 1997].

- *Compatible* - the ability of two or more substances to maintain their respective physical and chemical properties upon contact with one another for the design life of the tank system under conditions likely to be encountered in the UST (IAC 567-135.2).

- *Conduit* - underground structures which act as pathways and receptors for chemicals of concern, including but not limited to gravity drain lines and sanitary or storm sewers (IAC 567-135.2) [Added June 1997].

- *Connected Piping* - all underground piping including valves, elbows, joints, flanges, and flexible connectors attached to a tank system through which regulated substances flow. For the purpose of determining how much piping is connected to any individual UST system, the piping that joins two UST systems should be allocated equally between them (IAC 567-135.2).

- *Consumptive Use* - with respect to heating oil, means consumed on the premises (IAC 567-135.2).

- *Corrective Action* - an action taken to reduce, minimize, eliminate, cleanup, control, or monitor a release to protect the public health and safety or the environment. Corrective action includes, but is not limited to, excavation of an UST for the purpose of repairing a leak or removal of a tank, removal of contaminated soil, disposal or processing of contaminated soil, cleansing of groundwater or surface waters, natural biodegradation, institutional controls, technological controls, and site management practices. Corrective action does not include replacement of a UST. Corrective action specifically excludes third-party liability (IAC 567-135.2) [Revised June 1997].

- *Corrosion Expert* - a person who, by reason of thorough knowledge of the physical sciences and the principles of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person must be accredited or certified as being qualified by the National Association of Corrosion Engineers or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and tanks (IAC 567-135.2).

- *Department* - Iowa Department of Natural Resources (IAC 567-135.2).

- *Depositor* - any person holding title to petroleum who deposits or causes to be deposited petroleum into a tank and who transfers that title to a receiver. See below for definitions of "receiver" and "tank". Persons (such as common or contract carriers) who transfer possession of, but not title to, petroleum from depositors to receivers are not depositors for the purposes of this chapter. A person's status and responsibilities as a depositor are not altered by the fact that title to petroleum passes to a receiver before the petroleum is placed in a tank; however, see rule 591-6.8(424) (IAC 591-6.1) [Added June 1997].

- *Dielectric Materials* - a material that does not conduct direct electrical current. Dielectric coatings are used to electrically isolate UST systems from the surrounding soils. Dielectric bushings are used to electrically isolate portions of the UST systems (e.g. tank from piping) (IAC 567-135.2).

- *Electrical Equipment* - underground equipment that contains dielectric fluid that is necessary for the operation of equipment such as transformers and buried electrical cable (IAC 567-135.2).

- *Excavation Zone* - the volume containing the tank system and backfill material bounded by the ground surface, walls, and floors of the pit and trenches into which the UST system is placed at the time of installation (IAC 567-135.2).

- *Existing Tank System* - a tank system used to contain an accumulation of regulated substances or for which installation has commenced on or before 14 January 1987. Installation is considered to have commenced if the owner or operator has obtained all Federal, state, and local approvals or permits necessary to begin physical construction of the site or installation of the tank system and if either:
    1. a continuous onsite physical construction or installation program has begun
    2. the owner or operator has entered into contractual obligations, which cannot be canceled or modified without substantial loss, for physical construction at the site or installation of the tank system to be completed within reasonable time (IAC 567-135.2).

- *Farm Tank* - a tank located on a tract of land devoted to the production of crops or raising animals, including fish, and associated residences and improvements. A farm tank must be located on the farm property. The term includes fish hatcheries, rangeland, and nurseries with growing operations (IAC 567-135.2).

- *Fire* - includes explosions in which fire, combustion or rapid oxidation is an element but does not include explosions caused by nonflammable gases, liquids, or other materials (IAC 661-5.2) [Added June 1997].

- *Fire Marshal* - the fire marshal, the assistant fire marshal, fire prevention inspectors, special agents, fire prevention specialist, and designated subordinates (IAC 661-5.2) [Added June 1997].

- *Fire Marshal's Office* - the headquarters of the fire marshal (IAC 661-5.2) [Added June 1997].

- *Flow-Through Process Tank* - a tank that forms an integral part of a production process through which there is a steady, variable, reoccurring, or intermittent flow of materials during the operation of the process. Flow-through process tanks do not include tanks used for the storage of materials prior to their introduction into the production process or for the storage of finished products or by-products from the production process (IAC 567-135.2).

- *Free-Product* - a regulated substance that is present as a nonaqueous phase liquid (e.g., liquid not dissolved in water) (IAC 567-135.2).

- *Gathering Lines* - any pipeline, equipment, facility, or building used in the transportation of oil or gas during oil or gas production of gathering operations (IAC 567-135.2).

- *Hazardous Substance UST System* - a UST system that contains a hazardous substance defined in section 101(14) of the *Comprehensive Environmental Response, Compensation and Liability Act* of 1980 (but not including any substance regulated as a hazardous waste under subtitle C) or any mixture of such substances and petroleum, and which is not a petroleum UST system (IAC 567-135.2).

- *Heating Oil* - petroleum that is No. 1, No. 2, No. 4-light, No. 4-heavy, No. 5-light, No. 5-heavy, and No. 6 technical grades of fuel oil; other residual fuel oils (including Navy Special Fuel Oil and Bunker C); and other fuels when used as substitutes for one of these fuel oils. Heating oil is typically used in the operation of heating equipment, boilers, or furnaces. (IAC 567-135.2) [Revised June 1997].

- *Hydraulic Conductivity* - the rate of water movement through the soil measured in meters per day (m/d) as determined by the following methods. For a saturated soil, the Bouwer-Rice method or its equivalent shall be used. For unsaturated soil, use a Guelph permeameter or an equivalent in situ constant-head permeameter in a boring finished above the water table. If an in situ method cannot be used for unsaturated soil because of depth, or if the soil is homogeneous and lacks flow-conducting channels, fractures, cavities, etc., laboratory measurement of hydraulic conductivity is acceptable. If laboratory methods are used, collect undisturbed soil samples using a thin-walled tube sampler in accordance with ASTM Standard D1587. Samples shall be clearly marked, preserved, and transported to the laboratory. The laboratory shall measure hydraulic conductivity using a constant-head permeameter in accordance with ASTM Standard D2434 or a falling-head permeameter in accordance with accepted methodology (IAC 567-135.2).

- *Hydraulic Lift Tank* - a tank holding hydraulic fluid for a closed-loop mechanical system that used compressed air or hydraulic fluid to operate lifts, elevators, and other similar devices (IAC 567-135.2).

- *Institutional Controls* - the restriction on use or access (for example, fences, deed restrictions, restrictive zoning) to a site or facility to eliminate or minimize potential exposure to a chemical(s) of concern. Institutional controls include any of the following:
    1. a law of the United States or the state
    2. a regulation issued pursuant to Federal or state laws
    3. an ordinance or regulation of a political subdivision in which real estate subject to the institutional control is located
    4. a restriction on the use of or activities occurring at real estate which are embodied in a covenant running with the land which:
        a. contains a legal description of the real estate in a manner which satisfied Iowa Code section 558.1 et seq.
        b. is properly executed, in a manner which satisfies Iowa Code section 558.1 et seq.
        c. is recorded in the appropriate office of the county in which the real estate is located
        d. adequately and accurately describes the institutional control; and
        e. is in the form of a covenant as set out in Appendix C or in such a manner reasonably acceptable to the Department
    5. any other institutional control the owner or operator can reasonably demonstrate to the Department which will reduce the risk from a release throughout the period necessary to ensure that no applicable target risk is likely to be exceeded (IAC 567-135.2) [Added June 1997].

- *Liquid Trap* - sumps, well cellars, and other traps used in association with oil and gas production, gathering, and extraction operations (including gas production plants), for the purpose of collecting oil, water, and other liquid. These liquid traps may temporarily collect liquids for subsequent disposition or reinjection into a production or pipeline stream, or may collect and separate liquids from a gas stream (IAC 567-135.2).

- *Maintenance* - the normal operational upkeep to prevent a UST system from releasing product (IAC 567-135.2).

- *Motor Fuel* - means petroleum or a petroleum-based substance that is motor gasoline, aviation gasoline, No. 1 or No. 2 diesel fuel, or any grade of gasohol, and is typically used in the operation of a motor engine (IAC 567-135.2).

- *New Tank System* - a tank system that will be used to contain an accumulation of regulated substance and for which installation has commenced after 14 January 1987. (See also Existing Tank System) (IAC 567-135.2).

- *Noncommercial Purposes* - with respect to motor fuel, not for resale (IAC 567-135.2).

- *On the Premises Where Stored* - with respect to heating oil, UST systems located on the same property where the stored heating oil is used (IAC 567-135.2).

- *Operational Life* - the period beginning when installation of the tank system has commenced until the time the tank system is properly closed under IAC 567-135.8(455B) (IAC 567-135.2).

- *Operator* - any person in control of, or having responsibility for, the daily operation of the UST system (IAC 567-135.2).

- *Overfill Release* - a release that occurs when a tank is filled beyond its capacity, resulting in a discharge of the regulated substance to the environment (IAC 567-135.2).

- *Owner* -
    1. for a UST system in use on 1 July 1985, or brought in to use after that date, any person who owns a UST system for storage, use, or dispensing of regulated substances
    2. for a UST system in use before 1 July 1985, but no longer in use on that date, any person who owned such UST immediately before the discontinuation of its use

  Owner does not include a person, who, without participating in the management or operation of the UST or the tank site, holds indicia of ownership primarily to protect that person's security interest in the UST or the tank site property, prior to obtaining ownership or control through debt enforcement, debt settlement, or otherwise (IAC 567-135.2).

- *Pathway* - a transport mechanism by which chemicals of concern may reach a receptor(s) or the location(s) of a potential receptor (IAC 567-135.2) [Added June 1997].

- *Permanent Closure* - removing all regulated substances from the tank system, assessing the site for contamination, and permanently removing tank and piping from the ground or filling the tank in place with a solid inert material and plugging all piping. Permanent closure also includes partial closure of a tank system such as removal or replacement of tanks or piping only (IAC 567-135.2) [Added June 1997].

- *Person* - an individual, trust, firm, joint stock company, federal agency, corporation, state, municipality, commission, political subdivision of state, or any interstate body. The term person includes also a consortium, a joint venture, a commercial entity, and the United States government (IAC 567-135.2).

- *Petroleum* - crude oil or any fraction of crude oil which is liquid at standard conditions of temperature and pressure (60 º F and 14.7 psia) (IAC 591-6.1) [Added June 1997].

- *Petroleum UST System* - a UST system that contains petroleum or a mixture of petroleum with *de minimus* quantities of other regulated substances. Such systems include those containing motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils (IAC 567-135.2).

- *Pipe or Piping* - a hollow cylinder or tubular conduit that is constructed of non-earthen materials (IAC 567-135.2).

- *Pipeline Facilities (*including *Gathering Lines)* - new and existing pipe rights-of-way and any associated equipment, facilities, or buildings (IAC 567-135.2).

- *Potential Receptor* - a receptor not in existence at the time a Tier 1, Tier 2, or Tier 3 site assessment is prepared, but which could reasonably be expected to exist within 20 yr of preparation of the Tier 1, Tier 2, or Tier 3 site assessment or as otherwise specified in these rules (IAC 567-135.2) [Added June 1997].

- *Protected Groundwater Source* - a saturated bed, formation, or group of formations which has a hydraulic conductivity of at least 0.44 m/d and a total dissolved solids of less than 2500 mg/L or a bedrock aquifer with total dissolved solids of less than 2500 mg/L if bedrock is encountered before groundwater (IAC 567-135.2) [Revised June 1997].

- *Receptor* - enclosed spaces, conduits, protected groundwater sources, drinking and nondrinking water wells, surface water bodies, and public water systems which when impacted by chemicals of concern may result in exposure to humans and aquatic life, explosive conditions or other adverse effects on health, safety and the environment as specified in these rules (IAC 567-135.2) [Added June 1997].

- *Regulated Substance* - an element, compound, mixture, solution, or substance which, when released into the environment, may present substantial danger to the public health or welfare or the environment. Regulated substance includes:
    1. substances designated in Table 302.4 of 40 CFR part 304
    2. substances which exhibits the characteristic identified in 40 CFR 261.20 through 261.24 and which are not excluded from regulation as a hazardous waste under 40 CFR 261.4(b)
    3. any substance defined in section 101(14) of the *Comprehensive Environmental Response, Compensation and Liability Act* of 1980 (but not including any substance regulated as a hazardous waste under subtitle C)
    4. petroleum, including crude oil or any fraction thereof that is liquid at standard conditions of temperature and pressure (60 °F and 14.7 psia).

  The term includes, but is not limited to, petroleum and petroleum-based substances comprised of a complex blend of hydrocarbons derived from crude oil through processes of separation, conversion, upgrading, and finishing, such as motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils (IAC 567-135.2).

- *Release* - any spilling, leaking, emitting, discharging, escaping, leaching, or disposing of a regulated substance, including petroleum, from a UST into groundwater, surface water, or subsurface soils (IAC 567-135.2).

- *Release Detection* - determining whether a release of a regulated substance has occurred from the UST system into the environment or into the interstitial space between the UST system and its secondary barrier or secondary containment around it (IAC 567-135.2).

- *Repair* - to restore a tank or UST system component that has caused a release of product from the UST system (IAC 567-135.2).

- *Residential Tank* - a tank located on property used primary for dwelling purposes (IAC 567-135.2).

- *Septic Tank* - a watertight covered receptacle designed to receive or process, through liquid separation or biological digestion, the sewage discharged from a building sewer. The effluent from such receptacle is distributed for disposal through the soil and settled solids and scum from the tank are pumped out periodically and hauled to a treatment facility (IAC 567-135.2).

- *Site Assessment Investigation* - an investigation conducted by a registered groundwater professional to determine relevant site historical data, the types, amounts, and sources of petroleum contaminants present, hydrogeological characteristics of the site, full vertical and horizontal extent of the contamination in soils and groundwater, direction and rate of flow of the contamination, ranges of concentration of the contaminants by analysis of soils and groundwater, the vertical and horizontal extent of the contamination exceeding Department standards, and the actual or potential threat to public health and safety and the environment (IAC 567-135.2).

- *Site Cleanup Report* - the report required to be submitted by these rules and in accordance with Department guidance which may include the results of Tier 2 or Tier 3 assessment and analysis (IAC 567-135.2) [Revised June 1997].

- *Stormwater or Wastewater Collection System* - piping, pumps, conduits, and any other equipment necessary to collect and transport the flow of surface water runoff resulting from precipitation, or domestic, commercial, or industrial wastewater to and from retention areas or any areas where treatment is designated to occur. The collection of stormwater and wastewater does not include treatment except where incidental to conveyance (IAC 567-135.2).

- *Surface Impoundment* - a natural topographic depression, constructed excavation, or diked area formed primarily of earthen materials (although it be lined with manufactured materials) that is not an injection well (IAC 567-135.2) [Revised June 1997].

- *Tank* - a stationary device designed to contain an accumulation of regulated substances and constructed of nonearthen materials (e.g., concrete, steel, plastic that provide structural support (IAC 567-135.2).

- *Target Level* - the allowable concentrations of chemicals of concern established to achieve an applicable target risk which must be met at the point(s) of compliance as specified in these rules (IAC 567-135.2) [Added June 1997].

- *Target Risk* - to an applicable carcinogenic and noncarcinogenic risk factor designated in these rules and used in determining target levels (for carcinogenic risk assessment, target risk is a separate factor, different from exposure factors, both of which are used in determining target levels) (IAC 567-135.2) [Added June 1997].

- *Technological Controls* - a physical action which does not involve source removal or reduction, but severs or reduces exposure to a receptor, such as caps, containment, carbon filters, point of use water treatment, etc. (IAC 567-135.2) [Added June 1997].

- *Tier 1 Site Assessment* - the evaluation of limited site-specific data compared to the Tier 1 levels established in these rules for the purpose of determining which pathways do not require assessment and evaluation at Tier 2 and which sites warrant a no further action required classification without further assessment and evaluation (IAC 567-135.2) [Added June 1997].

- *Tier 2 Site Assessment* - the process of assessing risk to actual and potential receptors by using site-specific field data and designated Tier 2 exposure and fate and transport models to determine the applicable target level(s) (IAC 567-135.2) [Added June 1997].

- *Tier 3 Site Assessment* - a site-specific risk assessment utilizing more sophisticated data or analytic techniques than a Tier 2 site assessment (IAC 567-135.2) [Added June 1997].

- *Underground Area* - an underground room, such as a basement, cellar, shaft, or vault, providing enough space for physical inspection of the exterior of the tank situated on or above the surface of the floor (IAC 567-135.2).

- *Underground Release* - any below-ground release (IAC 567-135.2) [Added June 1997].

- *Underground Storage Tank (UST)* - any one or combinations of tanks (including underground pipes connected thereto) that is used to contain an accumulation of regulated substances, and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground. This term does not include:
    1. farm or residential tanks of 1100 gallons or less capacity used for storing motor fuel for noncommercial purposes. Iowa Code section 455B.471 requires those tanks existing prior to 1 July 1987, to be registered. Tanks installed on or after 1 July 1987, must comply with all 567.135
    2. tanks used for storing heating oil for consumptive use on the premises where stored
    3. septic tanks
    4. pipeline facilities (including gathering lines) regulated under
        a. the *Natural Gas Pipeline Safety Act* of 1969
        b. the *Hazardous Liquid Pipeline Safety Act* of 1979
        c. intrastate pipeline facility regulated under state laws comparable to the provisions of the law referred to in either of these two above regulations
    5. surface impoundments, pits, ponds, or lagoons
    6. stormwater or wastewater collection systems
    7. flow-through process tanks

8. liquid traps or associated gathering lines directly related to oil or gas production and gathering operations
9. storage tanks situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel if the storage tank is situated on or above the surface of the floor
10. any pipes connected to any such tank (IAC 567-135.2) [Revised June 1997].

- *Upgrade* - the addition or retrofit of some systems such as cathodic protection, lining, or spill and overfill controls to improve the ability of a UST system to prevent the release of product (IAC 567-135.2).

- *UST System or Tank System* - a UST, connected underground piping, underground ancillary equipment, and containment system, if any (IAC 567-135.2).

- *Wastewater Treatment Tank* - a tank that is designed to receive and treat and influent wastewater through physical, chemical, or biological methods (IAC 567-135.2).

STORAGE TANK MANAGEMENT
GUIDANCE FOR IOWA CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:
Missing Checklist Items	ST.2.1.IA
Aboveground Storage Tanks	ST.5.1.IA through ST.5.4.IA
The State of Iowa adopts National Fire Protection Association (NFPA) 30 and 30A in IAC 661-5.304(101) along with the exceptions and additions expanded in ST.5 of these regulations. NFPA 395 is also adopted in IAC 661-5.305(101) (see Appendix 10-1).	
UST State Specific	
General	ST.30.1.IA through ST.30.5.IA
Farm And Residential	ST.30.7.IA
New or Upgraded USTs	ST.35.1.IA through ST.35.4.IA
UST Filling	ST.45.1.IA
UST Corrosion Protection	ST.50.1.IA
UST Repairs	ST.55.1.IA
Release Detection for USTs	
General	ST.60.1.IA and ST.60.2.IA
Petroleum USTs	ST.65.1.IA and ST.65.2.IA
Hazardous Substance USTs	ST.70.1.IA
UST Releases	ST.80.1.IA through ST.80.10.IA
UST Documentation	ST.90.1.IA and ST.90.2.IA
Changes in Service or Closure of USTs	ST.95.1.IA through ST.95.5.IA
Hazardous Waste Storage Tanks	
The State of Iowa has adopted the following Federal regulations: 40 CFR 262, as amended 15 July 1985; 40 CFR 264, as amended 15 July 1985;and 40 CFR 265, as amended 15 July 1985.	
Flammable Combustible Liquid Storage Tanks	ST.120.1.IA

GUIDANCE FOR APPENDIX USERS

REFER TO APPENDIX NUMBERS:	**REFER TO APPENDIX TITLES:**
10-1	Federal Regulations and Professional Standards Adopted by Reference

COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
ST.2 **MISSING CHECKLIST ITEMS**	
ST.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
ST.5. ABOVEGROUND STORAGE TANKS	
ST.5.1.IA. All aboveground storage tanks (ASTs) storing combustible/flammable liquids must be registered with the fire marshall prior to construction (IAC 661-5.307(101)).	Verify that the AST is registered with and approved by the fire marshal. Verify that a tag or decal, issued by the fire marshal, is placed on each fill pipe within 1 ft of where it attaches to the tank. (NOTE: ASTs with a capacity of less than 1101 gal capacity do not need to be registered with the fire marshal.)
ST.5.2.IA. ASTs storing flammable/combustible liquids must have external control valves and emergency internal check valves (IAC 661-5.300(101) [Revised June 1997]).	Verify that each connection to an AST through which liquid can normally flow is provided with an external control valve located as close as practicable to the shell of the tank. Verify that, in addition to the control valve or any other normal tank valves, there is an emergency internal check valve at each pipe connection to any tank opening below normal liquid level. Verify that the emergency internal check valve is effectively located inside the tank shell and operable both manually and by an effective heat activated device which, in case of fire, automatically closes the valve to prevent the flow of liquid from the tank even though the pipe lines are broken from the tank. Verify that all valves are made of steel unless the liquid to be stored is incompatible with steel. (NOTE: The following tanks do not require emergency internal check valves: - crude oil tanks in oil fields - tanks at refineries - tanks at terminals which are equipped with a swing line - tanks where facilities are provided to transfer the contents of the tank to another tank in case of fire.) (NOTE: Spillage control is not required for double-walled tanks when the system complies with either 40 CFR 112 or all of the following: - the tank system has top only openings and is either an Underwriters Laboratories (UL) listed steel double-walled tank or a UL listed steel inner tank with an outer containment tank wall constructed in accordance with nationally accepted industry standards - the tank has overfill prevention which will alert the operator with an audible or visual alarm when the tank reaches not more than 90 percent capacity - the tank has automatic flow shut-off which automatically stops product flow

COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
	so that none of the fittings on the top of the tanks are exposed to product as a result of overfilling - the tank has automatic flow restriction which restrict product flow when the tank reaches not more than 90 percent capacity - the tank fill opening is provided with a spill container which holds at least 7 gal - the interstitial tank space is monitored by an approved, continuous, automatic detection system capable of detecting liquids, including water.)
ST.5.3.IA. The property at bulk plants must be maintained (IAC 661-5.303) [Revised June 1997].	Verify that the property is kept free from weeds, high grass, rubbish, and litter, and is kept neat, clean, and orderly.
ST.5.4.IA. [Deleted June 1997].	

COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
UST STATE-SPECIFIC **ST.30. General**	(NOTE: The following tanks are exempt from all of these UST requirements: - any UST holding hazardous wastes listed or identified under Subtitle C of the *Solid Waste Disposal Act*, or a mixture of such hazardous waste and other regulated substances - any wastewater treatment tank system that is part of a wastewater treatment facility regulated under Section 402 or 307(b) of the *Clean Water Act* - equipment or machinery containing regulated substances for operational purposes - UST systems with a capacity of 110 gal or less - any UST system containing *de minimus* concentration of regulated substances - any emergency spill or overflow containment UST system that is expeditiously emptied after use. Unless otherwise specified, these UST regulations do not apply to the following deferred UST systems: - wastewater treatment tank systems - any UST systems containing radioactive material regulated under the Federal *Atomic Energy Act* of 1954 (42 USC 2011 and following) - any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50 Appendix A - airport hydrant fuel distribution systems - UST systems with field-constructed tanks.) [Revised June 1997]
ST.30.1.IA. Tanks must be registered with the Department (IAC 567-135.3(5), 567-135.1(3), and 567-135.3(7)) [Revised June 1997].	Verify that the tank is registered with the Department and has a registration tag affixed where it is readily available. (NOTE: Owners of tanks which are exempt through the 1989 Iowa *Acts*, House File 447, sections 42-58, may file for exemption with the Department.) (NOTE: Tanks of 1100 gal or less capacity that have registered with the Department will be issued a permanent registration tag.) Verify that the registration tag is affixed to the fill pipe of the UST where it will be readily visible. Verify that regulated substances are not deposited into any tank that does not have a current registration tag affixed to the fill pipe or fill pipe cap.
ST.30.2.IA. UST system materials or liners must be compatible with the sub-	Verify that the UST system's materials or liners are compatible with the materials stored in it.

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stances stored in the UST system (IAC 567-135.4(3)).	
ST.30.3.IA. Groundwater professionals must be certified (IAC 567-134.1 and 134.2(1)).	(NOTE: For the purposes of this section, a person who engages only in installation or removal of underground storage tanks and piping is not considered a groundwater professional.) Verify that all groundwater professionals consulted or hired by the federal facility are certified or working under the direct supervision of a certified groundwater professional.
ST.30.4.IA. [Moved to ST.30.7.IA June 1997].	
ST.30.5.IA. Deferred UST systems used to store regulated substances must meet specific criteria before installation (IAC 567-131(4)) [Added June 1997].	Verify that any deferred UST system in which regulated substances will be stored is not installed unless it meets the following criteria: - prevents releases due to corrosion or structural failure for the operational life of the UST system - is cathodically protected against corrosion, constructed of noncorrodible material, steel clad with a noncorrodible material, or designed in a manner to prevent the release or threatened release of any stored substance - is constructed or lined with material that is compatible with the stored substance. (NOTE: Notwithstanding this requirement, a UST system without corrosion protection may be installed at a site determined by a corrosion expert not to be corrosive enough to cause it to have a release due to corrosion during its operating life.) Verify that records demonstrating compliance with this requirement are maintained for the remaining life of the tank. (NOTE: The National Association of Corrosion Engineers Standard RP-02-85, "Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems," may be used as guidance for complying.)
ST.30.6.IA. UST systems must meet specific notification requirements (IAC 567-135.3(3) and 567-135.4(a)	Verify that the Department was notified of the operating status of USTs existing on or before 1 July 1985, and those taken out of operation between 1 January 1974 and 1 July 1985.

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and (b)) [Moved from ST.35.3.IA and revised June 1997].	Verify that the Department is notified within 30 days of the existence of a UST brought into use after 1 July 1985. Verify that, for new UST systems, the notification form certifies compliance with the following standards: - tanks and piping installation - cathodic protection of steel tanks and piping - financial responsibility - release detection - methods of installation of UST system. (NOTE: USTs falling under Section 103, Subsection C of the *Comprehensive Environmental Response, Compensation and Liabilities Act* of 1980 are exempt from these requirements.)
Farm and Residential	
ST.30.7.IA. Farm and residential USTs must comply with UST regulations (IAC 567-135.3(4)(c)) [Moved from ST.30.4.IA and revised June 1997].	Verify that the Department was notified of all farm and residential tanks installed before 1 July 1987. Verify that farm and residential tanks installed on or after 1 July 1987 are in compliance with all the underground storage tank regulations.

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ST.35. NEW OR UPGRADED USTs	
ST.35.1.IA. New UST systems must meet specific design, construction and installation standards (IAC 567-135.3(1)(a), (b), (d), and (e)) [Revised June 1997].	Verify that each tank and piping is properly designed and constructed, and that any portion underground routinely containing product is protected from corrosion in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory. Verify that the new tank is constructed of one of the following materials or combination of materials: - fiberglass-reinforced plastic - steel and is cathodically protected in the following manner: - coated with a suitable dielectric materia - designed by a corrosion expert (field-installed cathodic protection systems) - impressed current systems allow determination of current operating status - operated and maintained according to these regulations - a steel-fiberglass-reinforced plastic composite - metal without additional corrosion protection measures provided: - it is installed at a site that a corrosion expert determines not be corrosive enough to cause a release due to corrosion during its operating life - owners and operators maintain records that demonstrate the opinion of the corrosion expert - one that the Department determines to be no less protective of human health and the environment than those listed above. Verify that piping routinely containing regulated substances and in contact with the ground is constructed of one of the following: - fiberglass-reinforced plastic - steel and is cathodically protected in the following manner: - coated with a suitable dielectric materia - designed by a corrosion expert (field-installed cathodic protection systems) - impressed current systems allow determination of current operating status - operated and maintained according to these regulations or guidelines established by the Department - metal without additional corrosion protection measures, provided both of the following conditions are met: - it is installed at a site corrosion expert determines not to be corrosive enough to cause a release due to corrosion during its operating life - owners and operators maintain records that demonstrate the opinion of the corrosion expert - piping construction and corrosion protection are determined by the Department to be designed to prevent the release or threatened release of any stored regulated substance in a manner that is no less protective of human

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	health and the environment than those listed above. Verify that installation of all tanks and piping are in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and in accordance with the manufacturer's instructions. Verify that one or more of the following certification, testing, or inspection methods is used to demonstrate compliance with installation requirements: - installer has been certified by the tank and piping manufacturers - installer has been certified or licensed by the Iowa Comprehensive Petroleum UST Fund Board - installation has been inspected and certified by a registered professional engineer with education and experience in UST system installation - installation has been inspected and certified by a registered professional engineer with education and experience in UST system installation - installation has been inspected and approved by an inspector certified or licensed by the Iowa Comprehensive Petroleum UST Fund Board - all work listed in the manufacturer's installation checklists has been completed - the owner or operator has complied with another method for ensuring compliance approved by the Department.

ST.35.2.IA. Federal facilities must follow general requirements for upgrading UST systems (IAC 567-135.3(2)) [Revised June 1997].	Verify that all USTs are upgraded or properly closed by 22 December 1998.
	
	Verify that steel tanks are upgraded to meet one of the following requirements in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory:
	
	- interior lining, if:
	- it is installed according to Department requirements
	- it is inspected within 10 yr and every 5 yr thereafter
	- cathodic protection, if:
	  - the tank is externally inspected and assessed to ensure structural stability and is free of corrosion holes prior to installing and cathodic protection system
	  - the tank has been installed for less than 10 yr and is monitored monthly for releases
	  - the tank has been installed for less than 10 yr and is assessed for corrosion holes by conducting two tightness tests, one before installing the cathodic protection system, and the other between 3 and 6 mo following the first operation of the cathodic protection system
	  - the tank is assessed for corrosion holes by another method approved by the Department
	- internal lining combined with cathodic protection, if:
	  - the lining is installed according to Department requirements
	  - the cathodic protection system meets the requirements in ST.35.1 of

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	these regulations. Verify that metal piping that routinely contains regulated substances and is in contact with the ground is upgraded with cathodic protection in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory. Verify that the spill and overfill prevention equipment comply with the requirements for new USTs in ST.35.1 of these regulations. Verify that the replacement or upgrade of a tank system on a petroleum contaminated site classified as a high or low risk is a double wall tank or a tank equipped with a secondary containment system with monitoring of the space between the primary and secondary containment structures or other tank system or methodology approved by the Iowa Comprehensive Petroleum Underground Storage Tank Fund Board.
ST.35.3.IA. [Moved to ST.30.6.IA June 1997].	
ST.35.4.IA. New UST systems must meet specific spill and overfill standards (IAC 567-135.3(1)(c)) [Added June 1997].	Verify that spill prevention equipment is in use to prevent the release of product to the environment when the transfer hose is detached from the fill pipe (e.g., a spill catchment basin). Verify that overfill prevention equipment is in use that does one of the following: - automatically shuts off the flow into the tank when the tank is no more than 95 percent full - alerts the transfer operator when the tank is no more than 90 percent full by restricting flow or triggering a high-level alarm - restricts flow 30 minutes prior to overfilling, alerts the operator with a high-level alarm 1 min before overfilling, or automatically shuts off the flow into the tank so that none of the fittings located on top of the tank are exposed to product due to overfilling. (NOTE: Owners and operators whose systems are filled by transfers of no more than 25 gal at a time, or have alternative equipment in place, approved by the Department, are not required to use these spill and overfill equipment.)

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ST.45. **UST FILLING**	
ST.45.1.IA. Federal facilities must prevent spills or releases when filling a tank (IAC 135.4(1)).	Verify that, to prevent releases while filling a tank, there is a system in place that ensures that the volume available in the tank is greater than the volume of product to be transferred to it.

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ST.50. UST CORROSION PROTECTION	
ST.50.1.IA. Steel UST systems must be operated and maintained to prevent releases due to corrosion (IAC 567-135.4(2)).	Verify that the corrosion protection system provides corrosion protection to metal components that routinely contain regulated substances and come in contact with the ground. Verify that the following inspection procedures for cathodic protection systems are met: - inspection is performed by a qualified cathodic protection tester - inspection is performed within 6 mo of installation and at least every 3 yr thereafter - inspection criteria is adequate and in accordance with a code of practice developed by a nationally recognized association. Verify that impressed current cathodic protection systems are inspected every 60 days. Verify that records of the operation of the cathodic protection are kept to demonstrate compliance with these requirements, including: - results of the last three inspections for UST systems with impressed current cathodic protection systems - results of the last two inspections for UST systems with cathodic protection systems.

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ST.55. UST REPAIRS	
ST.55.1.IA. Owners and operators must follow guidelines for UST system repairs (IAC 567-135.4(4)).	Verify that the owner and operator performs repairs that will prevent releases due to structural failure or corrosion. Verify that repairs are conducted in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory. Verify that repairs on fiberglass-reinforced plastic tanks are done according to the manufacturer's authorized representatives or in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory. Verify that pipe sections and fittings which have released product as a result of corrosion or other damage are replaced. Verify that repaired tanks and piping are tightness tested within 30 days following the date of the completion of repair, except when: - the repaired tank is internally inspected in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory - the repaired portion of the UST system is monitored monthly for releases - another test method, approved by the Department, is used. Verify that, within 6 mo following the repair of a cathodically protected UST system, the system is tested according to the guidelines for cathodic protected UST systems laid out in ST.50.1. Verify that records are kept of the repair for the remaining operating life of the system.

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RELEASE DETECTION FOR USTs **ST.60. General**	
ST.60.1.IA. Owners and operators of UST systems must have a method, or combination of methods, which detect releases from the system (IAC 567-135.5(1.a and d)).	Verify that the owner and operators of the UST system have a method, or combination of methods, which: - detect releases from any portion of the tank and connected underground piping that routinely contain product - is installed, calibrated, operated, and maintained according to the manufacturer's instructions. Verify that, if a detection method cannot be applied to a UST system, the system is closed. (NOTE: This requirement does not apply to any UST system that stores fuel solely for use by emergency power generators.)
ST.60.2.IA. Air tests of underground tanks or piping containing flammable/combustible liquids are prohibited (IAC 661-5.312) [Added June 1997].	Verify that air tests of underground tanks or piping containing flammable/combustible liquids are not conducted.

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RELEASE DETECTION FOR USTs **ST.65. Petroleum USTs**	
ST.65.1.IA. Petroleum UST tanks must be monitored according to general guidelines (IAC 567-135.5(2.a) and IAC 567-135.5(4)).	Verify that tanks in a petroleum UST system are monitored for releases at least every 30 days by one of the following methods: - automatic tank gauging - vapor monitoring - groundwater monitoring - interstitial monitoring - other methods approved by the Department. (NOTE: Tanks which have been upgraded according to ST.35.2 of these regulations and use monthly inventory control or manual tank gauging, may use a tank tightness test, capable of detecting a 0.1 gal/h leak, at least every 5 yr until 22 December 1998, or until 10 yr after the tank is installed or updated whichever is later.) (NOTE: This requirement does not apply to any UST system that stores fuel solely for use by emergency power generators.)
ST.65.2.IA. Underground piping in a UST which regularly contains petroleum products must be monitored (IAC 567-135.5(2.b)).	Verify that the pressurized underground piping of a petroleum UST is monitored by an automatic leak detector. Verify that underground suction piping of a petroleum UST is monitored by either a line tightness test every 3 yr or monthly monitoring. (NOTE: The following suction piping does not require release detection: - piping operating at less than atmospheric pressure - piping sloped back into the tank if suction is released - piping with only one check valve in the suction line - piping where the check valve is located below and as close as practical to the suction pump.) (NOTE: This requirement does not apply to any UST system that stores fuel solely for use by emergency power generators.)

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RELEASE DETECTION FOR USTs **ST.70. Hazardous Substance USTs**	
ST.70.1.IA. Owners and operators of hazardous substance UST systems must meet release detection requirements (IAC 567-135.5(3)) [Revised June 1997].	Verify that hazardous substance UST systems meet the release detection requirements for petroleum USTs. Verify that all existing hazardous substance UST systems meet the release detection requirements for new hazardous substance UST systems by 22 December 1998. Verify that new hazardous substance UST systems have secondary containment systems designed, constructed, and installed to both: - contain regulated substances released from the tank system until they are detected and removed - prevent the release of regulated substances to the environment at any time during the operational life of the UST system. Verify that the secondary containment system is checked for evidence of a release at least every 30 days. (NOTE: The provisions of 40 CFR 265.193, Containment and Detection of Releases, as of September 13, 1988, may be used to comply with these requirements.) Verify that new doubled-walled tanks are designed, constructed, and installed to both contain a release from any portion of the inner tank within the outer wall and detect the failure of the inner wall. Verify that external liners (including vaults) on new USTs are designed, constructed, and installed to meet all of the following criteria: - contain 100 percent of the capacity of the largest tank within its boundary - prevent the interference of precipitation or groundwater intrusion with the ability to contain or detect a release of regulated substances - surround the tank completely (i.e., it is capable of preventing lateral as well as vertical migration of regulated substances). Verify that underground piping on a new UST is equipped with secondary containment that satisfies the requirements for secondary containment of tanks. Verify that underground piping, on new USTs, which conveys regulated

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	substances under pressure is also equipped with an automatic line leak detector. (NOTE: Other methods of release detection may be used if owners and operators: - demonstrate to the Department that an alternate method can detect a release of the stored substance as effectively as any of the methods allowed to detect a release of petroleum - provide information to the Department on effective corrective action technologies, health risks, and chemical and physical properties of the stored substance, and the characteristics of the UST site, and - obtain approval from the Department to use the alternate release detection method before the installation and operation of the new UST system.) (NOTE: These requirements do not apply to any UST system that stores fuel solely for use by emergency power generators.)

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ST.80. UST RELEASES	(NOTE: The requirements in ST.80.6.IA through ST.80.9.IA apply to the following deferred UST systems: - wastewater treatment tank systems - any UST systems containing radioactive material regulated under the Federal *Atomic Energy Act* of 1954 (42 USC 2011 and following) - any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50 Appendix A - airport hydrant fuel distribution systems - UST systems with field-constructed tanks.)
ST.80.1.IA. The Department in the case of a release or apparent release (IAC 567-135.5(1)(b), 567-135.6(1), and 567-135.6(4)(b)).	Verify that the Department is notified within 24 h of any of the following: - a discovered release of regulated substances at the UST site or in the surrounding area (i.e., the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface water) - unusual operating conditions, such as any of the following, unless the system equipment is found to be defective but not leaking and is immediately repaired or replaced - erratic behavior of product dispensing equipment - sudden loss of product from the UST system - unexplained presence of water in the tank - release detection monitoring results indicate a release may have occurred unless one of the following conditions occurs: - the monitoring device is found to be defective, and is immediately repaired, recalibrated, or replaced, and additional monitoring does not confirm the initial result - in the case of inventory control, a second month of data does not confirm the initial result. Verify that any release of a substance that causes a hazardous condition is reported within 6 h. Verify that all releases of a hazardous substance equal to or in excess of its reportable quantity are immediately reported to the National Response Center and to appropriate state and local authorities.
ST.80.2.IA. Initial steps must be taken in the event of a spill, overfill, or release (IAC 567-135.6(4) and 567-135.7(2)) [Revised June 1997].	Verify that, upon confirmation of a release, or after a release from the UST system is identified in any other manner, owners and operators perform the following initial response actions within 24 h of the release, or within another reasonable period of time specified by the Department: - report to the Department and follow any alternate procedures

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1997].	- take immediate action to prevent further release of the regulated substance into the environment - identify and mitigate fire, explosion, and vapor hazards. Verify that the following are cleaned according to regulations: - any spill, overfill, or aboveground release of petroleum into the environment exceeding 25 gal, that causes a sheen on nearby surface water, impacts adjacent property, or contaminates groundwater - any spill, overfill, or aboveground release of a hazardous substance into the environment equal to or exceeding its reportable quantity under *CERCLA*. (NOTE: Spills or overfills of lesser quantities need only be reported to the Department if they cannot be cleaned up within 24 h.)
ST.80.3.IA. [Deleted June 1997].	
ST.80.4.IA. [Deleted June 1997].	
ST.80.5.IA. All suspected releases from a UST must be investigated and confirmed (IAC 135.6(3) and 135.9) [Added June 1997].	Verify that all suspected releases of regulated substances are investigated and confirmed within 7 days. Verify that one of the following is used for the investigation: - conduct tests (according to the requirements for tightness testing) that determine whether a leak exists in that portion of the tank routinely containing product, or the attached delivery piping or both, and then: - repair, replace, or upgrade the UST system and begin corrective action if the test results for the system, tank, or delivery piping indicate a leak exists - further investigation is not required if the test results for the system, tank, and delivery piping do not indicate a leak exists and if environmental contamination is not the basis for suspecting a release - conduct a site check as described below if the test results for the system, tank, and delivery piping do not indicate a leak exists but environmental contamination is the basis for suspecting a release - a certified groundwater professional conducts a site check in accordance with the tank closure in place procedures or conducts a Tier 1 assessment - if the test results of the site check indicate action levels have been exceeded, corrective action is begun - if the test results for the excavation zone or the UST site do not indicate a release has occurred, further investigation is not required.

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	Verify that a Tier 1 report is submitted to the Department within 90 calendar days of release confirmation. Verify that, if the owner or operator elects to prepare a Tier 2 site cleanup report instead of a Tier 1 assessment, the Department is notified in writing prior to the expiration of the Tier 1 submission deadline. Verify that the Tier 2 site cleanup report is submitted to the Department in accordance with IAC 135.10 within 180 calendar days of release confirmation or another reasonable period of time determined by the Department.
ST.80.6.IA. Tier 2 assessments are submitted to the Department under specific conditions (IAC 135.10 and 135.11) [Added June 1997].	Verify that a Tier 2 site assessment is conducted and a site cleanup report submitted for all sites which have not obtained a no action required site classification and for all pathways and chemicals of concern groups that have not obtained no further action clearance as provided by a Tier 1 assessment. Verify that, if in the course of conducting a Tier 2 assessment data indicates the conditions for pathway clearance under Tier 1 no longer exist, the pathway is further assessed. Verify that the Tier 2 assessment and report is completed whenever free product is discovered as provided in IAC 135.7. Verify that, if the owner or operator elects to complete the Tier 2 site assessment without doing a Tier 1 assessment, all the Tier 1 requirements are met in addition to Tier 2 requirements. Verify that the Tier 2 site assessment is conducted in accordance with the Department's "Tier 2 Site Assessment Guidance." (NOTE: Unless specifically limited by rule or imminent hazard exists, an owner or operator may choose to prepare a Tier 3 site assessment as an alternative to completion of a Tier 2 assessment or as an alternative to completion of a corrective action design report.)
ST.80.7.IA. Specific initial abatement measures must be taken in the event of a confirmed spill, overfill, or release (IAC 567-135.7(3)) [Added June 1997].	Verify that as much of the regulated substance is removed from the UST system as is necessary to prevent further release to the environment. Verify that any aboveground releases or exposed below-ground releases are inspected and further migration of the released substance into the surrounding soils and groundwater is prevented. Verify that additional fire and safety hazards posed by vapors or free product that have migrated from the UST excavation zone and entered into subsurface

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	structures (such as sewers or basements) continue to be monitored and mitigated. Verify that hazards posed by contaminated soils excavated or exposed as a result of release confirmation, site investigation, abatement, or corrective action activities are remedied. Verify that the possible presence of free product is investigated and free product removal is begun as soon as practicable. Verify that, within 20 days after release confirmation, or within another reasonable period of time determined by the Department, owners and operators submit a report to the Department summarizing the initial abatement steps taken and any resulting information or data.
ST.80.8.IA. Product recovery assessment and interim product recovery must be undertaken in the event of a confirmed spill, overfill, or release (IAC 567-135.7(5)(a) through (c)) [Added June 1997].	Verify that, at sites where investigations indicate 0.01 ft or more of free product, a free product recovery assessment is initiated, a report is submitted, and interim free product removal is begun. Verify that free product removal is begun by bailing or by installation and maintenance of passive skimming equipment until an alternative removal method is required by or approved by the Department. Verify that a certified groundwater professional initially determines the frequency of bailing and proper installation and maintenance of the skimming equipment based on a determination of the recharge rate of the free product. (NOTE: The Department may approve implementation of this interim removal process by persons not certified as groundwater professionals. For approval a certified groundwater professional must submit sufficient documentation establishing that the bailing or skimming system has been adequately designed and tested with a written plan for regular maintenance, reporting, and supervision by a certified groundwater professional.) Verify that interim free product recovery reports are submitted to the Department on a monthly basis and on forms provided by the Department. Verify that the free product removal process properly treats, discharges, or disposes of recovery by-products in compliance with applicable local, state, and Federal regulations. Verify that, unless approved by the Department, free product assessment and recovery activities are conducted by a certified groundwater professional. Verify that the results of free product removal activities are reported on forms designated by the Department. Verify that any flammable products are handled in a safe and competent manner to

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	prevent fires or explosions.
ST.80.9.IA. Specific product removal requirements must be met in the event of a confirmed spill, overfill, or release (IAC 567-135.7(5)(d) through (g)) [Added June 1997].	Verify that a free product recovery assessment report and a proposal for subsequent free product removal activities are prepared and submitted within 45 days after confirmation of a release. Verify that the assessment report and proposal contain at least the following information: - name of the person(s) responsible for implementing the free product removal measures - estimated quantity, type, and thickness of free product observed or measured in monitoring wells, boreholes, and excavations, the recharge rate in all affected monitoring wells, and a detailed description of the procedures used to determine the recharge rate - a detailed justification for the free product removal technology proposed for the site - a schematic and narrative description of the free product recovery system used - whether any discharge will take place onsite or offsite during the recovery operation and where this discharge will be located - a schematic and narrative description of the treatment system, and the effluent quality expected from any discharge - the steps that have been or are being taken to obtain necessary permits for any discharge - the disposition of the recovered free product - free product plume definition and map - estimated volume of free product present, how the volume was calculated, recoverable volume and estimated recovery time. Verify that, if the assessment proposal is approved, the installation of the approved recovery system is implemented within 60 days. (NOTE: Owners and operators may propose to the Department to terminate free product recovery activities when significant amounts of hydrocarbons are not being recovered. When free product activities have been terminated, owners and operators must inspect the monitoring wells monthly for at least a year. The Department must be notified and free product recovery activities reinitiated if during the monthly well inspections it is determined the product thickness in a monitoring well exceeds 0.02 ft. The monthly well inspection records must be kept available for review by the Department.) Verify that a Tier 2 site cleanup report is prepared and submitted to the Department, within 180 days after release confirmation.

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ST.80.10.IA. A corrective action design report is required following approval of a Tier 2 assessment report or of when a Tier 3 assessment was conducted (IAC 567-135.12(9)) [Added June 1997].	Verify that a corrective action design report (CADR) is submitted for review within 60 days of the date the Department approves or is deemed to approve a Tier 2 assessment report or a Tier 3 assessment is to be conducted. (NOTE: The Department may establish an alternative schedule for submittal.) (NOTE: A certified groundwater professional must provide a certification of completeness in the CADR.)

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ST.90. **UST DOCUMENTATION**	
ST.90.1.IA. UST systems must maintain and submit specific documentation (IAC 567-135.4(5) and 567-135.5(6)) [Added June 1997].	Verify that the following records are submitted to the Department: - notification for all UST systems - reports of all releases - corrective actions planned or taken, including: - initial site characterization - free product removal - investigation of soil and groundwater cleanup - corrective action plan - notification before permanent closure or change in service. Verify that the following records are maintained: - corrosion expert's analysis of site corrosion potential if corrosion protection equipment is not used - documentation of operation of corrosion protection equipment - documentation of UST system repairs (maintain 1 yr, except for schedules of required calibration and maintenance provided by the release detection equipment manufacturer which must be maintained for 5 yr) - recent compliance with release detection requirements (maintained 5 yr) - results of sampling, testing, or monitoring of release detection methods (maintain 1 yr except for tank tightness testing for which results must be kept until the next test is performed) - result of the site investigation conducted at permanent closure. Verify that records capable of demonstrating compliance with closure requirements are maintained. Verify that the results of the excavation zone assessment are maintained for at least 3 yr after completion of permanent closure or change-in-service in one of the following ways: - by the owners and operators who took the UST system out of service - by the current owners and operators of the UST system site - by mailing these records to the Department if they cannot be maintained at the closed facility.

COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
ST.95. CHANGES IN SERVICE OR CLOSURE OF USTs	(NOTE: The requirements of this section apply to the following deferred UST systems: - wastewater treatment tank systems - any UST systems containing radioactive material regulated under the Federal *Atomic Energy Act* of 1954 (42 USC 2011 and following) - any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50 Appendix A - airport hydrant fuel distribution systems - UST systems with field-constructed tanks.)
ST.95.1.IA. Temporary closure of a UST system must be in accordance with specific requirements (IAC 567-135.15(1)) [Cite revised June 1997].	Verify that corrosion protection and release detection continue to be performed during temporary closure of a UST system (NOTE: The UST system is empty when all materials have been removed using commonly employed practices so that no more than 2.5 cm (1 in.) of residue, or 0.3 percent by weight of the total capacity of the UST system, remain in the system.) Verify that if the UST system is closed 3 mo or more, the following additional tasks are performed: - the Department is notified in writing of the temporary closure - vent lines are open and functioning - other lines, pumps, manways, and ancillary equipment are capped and secured. Verify that, if the UST system is closed more than12 mo, tank tags are returned and the UST system is permanently closed if it does not meet performance standards for new UST systems or upgrading requirements (other than spill and overfill equipment). (NOTE: The Department can provide an extension of the 12 mo temporary closure period. Owners and operators must complete a closure site assessment before applying for such an extension.)
ST.95.2.IA. Owners and operators must follow general guidelines for permanent closure or changes-in-service of a UST system (IAC 567-135.15(2) [Cite revised June 1997]	Verify that, at least 30 days before beginning either permanent closure or a change-in-service, the Department is notified. Verify that the required assessment of the excavation zone is performed after notifying the Department but before completion of the permanent closure or a change-in-service.

COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
1997]	Verify that, to permanently close a tank or piping, owners and operators empty and clean them by removing all liquids and accumulated sludge. Verify that all tanks taken out of service permanently are either removed from the ground or filled with an inert solid material. Verify that the piping is either removed from the ground or the ends plugged with an inert solid material. Verify that, when permanently closing a tank by filling with inert solid material, the tank is not filled until a closure report is approved by the Department and then is filled within 30 days after Department approval. Verify that the owner and operator notifies the Department within 15 days after filling the tank with inert solid material. Verify that, before a change-in-service, owners and operators empty and clean the tank by removing all liquid and accumulated sludge and conduct a site assessment. Verify that permanent closure procedures are followed in the replacement of tanks or piping. Verify that oral confirmation of the closure date is given to the Department of Natural Resources field office 24 h prior to the actual closure. Verify that the required assessment of the excavation zone is performed after notifying the Department, but before completion of the permanent closure or change-in-service.
ST.95.3.IA. The UST system site must be assessed at the closure or when there is a change-in-service (IAC 567-135.15(3)(a) through (d) and (f)) [Added June 1997]	Verify that, before permanent closure or a change-in-service is completed, owners or operators measure for the presence of a release where contamination is most likely to be present at the UST site. (NOTE: In selecting sample types, sample locations, and measurement methods, owners and operators must consider the method of closure, the nature of the stored substances, the type of backfill, the depth to groundwater, and other factors appropriate for identifying the presence of a release.) Verify that, at UST sites with a history of petroleum storage, soil and groundwater samples, in every case, are analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) with each compound reported separately. Verify that, if there has been a history or suspected history of petroleum storage other than gasoline or gasoline blends (i.e., all grades of diesel fuel, fuel oil, kerosene, oil, and mineral spirits), or such storage history is unknown or uncertain, soil and groundwater samples are also analyzed for total extractable hydrocarbons.

COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
	Verify that all samples are collected separately and shipped to a certified laboratory certified within 72 h of collection. Verify that samples are refrigerated and protected from freezing during shipment to the laboratory. Verify that, for all permanent tank and piping closures or changes-in-service, at least one water sample is taken from the first saturated groundwater zone via a monitoring well or borehole located downgradient from, and as close as possible to, the excavation but no farther away than 20 ft. Verify that, if the first saturated groundwater zone is not encountered within 10 ft below the lowest elevation of the tank excavation, the requirement for groundwater sampling apply, unless: - sands or highly permeable soils are encountered within 10 ft below the lowest level of the tank excavation which together with the underlying geology would, in the judgment of the Department, pose the reasonable possibility that contamination may have reached groundwaters deeper than 10 ft below the lowest level of the tank excavation - indications of potential groundwater contamination, including petroleum products in utility lines, petroleum products in private wells, petroleum product vapors in basements or other structures, occur in the area of the tank installation undergoing closure or change-in-service. Verify that, for permanent closure by tank removal, the Departmental guidance document entitled "Underground Storage Tank Closure Procedures for Tank and Piping Removal" is followed. (NOTE: If sands or other highly permeable soils are encountered, alternative sampling methods may be required.) Verify that, for closing a tank in place by filling with an inert solid material or for a change-in-service, the Departmental guidance document entitled "Underground Storage Tank Closure for Filling in Place" is followed. (NOTE: These site assessment requirement are satisfied if one of the external release detection methods is operating in accordance with the requirements in IAC 135.5(4) at the time of closure and indicates no release has occurred.
ST.95.4.IA. Owners and operators must submit a closure report for the closure or change-in-service of UST systems (IAC 567-135.15(3)(e) [Added June 1997]	Verify that a closure report is submitted to the Department within 45 days of the tank removal or sampling for a closure in place. Verify that the report includes all of the following: - all laboratory analytical reports - soil boring and well or borehole construction details and stratigraphic logs

COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
1997]	- a dimensional drawing showing location and depth of all tanks, piping, sampling, and wells or boreholes, and contaminated soil encountered. Verify that the tank tags are returned with the closure report.
ST.95.5.IA. Specific steps must be taken if contaminated soils, contaminated groundwater, or free product is discovered (IAC 567-135.15(3)(g) [Added June 1997].	Verify that, if contaminated soils, contaminated groundwater, or free product as a liquid or vapor is discovered during the site assessment or by any other manner, the Department is immediately contacted and corrective action is taken. (NOTE: If contamination appears extensive or the groundwater is known to be contaminated, a full assessment of the contamination will be required. When a full assessment is required or anticipated, collection of the required closure samples is not required. If contamination appears limited to soils, overexcavation of the contaminated soils may be allowed at the time of closure.)

COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
ST.120 **FLAMMABLE COMBUSTIBLE LIQUID STORAGE TANKS**	
ST.120.1.IA. New or replacement installations for the storage, handling, or use of flammable combustible liquids at bulk plants, service stations, and processing plants must be approved by the state fire marshall prior to construction (IAC 661-5.301) [Added June 1997].	Verify that the state fire marshall has approved drawings or blueprints of new or replacement installations for storing, handling, or using flammable combustible liquids at bulk plants, service stations, or processing plants prior to construction. (NOTE: Plans for underground tank installations which have been approved in accordance with IAC 591-15.6 do not need to be submitted for approval.) (NOTE: If proposed construction or installation is to be located within a local jurisdiction which requires a local permit be obtained first, the drawings or blueprints are submitted to the appropriate local official or body with the application for permit rather than to the state fire marshal. In the event of dispute as to whether the drawings or blueprints show conformity with applicable requirements, the plans and drawings are submitted to the state fire marshal whose decision is controlling.) Verify that the drawings show the name of the person, firm, or corporation proposing the installation, the location, and adjacent streets or highways. Verify that, in the case of bulk plants, the drawings show, in addition to any applicable features: - the plot of ground to be utilized and its immediate surroundings on all sides - complete layout of buildings, tanks, loading and unloading docks - heating devices, if any. Verify that, in the case of service stations, the drawings show: - the plot of ground to be utilized - the complete layout of buildings, drives, dispensing equipment, greasing or washing stalls - the type and location of any heating device. Verify that, in the case of aboveground storage, the drawings show: - the location and capacity of each tank - dimensions of each tank which exceeds 50,000 gal capacity - the class of liquid to be stored in each tank - the type of tank supports - the clearances - the type of venting and pressure relief relied upon and the combined capacity of all venting and pressure relief valves on each tank and the tank control

COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
	valves - the location of pumps and other facilities by which liquid is filled into or withdrawn from the tanks. Verify that, in the case of underground storage, the drawings show - the location and capacity of each tank - class of liquids to be stored - the location of fill, gauge, vent pipes, openings, and clearances. Verify that, in the case of an installation for storage, handling, or use of flammable or combustible liquids within buildings, or enclosures at any establishment or occupancy covered, the drawing are in such detail as will show whether applicable requirements are to be met.

Appendix 10-1

Federal Regulations and Professional Standards Adopted by Reference (Source: IAC 567-23.1 and 661-5.300)

In Iowa Administrative Code (IAC) 567-23.1(1) and (2), the State of Iowa adopts by reference the Federal standards of performance for new stationary sources of 40 Code of Federal Regulations (CFR) 60 as amended and corrected through 22 April 1994, and 40 CFR 503 as adopted on 19 February 1993. (NOTE: 40 CFR 60.530 through 60.539b are not adopted.) The adopted regulations apply to the following sources:

1. petroleum storage vessels, unless exempted, for which construction, modification, or reconstruction commenced after 11 June 1973 and prior to 19 May 1978 with a capacity greater than 151,142 L (40,000 gal)
2. petroleum storage vessels, unless exempted, for which construction, modification, or reconstruction commenced after 18 May 1978 and prior to 23 July 1984 with a capacity greater than 151,142 L (40,000 gal)
3. bulk gasoline terminals, including the total of all loading racks delivering liquid product into gasoline tank trucks
4. volatile organic liquid storage vessels, unless exempted, the construction, modification, or reconstruction of which commenced after 23 July 1984.

In IAC 567-23.1(1) and (3), the State of Iowa adopts by reference the Federal standards of emissions of hazardous air pollutants of 40 CFR 61 as amended and corrected through 25 June 1993. (NOTE: 40 CFR 61.20 to 61.26, 61.90 to 61.97, 61.100 to 61.108, 61.120 to 61.127, 61.190 to 61.193, 61.200 to 61.205, 61.220 to 61.225, and 61.250 to 61.256 are not adopted.) The adopted regulations apply to the following sources/substances:

1. equipment leaks of benzene, including leaks occurring at any pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, flanges, and other connectors, product accumulator vessels, and control devices or systems that handle benzene
2. equipment leaks of volatile hazardous air pollutants, including leaks occurring at any pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, flanges, and other connectors, product accumulator vessels, and control devices or systems that handle benzene
3. benzene emissions from benzene storage vessels, unless exempted, including vessels storing benzene with a specific gravity within the range of gravities specified in American Society for Testing and Materials (ASTM) D 836-84 for Industrial Grade Benzene, ASTM D 835-85 for Refined Benzene-485, ASTM D 2359-85a for Refined Benzene-535, and ASTM D 4734-87 for Refined Benzene-545
4. benzene waste operations, unless exempted, including facilities at which waste management units are used to treat, store, or dispose of waste generated by any manufacturing facility.

In IAC 661-5.300, the State of Iowa adopts by reference the National Fire Protection Association (NFPA) standard "NFPA 30 Flammable and Combustible Liquids Code," 1993 edition, as published by the NFPA, with the following amendments:

1. delete subsection 2-3.8.1 and insert in lieu thereof the following:
   2-3.8.1 Each connection to an aboveground tank through which liquid can normally flow shall be provided with an external control valve as close as practical to the shell of the tank. In addition to the control valve or any other normal tank valves there shall be an emergency internal check valve at each pipe connection to any tank opening below normal liquid level. The emergency internal check valve shall be effectively located inside the tank shell and shall be operable both manually and by an effective heat activated device which, in case of fire, will automatically close the valve to prevent the flow of liquid from the tank even though the pipe lines are broken from the tank.

   Exception: Emergency internal check valves are not required on crude oil tanks in oil fields, on tanks at refineries, or on tanks at terminals which are equipped with a swing line or where facilities are provided to transfer the contents of the tank to another tank in case of fire.
2. add the following Exception to section 2-3.3.1:

Exception: Control of spillage meeting 2-3.3.2 or 2-3.3.3 is not required for double-walled tanks when the system complies with either the USEPA Oil Pollution Control Act 40 CFR 112 or all of the following:

a. the tank system shall have top only openings and shall be either an Underwriters Laboratories listed steel double-walled tank or an Underwriters Laboratories listed steel inner tank with an outer containment tank wall constructed in accordance with nationally accepted industry standards (e.g., those codified by the American Petroleum Institute, the Steel Tank Institute, and the American Concrete Institute).
b. the tank shall have overfill prevention which will alert the operator with an audible or visual alarm when the tank reaches not more than 90 percent capacity.
c. the tank shall have automatic flow shut-off which will automatically stop product flow so that none of the fittings on the top of the tanks are exposed to product as a result of overfilling.
d. the tank shall have automatic flow restriction which will restrict product flow when the tank reaches not more than 90 percent capacity.
e. the tank fill opening shall be provided with a spill container which will hold at least 7 gallons.
f. the interstitial tank space shall be monitored by an approved, continuous, automatic detection system that is capable of detecting liquids, including water.

The standard of "Underground Leakage of Flammable and Combustible Liquids," No. 329, 1987 edition of the NFPA, and the following rule entitled "Testing Underground Tanks," are the rules governing underground leakage of flammable and combustible liquids in the state of Iowa (IAC 661-5.311) [Added June 1997].

In IAC 661-5.304, except as allowed by NFAP 395, the standard "NFPA 30A Automotive and Marine Service Station Code," 1993 edition, as published by the NFPA as the rules governing dispensing motor vehicle fuel into the fuel tanks of motor driven vehicles with the following amendments:

1. Rescinded IAB 11/22/95, effective 1/1/96.
2. Add a new subsection 2-4.2.3 to read as follows:

   2-4.2.3 Tanks having a capacity of not more than 6,000 gallons for motor vehicle fuel dispensing systems that comply with 9-3.5 shall be located at least:

   a. 40 ft from the nearest important building on the same property;
   b. 40 ft away from any property that is or may be built upon, including the opposite side of a public way;
   c. 100 ft away from any residence or place of assembly;

   Exception: All distances may be reduced by 50 percent for tanks installed in vaults that comply with 2-4.4, UL listed aboveground double-walled tanks that have a 2-h fire-resistive rating or Approved UL listed aboveground steel tanks encased with a 6-in. thick reinforced concrete shell.
3. Add a new subsection 5-2 to read as follows:

   5-2 Basements.

   5-2.1 No basement or excavation shall be constructed under any service station building.

   5-2.2 Basements in existing service station buildings shall be eliminated or converted to meet 5-1 when extensive remodeling or renovation of the structure takes place.

   5.304(2) NFPA 407 “Standard for Aircraft Fuel Servicing,” 1990 edition, as published by the National Fire Protection Agency, Batterymarch Park, Quincy, MA 02269, is hereby adopted by reference as the rules governing ground fuel servicing of aircraft with liquid petroleum fuel.

   5.304(3) to 5.304(5) Rescinded IAB 3/17/93, effective 5/1/93.

SECTION 11

TOXIC SUBSTANCES MANAGEMENT

Iowa Supplement, April 2000

This section covers the state requirements for Toxic Substances Management and is intended to supplement the U.S. TEAM Guide. Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.

Definitions

- *Act* - the Iowa *Radon Testing Act* (Iowa Code 136B) (Iowa Administrative Code (IAC) 641-43.2).

- *Adequate Quality Control* - a plan or design which ensures the authenticity, integrity, and accuracy of samples, including dust, soil, and paint chip or paint film samples. Adequate quality control also includes provisions for representative sampling (IAC 641-70.2) [Added May 1998].

- *Building* - a structure enclosed with exterior walls or fire walls, built, erected, and framed of component structural parts, and designed for the housing, shelter, enclosure, and support of individuals (IAC 641-43.2).

- *Capacitor* - a device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by a diele ctric (IAC) 567-118.2).

- *Certificate of Mailing* - certified mail with return receipt or its equivalent (IAC 641-69.2) [Added April 1999].

- *Certified Elevated Blood Lead (EBL) Inspection Agency* - an agency that has met the requirements of 641-70.5(135) and that has been certified by the department (IAC 641-70.2) [Added May 1998].

- *Certified Elevated Blood Lead (EBL) Inspector* - a person who has met the requirements of 641-70.5(135) and who has been certified by the department (IAC 641-70.2) [Added May 1998].

- *Certified Lead Abatement Contractor* - a person who has met the requirements of 641-70.5(135) and who has been certified by the department (IAC 641-70.2) [Added May 1998].

- *Certified Lead Abatement Worker* - a person who has met the requirements of 641-70.5(135) and who has been certified by the department (IAC 641-70.2) [Added May 1998].

- *Certified Lead Inspector* - a person who has met the requirements of 641-70.5(135) and who has been certified by the department (IAC 641-70.2) [Added May 1998].

- *Certified Lead Professional* - a person who has been certified by the department as a lead inspector, elevated blood lead (EBL) inspector, lead abatement contractor, lead abatement worker, or visual risk assessor (IAC 641-70.2) [Added May 1998].

- *Certified Person* - a certified radon measurement specialist or certified radon measurement laboratory as defined by this chapter (IAC 641-43.2).

- *Certified Radon Measurement Laboratory (Certified Laboratory)* - a commercial laboratory which may analyze samples or test for radon decay products and meets the provisions for certification in this chapter (IAC 641-43.2).

- *Certified Radon Measurement Specialist (Certified Specialist)* - an individual who performs radon or radon progeny measurements in buildings and provides professional or expert advice on radon and radon progeny measurements, radon entry routes, and other radon related activities; is knowledgeable in the health risk associated from exposure to radon; and who meets the provisions for certification in this chapter (IAC 641-43.2).

- *Certified Visual Risk Assessor* - a person who has met the requirements of 641-70.5(135) and who has been certified by the department (IAC 641-70.2) [Added May 1998].

- *Child-Occupied Facility* - a building, or portion of a building, constructed prior to 1978, visited by the same child six years of age or under, on at least two different days within any week (Sunday through Saturday period, provided that each day's visit lasts at least three hours and the combined weekly visits last at least six hours). Child-occupied facilities may include, but are not limited to, day-care centers, preschools and kindergarten classrooms (IAC 641-70.2) [Added May 1998].

- *Clearance Levels* - values that indicate the maximum amount of lead permitted in dust on a surface following completion of an abatement activity. These values are 100 micrograms per square foot on floors, 500 micrograms per square foot on window sills, and 800 micrograms per square foot on window troughs (IAC 641-70.2) [Added May 1998].

- *Common Area* - a portion of the building that is generally accessible to all occupants. This includes, but is not limited to, hallways, stairways, laundry and recreational rooms, playgrounds, community centers, garages, and boundary fences (IAC 641-70.2) [Added May 1998].

- *Component Or Building Component* - specific design or structural elements or fixtures of a building, residential dwelling, or child-occupied facility that are distinguished from each other by form, function, and location. These include, but are not limited to, interior components such as ceilings, crown moldings, walls, chair rails, doors, door trim, floors, fireplaces, radiators and other heating units, shelves, shelf supports, stair treads, stair risers, stair stringers, newel posts, railing caps, balustrades, windows and trim (including sashes, window heads, jambs, sills or stools and troughs), built-in cabinets, columns, beams, bath room vanities, countertops, and air conditioners; and exterior components such as painted roofing, chimneys, flashing, gutters and downspouts, ceilings, soffits, fascias, rake boards, cornerboards, bulkheads, doors and door trim, fences, floors, joists, latticework, railings and railing caps, siding, handrails, stair risers and treads, stair stringers, columns, balustrades, windowsills or stools and troughs, casing, sashes and wells, and air conditioners (IAC 641-70.2) [Added May 1998].

- *Containment* - a process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during an abatement (IAC 641-70.2) [Added May 1998].

- *Credentialed Radon Mitigation Specialist (Mitigation Specialist)* - an individual who evaluates diagnostic tests to determine appropriate radon or radon progeny mitigation strategies for a building, designs mitigation systems, installs or supervises the installation of radon or radon progeny mitigation techniques on buildings, and meets the requirements for credentialing provided by this chapter (IAC 641-44.2).

- *Department* - Iowa Department of Public Health (IAC 641-43.2 and 641-44.2).

- *Deteriorated Paint* - paint that is cracking, flaking, chipping, peeling, or otherwise separating from the substrate of a building component (IAC 641-70.2) [Added May 1998].

- *Diagnostic Tests* - tests performed or procedures used to determine appropriate mitigation methods for a building (IAC 641-44.2).

- *Discipline* - one of the specific types or categories of lead-based paint activities identified in this chapter for which individuals may receive training from approved courses and become certified by the department. For example, lead inspector is a discipline (IAC 641-70.2) [Added May 1998].

- *Distinct Painting History* - the application history, as indicated by its visual appearance or a record of application, over time, of paint or other surface coatings to a component or room (IAC 641-70.2) [Added May 1998].

- *Documented Methodologies* - methods or protocols used to sample for the presence of lead in paint, dust, and soil (IAC 641-70.2) [Added May 1998].

- *Dwelling Unit* - a single, unified combination of rooms designed for use as a dwelling by one family (IAC 641-69.2) [Added April 1999].

- *Elevated Blood Lead (EBL) Child* - any child who has had one venous blood lead level greater than 20 micrograms per decaliter or at least two venous blood lead levels of 15 to 19 micrograms per decaliter (IAC 641-70.2) [Added May 1998].

- *Elevated Blood Lead (EBL) Inspection* - an inspection to determine the sources of lead exposure for an elevated blood lead (EBL) child and the provision within ten working days of a written report explaining the results of the investigation to the owner and occupant of the residential dwelling or child-occupied facility being inspected and to the parents of the elevated blood lead (EBL) child (IAC 641-70.2) [Added May 1998].

- *Emergency Renovation, Remodeling, and Repainting* - renovation, remodeling, and repainting activities necessitated by nonroutine failures of equipment that were not planned but resulted from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard or threatens equipment or property with significant damage (IAC 641-69.2) [Added April 1999].

- *Encapsulant* - a substance that forms a barrier between lead-based paint and the environment using a liquid-applied coating (with or without reinforcement materials) or an adhesively bonded covering material (IAC 641-70.2) [Added May 1998].

- *Encapsulation* - the application of an encapsulant (IAC 641-70.2) [Added May 1998].

- *Enclosure* - the use of rigid, durable construction materials that are mechanically fastened to the substrate in order to act as a barrier between lead-based paint and the environment (IAC 641-70.2) [Added May 1998].

- *Facility* - any permitted sanitary disposal project, salvage dealer, shredder operation or other party which may accept white goods for disposal or processing (IAC 567-118.2).

- *Firm* - a company, partnership, corporation, sole proprietorship, association, or other business entity that performs or offers to perform lead-based paint activities (IAC 641-70.2) [Added April 1999].

- *Fluff* - the residual waste from the shredding operation after metals recovery (IAC 567-118.2).

- *Interim Controls* - a set of measures designed to temporarily reduce human exposure or likely exposure to lead-based paint hazards, including repairing deteriorated lead-based paint, specialized cleaning, maintenance, painting, temporary containment, ongoing monitoring of lead-based paint hazards or potential hazards, and the establishment and operation of management and resident education programs (IAC 641-70.2) [Added May 1998].

- *Laboratory* - any person performing analysis, not at a testing site, on a passive device to measure radon or radon progeny (charcoal canister, alpha-track, electret, etc.) (IAC 641-43.2).

- *Lead Abatement* - any measure or set of measures designed to permanently eliminate lead-based paint hazards in a residential dwelling or child-occupied facility. Abatement includes, but is not limited to, (1) the removal of lead-based paint and lead-contaminated dust, the permanent enclosure or encapsulation of lead-based paint, the replacement of lead-painted surfaces or fixtures, and the removal or covering of lead-contaminated soil and (2) all preparation, cleanup, disposal, and postabatement clearance testing activities associated with such measures. Lead abatement specifically includes, but is not limited to:
  1. projects for which there is a written contract or other documentation, which provides that an individual will be conducting activities in or to a residential dwelling or child-occupied facility that shall result in or are designed to permanently eliminate lead-based paint hazards
  2. projects resulting in the permanent elimination of lead-based paint hazards
  3. projects resulting in the permanent elimination of lead-based paint hazards that are conducted by firms or individuals who, through their company name or promotional literature, represent, advertise, or hold themselves out to be in the business of performing lead-based paint abatement
  4. projects resulting in the permanent elimination of lead-based paint that are conducted in response to an abatement order. Abatement does not include renovation, remodeling, landscaping, or other activities, when such activities are not designed to permanently eliminate lead-based paint hazards, but, instead, are designed to repair, restore, or remodel a given structure or dwelling, even though these activities may incidentally result in a reduction or elimination of lead-based paint hazards. Furthermore, abatement does not include interim controls, operations and maintenance activities, or other measures and activities designed to temporarily, but not permanently, reduce lead-based paint hazards (IAC 641-70.2) [Added May 1998].

- *Lead-Based Paint* - paint or other surface coatings that contain lead equal to or in excess of 1.0 milligram per square centimeter or more than 0.5 percent by weight (IAC 641-70.2) [Added May 1998].

- *Lead-Based Paint Activities* -, in the case of target housing and child-occupied facilities, lead inspection, elevated blood lead (EBL) inspection, lead hazard screen, risk assessment, lead abatement, and visual risk assessment (IAC 641-70.2) [Added May 1998].

- *Lead-Based Paint Hazard* - any condition that causes exposure to lead from lead-contaminated dust, lead-contaminated soil, or lead-based paint that is deteriorated or present in accessible surfaces, friction surfaces, and impact surfaces that would result in adverse human health effects (IAC 641-70.2) [Added May 1998].

- *Lead-Contaminated Dust* - surface dust in residential dwellings or child-occupied facilities that contains in excess of 100 micrograms per square foot on floors, 500 micrograms per square foot on windowsills, and 800 micrograms per square foot on window troughs (IAC 641-70.2) [Added May 1998].

- *Lead-Contaminated Soil* - bare soil on residential real property and on the property of a child-occupied facility that contains lead in excess of 400 parts per million for areas where child contact is likely and in excess of 2000 parts per million if child contact is not likely (IAC 641-70.2) [Added May 1998].

- *Lead Hazard Screen* - a limited risk assessment activity that involves limited paint and dust sampling (IAC 641-70.2) [Added May 1998].

- *Lead Inspection* - a surface-by-surface investigation to determine the presence of lead-based paint and a determination of the existence, nature, severity, and location of lead-based paint hazards in a residential dwelling or child-occupied facility and the provision of a written report explaining the results of the investigation and options for reducing lead-based paint hazards to the person requesting the lead inspection (IAC 641-70.2) [Added May 1998].

- *Lead Professional* - a person who conducts lead abatement, lead inspections, elevated blood lead (EBL) inspections, lead hazard screens, risk assessments, or visual risk assessments (IAC 641-70.2) [Added May 1998].

- *Living Area* - any area of a residential dwelling used by at least one child six years of age or less, including, but not limited to, living rooms, kitchen areas, dens, playrooms, and children's bedrooms (IAC 641-70.2) [Added May 1998].

- *Mitigation System* - any system or materials installed for the purpose of reducing radon or radon progeny concentrations (IAC 641-44.2).

- *Mitigator* - a person who installs mitigation systems for the purpose of abating radon levels within buildings (IAC 641-44.2).

- *Multifamily Dwelling* - a structure that contains more than one separate residential dwelling unit, which is used or occupied, or intended to be used or occupied, in whole or in part, as the home or residence of one or more persons (IAC 641-70.2) [Added May 1998].

- *Occupant Protection* Plan - a plan developed by a certified lead abatement contractor prior to the commencement of lead abatement in a residential dwelling or child-occupied facility that describes the measures and management procedures that will be taken during lead abatement to protect the building occupants from exposure to any lead-based paint hazards (IAC 641-70.2) [Added May 1998].

- *Permanently Covered Soil* - soil which has been separated from human contact by the placement of a barrier Consisting of solid relatively impermeable materials, such as pavement or concrete. Grass, mulch, and other landscaping materials are not considered permanent covering (IAC 641-70.2) [Added May 1998].

- *Person* - an individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, agency, any other state or political subdivision or agency, and a legal successor, representative, agency or agencies of the entities listed in this paragraph (IAC 641-43.2).

- *Processing* - crushing, compacting, smashing, shredding, or other similar action (IAC 567-118.2).

- *Radon* - the radioactive noble gas radon-222 (IAC 641-43.2 and 641-44.2).

- *Radon Progeny* - the short-lived radonuclides formed as a result of the decay of radon-222, including polonium-218, lead-214, bismuth-214, and polonium-214 (IAC 641-43.2 and 64-44.2).

- *Recognized* laboratory - an environmental laboratory recognized by the U.S. Environmental Protection Agency pursuant to Section 405(b) of the Federal Toxic Substance Control Act as capable of performing an analysis for lead compounds in paint, soil, and dust (IAC 641-70.2) [Added May 1998].

- *Reduction* - measures designed to reduce or eliminate human exposure to lead-based paint hazards through methods including interim controls and abatement (IAC 641-70.2) [Added May 1998].

- *Renovation, Remodeling, Repainting* - modifying any existing structure or portion of a structure where painted surfaces are disturbed, unless the activity fits the criteria of lead abatement as defined in 641-70.2(135) and is performed by a certified lead abatement contractor as defined in 641-70.2(135). This includes, but is not limited to, removing walls, ceilings, and other painted building components; window replacement; floor refinishing; and sanding, scraping, stripping, water blasting, or otherwise removing paint (IAC 641-69.2) [Added April 1999].

- *Residential Dwelling* (IAC 641-70.2) [Added May 1998] -
    1. a detached single-family dwelling unit, including the surrounding yard, attached structures such as porches and stoops, and detached buildings and structures including, but not limited to, garages, farm buildings, and fences, or
    2. a single-family dwelling unit in a structure that contains more than one separate residential dwelling unit, which is used or occupied, or intended to be used or occupied, in whole or part, as the home or residence of one or more persons.

- *Risk Assessment* - an investigation to determine the existence, nature, severity, and location of lead-based paint hazards in a residential dwelling or child-occupied facility and the provision of a written report explaining the results of the investigation and options for reducing lead-based paint hazards to the person requesting the risk assessment (IAC 641-70.2) [Added May 1998].

- *Small Capacitor* - a capacitor which contains less than 1.36 kg (3lb) of dielectric fluid. The following assumptions may be used if the actual weight of the fluid is unknown. A capacitor whose volume is less than 1639 cc (100 $in.^3$) may be considered to contain less than 1.36 kg (3 lb) of dielectric fluid. A capacitor whose volume is between 1639 and 3278 cc may be considered to contain less than 1.36 kg (3 lb) of dielectric fluid if the total weight of the capacitor is less than 4.08 kg (9 lb) (IAC 567-118.2).

- *Target Housing* - housing constructed prior to 1978 with the exception of housing for the elderly or for persons with disabilities, and housing which does not contain a bedroom, unless at least on child, six years of age or less, resides or is expected to reside in the housing for the elderly or persons with disabilities or housing which does not contain a bedroom (IAC 641-70.2) [Added May 1998; Revised April 1999].

- *Visual Inspection For Clearance Testing* - the visual examination of a residential dwelling or a child-occupied facility following an abatement to determine whether or not the abatement has been successfully completed (IAC 641-70.2) [Added May 1998].

- *Visual Risk Assessment* - a visual assessment to determine the presence of deteriorated paint or other potential sources of lead-based paint hazards in a residential dwelling or child-occupied facility and the provision of a written report explaining the results of the assessment to the person requesting the visual risk assessment (IAC 641-70.2) [Added May 1998].

- *White Goods* - appliances including but not limited to, refrigerators, freezers, window unit air conditioners, central heating/air conditioning units, washers, dryers, microwave ovens, and fluorescent light ballasts (IAC 567-118.2).

- *Working Level* - the concentration of radon progeny that will result in 130,000 million electron volts of alphaparticle energy released per liter of air. Working level is a measure of radon decay product concentration in air (IAC 641-43.2).

- *Working Level Month* - a cumulative exposure to radon decay products calculated by multiplying the radon daughter concentration in units of working levels by the number of hours exposed and dividing by 170 (IAC 641-44.2).

- *X-Ray Fluorescence Analyzer (XRF)* - an instrument that determines lead concentrations in milligrams per square centimeter (mg/CM[2]) using the principle of x-ray fluorescence (IAC 641-70.2) [Added May 1998].

TOXIC SUBSTANCES MANAGEMENT GUIDANCE FOR IOWA CHECKLIST USERS	
	REFER TO CHECKLIST ITEMS:
PCB Management	
PCB Missing Checklist Items	T1.2.1.IA.
PCB General	T1.10.1.IA. through T1.10.4.IA.
PCB Records	T1.15.1.IA.
PCB Spills	T1.25.1.IA.
PCB Disposal	T1.50.1.IA.
Asbestos Management	
Asbestos Missing Checklist Items	T2.2.1.IA.
Radon Management	
Radon Missing Checklist Items	T3.2.1.IA.
Mitigation	T3.1.1.IA. and TT..3.2.IA.
Testing and Measurement	T3.1.3.IA. through TT..3.5.IA.
Lead Based Paint	
LBP Missing Checklist Items	T4.2.1.IA.
Notification Requirements	T4.10.1.IA. through T4.10.4.IA.
Training Requirements	T4.15.1.IA.
Work Practice Standards	T4.20.1.IA.

TOXIC SUBSTANCE MANAGEMENT GUIDANCE FOR IOWA APPENDIX USERS	
APENDIX NUMBERS:	**APPENDIX ITEMS:**
10-1	Certification of Attempted Delivery
10-2	Work Practice Standards for Conducting Lead-based Paint Activities in Target Housing and Child-occupied Facilities

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
T1.2 PCB MISSING CHECKLIST ITEMS	
T1.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
PCB MANAGEMENT **T1.10. PCB General**	
T1.10.1.IA. Removal of PCB capacitors from white goods must be registered with the Department of Natural Resources (IAC 567-118.3(1)a and c) [Revised May 1998].	Verify that facilities engaged in the removal of PCB capacitors from white goods are registered with the Department. (NOTE: Facilities subject to Federal PCB identification are exempt from further registration with the State of Iowa. Facilities that remove less than 200 lb of small capacitors in 1 mo and less than 500 lb in 1 yr are also exempt from registration requirements in Iowa (but not from the remaining rules on removal and disposal of capacitors, handling of spills or shredding of white goods.)
T1.10.2.IA. Small capacitor storage must meet general requirements (IAC 567-118.3(1)b) [Revised May 1998].	Verify that, if only small capacitors are stored, signs are posted warning workers of the hazards associated with PCBs and the proper first aid measures in the event of contact with skin or eyes. Verify that personal protective equipment (protective clothing, eye protection, respirators) is in good working order and available for all workers who will be handling PCB capacitors. Verify that all personnel receiving the following training: - emergency procedures regarding spills - handling of leaks or spills - decontamination process - use and location of fire-fighting equipment - first aid equipment, procedures, and use - odor properties of PCBs - proper sanitation when working with PCBs. (NOTE: If large capacitors are stored, see the U.S. TEAM Guide section T1.40 for requirements regarding PCB storage.)
T1.10.3.IA. Capacitors must be removed from white goods prior to processing (IAC 567-118.3(2)).	Verify that all capacitors are removed from white goods prior to processing Verify that all white goods are inspected for capacitors. Verify that all capacitors are assumed to contain PCBs unless: - they are proven otherwise by a laboratory

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
	- the words NO PCBs are imprinted on the body of the capacitor by the manufacturer - the manufacturer certifies in writing that no PCBs were used in the manufacture of the white goods of the capacitor.
T1.10.4.IA. White goods must meet shredding requirements (IAC 567-118.3(5)).	Verify that the fluff from the shredding of white goods is sampled quarterly for the presence of PCBs. (NOTE: If the fluff contains less than 50 ppm PCB, it may be landfilled. If the fluff contains PCBs in a concentration of 50 ppm or more, follow Federal guides for free-flowing PCBs.)

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
PCB MANAGEMENT **T1.15.** **PCB Records**	
T1.15.1.IA. Facilities that remove less than 200 lb of small capacitors in 1 mo, but no more than 500 lb in 1 yr must meet recordkeeping requirements (IAC 567-118.3(1) c) [Added May 1998].	Verify that facilities that remove less than 200 lb of small capacitors in 1 mo, but no more than 500 lb in 1 yr, keep records of the amount, in pounds, of capacitors removed each month and each year. Verify that these records maintained for at least 3 yr.

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
PCB MANAGEMENT **T1.25.** **PCB Spills**	
T1.25.1.IA. PCB spill procedures must be met (IAC 567-118.3(4) and 567-118.3(1)b(5)) [Revised May 1998].	Verify that, in case of spills from leaking or cracked capacitors, the capacitor and any contaminated rags, clothing, and soil are placed in a container for immediate shipment to an EPA-approved waste disposal facility. Verify that the Department (515/281-8694) and the local police department or the office of the affected county are notified of occurrence of a hazardous condition as soon as possible, but no later than 6 h after the onset or discovery of a spill. Verify that emergency procedures include evacuation of all nonessential personnel from the area of any leaks or spills and adequate ventilation of the area to prevent the accumulation of fumes

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
PCB MANAGEMENT **T1.50.** **PCB Disposal**	
T1.50.1.IA. PCB capacitors must meet disposal requirements (IAC 567-118.3(3)).	Verify that capacitors are placed in DOT-approved containers which show no signs of damage. Verify that the bottom of the container is filled to a depth of 2 in. with absorbent material (soil, sand, oil-dry, kitty litter, etc.). Verify that containers are labeled with the proper EPA-approved PCB label, in both English and the predominant language of non-English reading workers. Verify that containers are sealed prior to shipment. Verify that capacitors are transported to and disposed of at an waste disposal facility approved by the EPA for PCBs. (NOTE: Small capacitors may be stored for up to 1 yr on-site in U.S. Department of Transportation-approved, labeled, undamaged containers, provided that the storage area is separate from other non-hazardous storage areas.)

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
T2.2 ASBESTOS MISSING CHECKLIST ITEMS	
T2.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
T3.2 RADON MISSING CHECKLIST ITEMS	
T3.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
RADON MANAGEMENT **T3.1. Mitigation**	
T3.1.1.IA. Radon mitigation specialists must be credentialed (IAC 641-44.1).	Verify that all persons performing abatement for radon or radon progeny in buildings, other than those which they occupy or those they are constructing for their own occupancy, are credentialed. Verify that certified mitigation specialists ensure that all radon mitigation systems for which they are responsible are installed following acceptable guidelines.
T3.1.2.IA. Mitigation specialists must keep specific records (IAC 641-44.6).	Verify that a credentialed radon mitigation specialist maintains, for 5 yr, reports of each mitigation activity, including, but not limited to: - the address or location of the building - the name and phone number of the owner(s) of the building where the radon mitigation is conducted - a written description of each mitigation system and materials installed, diagnostic test results, and cost of each system - the name of the certified radon measurement specialist or technician who performed radon or radon progeny testing before and after radon mitigation of a building, unless the business has waived the testing requirement, and the mitigation specialist saves a copy of the signed waiver - the results of the postmitigation radon measurements performed, including method of measurement and all pertinent dates, unless the business has waived the postmitigation measurement testing requirement, and the mitigation specialist maintains a copy of the signed waiver.
Testing and Measurement	
T3.1.3.IA. All persons performing measurements for radon or radon progeny must be certified (IAC 641-43.1 and IAC 641.43.3(1) and (3)).	Verify that all persons performing measurements for radon or radon progeny in buildings, other than those which they own or occupy and who provide the results of these measurements to the owner or occupant of these structure are certified by the department of public health. (NOTE: This requirement also applies to persons whose place of business is located in Iowa, or in a state other than Iowa, and who offer radon testing to residents of Iowa either directly or through mail.)

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
T3.1.4.IA. Certified persons must follow specific reporting requirements (IAC 641-43.6).	Verify that a certified person submits to the Department within 30 days after any radon/radon progeny testing, or at the request of the Department prior to testing, the address or location of the building, the name and telephone number of the owner(s) of the building, the name and telephone number of the owner(s) of the building where the radon testing is conducted, and the results of any tests performed. Verify that the results for each test conducted include, but are not necessarily limited to: - the method used for radon or radon decay product testing, media tested, and conditions under which the testing is performed - the level or floor of building where the test(s) are conducted - the results of the test(s) in picoCuries per liter of radon gas or working level of radon decay products - the date on which the test is conducted - the purpose of the test. Verify that the Department is notified within 14 days of any changes in testing results or procedures.

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
T4.2 **LBP MISSING CHECKLIST ITEMS**	
T4.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
LBP MANAGEMENT **T4.10.** **Notification Requirements**	(NOTE: These requirements are effective 1 June 1999 (IAC 641-69.3) [Added April 1999].) (NOTE: These requirements apply to all persons who perform renovation, remodeling, and repainting for compensation in target housing (IAC 641-69.1) [Added April 1999].) (NOTE: Renovation, remodeling, and repainting in target housing in which a lead inspector or elevated blood level (EBL) inspector has made a written determination that the components affected by the renovation are free of lead-based paint and where the person conducting the renovation, remodeling, or repainting has obtained a copy of the written determination are exempt from these notification requirements (IAC 641-69.7 [Added April 1999].)
T4.10.1.IA. Persons who perform renovation, remodeling, and repainting in target housing must meet notifcation requirements (IAC 641-69.3 and 641-69.6) [Added April 1999].	Verify that the pamphlet *Lead Poisoning: How to Protect Iowa Families* is provided by the individual conducting the renovation, remodeling, and repainting to the owner and occupant of each dwelling unit (including multifamily units) where renovation, remodeling, and repainting will be performed. Verify that a signed, dated acknowledgement is obtained from the owner and known adult occupant of each dwelling unit where renovation, remodeling, and repainting will be performed affirming that they have received the pamphlet and are aware of the potential health hazards from remodeling, renovating, or repainting housing containing lead-based paint. Verify that the pamphlet is provided and acknowledgement obtained no more than 60 days prior to the commencement of work. (NOTE: If a written acknowledgement cannot be obtained from an adult occupant, there is written certification that the pamphlet has been delivered to the dwelling and that a written acknowledgement could not be obtained from an adult occupant and the certification must include the following: - address of the unit to be remodeled, renovated, or repainted - date and method of delivery of the pamphlet - name of the person delivering the pamphlet - reason for lack of acknowledgement (e.g., occupant refuses to sign, no adult occupant available) - signature of the person conducting the renovating, remodeling, or repainting, and the date of signature.) Verify that, if the parties use a written contract or agreement which is written in a language other than English, the acknowledgement text is written in the same language as the text of the contract or agreement.

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
	(NOTE: In lieu of delivering the pamphlet and written acknowledgement, the person conducting the renovating, remodeling, or repainting may obtain a certificate of mailing the pamphlet and written acknowledgement at least 7 days prior to beginning the work.) Verify that, if the general nature, location, and expected starting and ending dates of the planned renovation, remodeling, and repainting change after the initial notification has been conducted, the individual conducting the renovation, remodeling, and repainting provides further notification to the owners and occupants providing revised information on the ongoing or planned activities. Verify that the subsequent notification is provided before the individual conducting the renovation, remodeling, or repainting initiates work beyond that which was described in the original notice. (NOTE: When an adult occupant is unavailable for signature or refuses to sign the acknowledgement of receipt of the pamphlet, the individual conducting the renovating, remodeling, or repainting may certify delivery for each instance in accordance with Appendix 10-1).
T4.10.2.IA. Persons who perform renovation, remodeling, and repainting in multifamily target housing must meet notifcation requirements (IAC 641-69.4) [Added April 1999].	Verify that the notification requirements of T4.10.1. are met. Verify that each owner and occupant of multifamily housing receives written notification of the intended remodeling, repainting, or renovation. Verify that the notice includes the following: - the general nature and location of the planned renovation, remodeling, and repainting activity - the expected starting and ending dates of the planned renovation, remodeling, and repainting activity - a statement of how the owners and occupants can obtain the pamphlet *Lead Poisoning: How to Protect Iowa Families* at no charge from the individual conducting the renovation, remodeling, and repainting activity. Verify that the notification is provided by the individual planning to perform the renovation, remodeling, and repainting, or by the owner on behalf of this individual. Verify that the pamphlet and written acknowledgement are delivered to the owner no more than 60 days prior to the commencement of work. (NOTE: In lieu of delivering the pamphlet and written acknowledgement to the owner, the person conducting the renovating, remodeling, or repainting may obtain a certificate of mailing the pamphlet and written acknowledgement at least 7 days prior to the beginning of work.)

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
	Verify that the individual planning to perform the renovation, remodeling, and repainting prepares, signs, and dates a statement describing the steps performed to notify all occupants of the intended renovation, remodeling, and repainting, and to provide the pamphlet *Lead Poisoning: How to Protect Iowa Families* at no charge upon request.
T4.10.3.IA. Persons who perform emergency renovation, remodeling, and repainting in target housing must meet notification requirements (IAC 641-69.5) [Added April 1999].	Verify that the individuals performing emergency renovation, remodeling, and repainting: - provide the pamphlet *Lead Poisoning: How to Protect Iowa Families* to the owner of the target housing where renovation, remodeling, and repainting will be performed - notify each owner and occupant of the target housing in writing of the remodeling, repainting, or renovation. Verify that the notice describes the following: - the general nature and location of the renovation, remodeling, and repainting activity - the starting and ending dates of the renovation, remodeling, and repainting activity - a statement of how the owners and occupants can obtain the pamphlet *Lead Poisoning: How to Protect Iowa Families* at no charge from the individual conducting the renovation, remodeling, and repainting activity. Verify that these activities are conducted by the individual performing the renovation, remodeling, and repainting, or by the owner on behalf of this individual. Verify that the individual planning to perform the renovation, remodeling, and repainting prepares, signs, and dates a statement describing the steps performed to notify all occupants of the intended renovation, remodeling, and repainting, and to provide the pamphlet *Lead Poisoning: How to Protect Iowa Families* at no charge upon request. (NOTE: Regardless of who performs the required notification, the individual conducting the renovation, remodeling, and repainting is responsible for ensuring compliance and is liable for any failures to do so.).
T4.10.4.IA. Individuals who conduct renovation, remodeling, and repainting in target housing must meet notification recordkeeping requirements (IAC 641-69.8)	Verify that individuals who conduct renovation, remodeling, and repainting in target housing maintain the following records for 3 yr following completion of the work: - the address or location of the target housing where remodeling, renovation, or repainting was conducted

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
[Added April 1999].	- a list of all known occupants of the dwelling units where renovation, remodeling, or repainting was conducted at the commencement of the work - copies of signed, dated acknowledgements (required by T4.10.1) from each owner and occupant of a dwelling unit where renovation, remodeling, or repainting was conducted - copies of signed, dated acknowledgements (required by T4.10.2) from each owner of multifamily target housing where renovation, remodeling, or repainting was conducted in common areas - copies of all signed, dated statements of notification, as well as copies of all notification materials to all owners and occupants and acknowledgements (required by T4.10.3) from each owner and occupant of multifamily target housing where renovation, remodeling, or repainting was conducted in common areas - reports showing that a certified lead inspector or certified elevated blood level has made a written determination that the components affected by the renovation are free of lead-based paint - certifications of attempted delivery - certificates of mailing.

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
LBP MANAGEMENT **T4.15.** **Training Requirements**	(NOTE: Prior to 1 August 1999, these requirements apply to all persons who are certified lead professionals in Iowa. After 1 August 1999, these requirements apply to all persons who are lead professionals in Iowa (IAC 641-70.1) [Added April 1999].) (NOTE: Nothing in these regulations requires a property owner, manager, or occupant to undertake any particular lead-based paint activity (IAC 641-70.1) [Added May 1998].)
T4.15.1.IA. Lead professionals must be certified by the Department (IAC 641-70.3 and 641-70.7) [Added May 1998; Revised April 1999].	Verify that lead professionals are certified by the Department in the appropriate discipline before they conduct lead abatement, lead inspections, elevated blood lead (EBL) inspections, lead hazard screens, risk assessments, and visual risk assessments. Verify that EBL inspections are conducted only by certified EBL inspectors employed by or under contract with a certified EBL inspection agency. (NOTE: Persons who perform these lead activities within residential dwellings that they own are exempt from the certification requirement unless the residential dwelling is occupied by a person other than the owner or a member of the owner's immediate family while these activities are being performed.) Verify that firms performing lead-based paint activities employ only appropriately certified employees to conduct lead-based paint activities.

COMPLIANCE CATEGORY: TOXIC SUBSTANCE MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
LBP MANAGEMENT **T4.20.** **Work Practice Standards**	(NOTE: Prior to 1 August 1999, these requirements apply to all persons who are certified lead professionals in Iowa. After 1 August 1999, these requirements apply to all persons who are lead professionals in Iowa (IAC 641-70.1) [Added April 1999].) (NOTE: Nothing in these regulations requires a property owner, manager, or occupant to undertake any particular lead-based paint activity (IAC 641-70.1) [Added May 1998].)
T4.20.1.IA. Lead abatement, lead inspections, elevated blood lead (EBL) inspections, lead hazard screens, risk assessments, and visual risk assessments must meet specific requirements (IAC 641-70.6) [Added May 1998].	Verify that lead abatement, lead inspections, EBL inspections, lead hazard screens, risk assessments, and visual risk assessments meet the work practice standards listed in Appendix 10-2.

Appendix 10-1

Certification of Attempted Delivery
(Source: IAC 641-69.6) [Added April 1999]

When an adult occupant is unavailable for signature or refuses to sign the acknowledgement of receipt of the pamphlet, the individual conducting the renovating, remodeling, or repainting is permitted by subrule 69.3(2) to certify delivery for each instance. The certification shall include the address of the unit undergoing renovation, remodeling or repainting, the date and method of delivery of the pamphlet, names of the persons delivering the pamphlet, reason for lack of acknowledgement (e.g., occupant refuses to sign, no adult occupant available), the signature of the individual conducting the renovation, remodeling, and repainting, and the date of signature.

Unavailable for signature.

1. If an adult occupant is unavailable for signature, the certification shall contain the following language:

   I certify that I have made a good-faith effort to deliver the pamphlet *Lead Poisoning: How to Protect Iowa Families* to the unit listed below at the dates and times indicated, and that an adult occupant was unavailable to sign the acknowledgement. I further certify that I have left a copy of the pamphlet at the unit with the occupant.
2. Below the statement, the certification shall require the printed name and signature of the individual conducting the renovating, remodeling, or repainting, the address of the unit, the attempted delivery dates and times, and the date of signature.

Refused to sign.

1. If the occupant refuses to sign the acknowledgement, the certification shall contain the following language:

   I certify that I have made a good-faith effort to deliver the pamphlet *Lead Poisoning: How to Protect Iowa Families* to the unit listed below at the dates and times indicated, and that the occupant refused to sign the acknowledgement. I further certify that I have left a copy of the pamphlet at the unit.
2. Below the statement, the certification shall require the printed name and signature of the individual conducting the renovating, remodeling, or repainting, the address of the unit, the attempted delivery dates and times, the location where the pamphlet was left at the unit (e.g., taped to the door, slipped under the door), and the date of signature.

Appendix 10-2

Work Practice Standards for Conducting Lead-based Paint Activities in Target Housing and Child-Occupied Facilities

(Source: IAC 641-70.6) [Added May 1998; Revised April 1999]

70.6(1) Prior to March 1, 1999, when performing any lead-based paint activity described as an inspection, elevated blood lead (EBL) inspection, lead hazard screen, risk assessment, visual risk assessment, or lead abatement, a certified individual must perform that activity in compliance with the appropriate requirements below. Beginning on March 1, 1999, all lead-based paint activities shall be performed according to the work practice standards in rule 70.6(135) and a certified individual must perform that activity in compliance with the appropriate requirements below.

70.6(2) A certified lead inspector or a certified elevated blood lead (EBL) inspector must conduct lead inspections according to the following standards. Beginning on August 1, 1999, lead inspections shall be conducted only by a certified lead inspector or a certified elevated blood lead (EBL) inspector.

a. When conducting an inspection, the inspector shall use, the documented methodologies, including selection of rooms and components for sampling or testing, specified in Chapter 7 of the Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, U.S. Department of housing and Urban Development).
b. Paint shall be sampled using adequate quality control by x-ray fluorescence or by laboratory analysis using a recognized laboratory to determine the presence of lead-based paint on a surface.
c. If lead-based paint is identified through an inspection, the inspector must conduct a visual inspection to determine the presence of lead-based paint hazards and any other potential lead hazards.
d. A certified lead inspector or a certified elevated blood lead (EBL) inspector shall prepare a written report for each residential dwelling or child-occupied facility inspected and shall provide a copy of this report to the person requesting the inspection. A certified lead inspector or a certified elevated blood lead (EBL) inspector shall maintain a copy of each written report for no fewer than three years. The inspection report shall include, at least:
    (1) Date of each inspection;
    (2) Address of building;
    (3) Date of construction;
    (4) Apartment numbers (if applicable);
    (5) The name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility;
    (6) Name, signature, and certification number of each certified lead inspector or certified elevated blood lead inspector conducting the investigation;
    (7) Name, address, and telephone number of each laboratory conducting an analysis of collected samples;
    (8) Each testing method and device and sampling procedure employed for paint analysis, including quality control data and, if used, the serial number of any x-ray fluorescence (XRF) device;
    (9) Specific locations of each painted component tested for the presence of lead-based paint;
    (10) The results of the inspection expressed in terms appropriate to the sampling method used;
    (11) A description of the location, type, and severity of identified lead-based paint hazards, and any other potential lead hazards; and
    (12) A description of interim controls and abatement options for each identified lead-based paint hazard and a suggested prioritization for addressing each hazard. If the use of an encapsulant or enclosure is recommended, the report shall recommend a maintenance and monitoring schedule for the encapsulant or enclosure.

70.6(3) A certified elevated blood lead (EBL) inspector must conduct elevated blood lead (EBL) inspections according to the following standards. Beginning on August 1, 1999, EBL inspections shall be conducted only by a certified EBL inspector.

a. When conducting an elevated blood lead (EBL) inspection, the elevated blood lead (EBL) inspector shall use the documented methodologies, including selection of rooms and components for sampling or testing, specified in Chapter 7 of the Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, U.S. Department of Housing and Urban Development).
b. Paint shall be sampled using adequate quality control by x-ray fluorescence or by laboratory analysis using a recognized laboratory to determine the presence of lead-based paint on a surface.
c. If lead-based paint is identified through an inspection, the inspector must conduct a visual inspection to determine the presence of lead-based paint hazards and any other potential lead hazards.
d. A certified elevated blood lead (EBL) inspector shall prepare a written report for each residential dwelling or child-occupied facility where an elevated blood lead (EBL) inspection has been conducted and shall provide a copy of this report to the owner and the occupant of the dwelling. The report shall include, at least:
   (1) Date of each elevated blood lead (EBL) inspection;
   (2) Address of building;
   (3) Date of construction;
   (4) Apartment numbers (if applicable);
   (5) The name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility;
   (6) Name, signature, and certification number of each certified elevated blood lead (EBL) inspector conducting the investigation;
   (7) Name, address, and telephone number of each laboratory conducting an analysis of collected samples;
   (8) Each testing method and device and sampling procedure employed for paint analysis, including quality control data and, if used, the serial number of any x-ray fluorescence (XRF) device;
   (9) Specific locations of each painted component tested for the presence of lead-based paint;
   (10) The results of the inspection expressed in terms appropriate to the sampling method used;
   (11) A description of the location, type, and severity of identified lead-based paint hazards, and any other potential lead hazards; and
   (12) A description of interim controls and abatement options for each identified lead-based paint hazard and a suggested prioritization for addressing each hazard. If the use of an encapsulant or enclosure is recommended, the report shall recommend a maintenance and monitoring schedule for the encapsulant or enclosure.
e. A certified elevated blood lead (EBL) inspector shall maintain a written record for each residential dwelling or child-occupied facility where an elevated blood lead (EBL) inspection has been conducted for no fewer than ten years. The record shall include, at least:
(1) A copy of the written report required by paragraph 70.6(3)"d."
(2) Blood lead test results for the elevated blood lead (EBL) child.
(3) A record-of conversations held with the owners and occupants of each residential dwelling or child-occupied facility prior to, during, and after the EBL inspection.
(4) Records of follow-up visits made to each residential dwelling or child-occupied facility where lead-based paint hazards are identified to ensure that lead-based paint hazards are safely repaired.

70.6(4) A certified lead inspector or a certified elevated blood lead (EBL) inspector must conduct lead hazard screens according to the following standards. Beginning on August 1, 1999, lead hazard screens shall be conducted only by a certified lead inspector or a certified elevated blood lead (EBL) inspector.

a. Background information regarding the physical characteristics of the residential dwelling or child-occupied facility and occupant use patterns that may cause lead-based paint exposure to at least one child six years of age or less shall be collected.
b. A visual inspection of the residential dwelling or child-occupied facility shall be conducted to determine if any deteriorated paint is present and to locate at least two dust sampling locations.
c. If deteriorated paint is present each surface with deteriorated paint which is determined to have a distinct painting history must be tested for the presence of lead.

d. In residential dwellings, two composite dust samples shall be collected. One sample shall be collected from the floors and the other from the window well and window trough in rooms, hallways, or stairwells; where at least one child six years of age or less is most likely to come in contact with dust.
e. In multifamily dwellings and child-occupied facilities, a composite dust sample shall also be collected from common areas where at least one child six years of age or less is likely to come in contact with dust.
f. Dust samples shall be collected using the documented methodologies specified in the Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, U.S. Department of Housing and Urban Development). Dust samples shall be analyzed by a recognized laboratory to determine the level of lead.
g. Paint shall be sampled using adequate quality control by x-ray fluorescence or by laboratory analysis using a recognized laboratory to determine the presence of lead-based paint on a surface.
h. A certified lead inspector or a certified elevated blood lead inspector shall prepare a written report for each residential dwelling or child-occupied facility where a lead hazard screen is conducted and shall provide a copy of this report to the person requesting the lead hazard screen. A certified lead inspector or a certified elevated blood lead inspector shall maintain a copy of each written report for no fewer than three years. The report shall include, at least:
   (1) Date of each lead hazard screen;
   (2) Address of building;
   (3) Date of construction;
   (4) Apartment numbers (if applicable);
   (5) The name, address and telephone number of the owner or owners of each residential dwelling or child-occupied facility;
   (6) Name, signature, and certification number of each certified lead inspector or certified elevated blood lead inspector conducting the investigation;
   (7) Name, address, and telephone number of each recognized laboratory conducting an analysis of collected samples;
   (8) Results of the visual inspection;
   (9) Each testing method and device and sampling procedure employed for paint analysis, including quality control data and, if used, the serial number of any x-ray fluorescence (XRF) device;
   (10) Specific locations of each painted component tested for the presence of lead-based paint;
   (11) All results of laboratory analysis of collected paint, dust, and soil samples;
   (12) Any other sampling results;
   (13) Background information collected regarding the physical characteristics of the residential dwelling or child-occupied facility and occupant use patterns that may cause lead-based paint exposure to at least one child six years of age or less; and
   (14) Recommendations, if warranted, for a follow-up lead inspection or risk assessment, and, as appropriate, any further actions.

70.6(5) A certified lead inspector or a certified elevated blood lead (EBL) inspector must conduct risk assessments according to the following standards. Beginning on August 1, 1999, risk assessments shall be conducted only by a certified lead inspector or a certified elevated blood lead (EBL) inspector.

a. Background information regarding the physical characteristics of the residential dwelling or child-occupied facility and occupant use patterns that may cause lead-based paint exposure to at least one child six years of age or less shall be collected.
b. A visual inspection for risk assessment shall be undertaken to locate the existence of deteriorated paint and other potential lead hazards and to assess the extent and causes of the paint deterioration.
c. If deteriorated paint is present each surface with deteriorated paint which is determined to have a distinct painting history must be tested for the presence of lead.
d. Accessible friction and impact surfaces having a distinct painting history shall be tested for the presence of lead.
e. In residential dwellings, dust samples shall be collected from the windowsill, window trough, and floor in all living areas where at least one child is most likely to come in contact with dust. Dust samples may be either composite or single-surface samples.

f. In multifamily dwellings and child-occupied facilities, dust samples shall also be collected from common areas adjacent to the sampled residential dwellings or child occupied facility and in other common areas where the lead inspector or elevated blood lead (EBL) inspector determines that at least one child six years of age or less is likely to come in contact with dust. Dust samples may be either composite or single-surface samples.

g. In child-occupied facilities dust samples shall be collected from the window well, window trough, and floor in each room, hallway, or stairwell utilized by one or more children, six years of age or less, and in other common areas where the lead inspector or elevated blood lead (EBL) inspector determines that at least one child six-years of age or less is likely to come in contact with dust. Dust samples may be either composite or single-surface samples.

h. Soil samples shall be collected in exterior play areas and drip line/foundation areas where bare soil is present.

i. Dust samples, soil, and paint samples shall be collected using the documented methodologies specified in the Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, U.S. Department of Housing and Urban Development). Dust and soil samples shall be analyzed by a recognized laboratory to determine the level of lead.

j. Paint shall be sampled using adequate quality control by x-ray fluorescence or by laboratory analysis using a recognized laboratory to determine the presence of lead-based paint on a surface.

k. A certified lead inspector or a certified elevated blood lead (EBL) inspector shall prepare a written report for each residential dwelling or child-occupied facility where a risk assessment is conducted and shall provide a copy of the report to the person requesting the risk assessment. A certified lead inspector or a certified elevated blood lead (EBL) inspector shall maintain a copy of the report for no fewer than three years. The report shall include, at least:

(1) Date of each risk assessment;
(2) Address of building;
(3) Date of construction;
(4) Apartment numbers (if applicable);
(5) The name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility;
(6) Name, signature, and certification number of each certified inspector conducting the investigation;
(7) Name, address, and telephone number of each recognized laboratory conducting an analysis of collected samples;
(8) Results of the visual inspection;
(9) Each testing method and device and sampling procedure employed for paint analysis, including quality control data and, if used, the serial number of any x-ray fluorescence (XRF) device;
(10) Specific locations of each painted component tested for the presence of lead-based paint;
(11) All results of laboratory analysis of collected paint, dust, and soil samples;
(12) Any other sampling results;
(13) Background information collected regarding the physical characteristics of the residential dwelling or child-occupied facility and occupant use patterns that may cause lead-based paint exposure to at least one child six years of age or less;
(14) To the extent that they are used as part of the lead-based paint hazard determination, the results of any previous inspections or analyses for the presence of lead-based paint, or other assessments of lead-based paint hazards;
(15) A description of the location, type, and severity of identified lead-based paint hazards, and any other potential lead hazards; and
(16) A description of interim controls and abatement options for each identified lead-based paint hazard and a suggested prioritization for addressing each hazard. If the use of an encapsulant or enclosure is recommended, the report shall recommend a maintenance and monitoring schedule for the encapsulant or enclosure.

70.6(6) A certified lead abatement contractor or certified lead abatement worker must conduct lead abatement according to the following standards. Beginning on August 1, 1999, lead abatement shall be conducted only by a certified lead abatement contractor or a certified lead abatement worker

a. A certified lead abatement contractor must be on site during all work site preparation and during the postabatement cleanup of work areas. At all other times when lead abatement is being conducted, the certified lead abatement contractor shall be on site or available by telephone, pager, or answering service, and be able to be present at the work site in no more than two hours.

b. A certified lead abatement contractor shall ensure that lead abatement is conducted according to all federal, state, and local requirements.

c. A certified lead abatement contractor shall notify the department at least seven days prior to the commencement of lead abatement in a residential dwelling or child-occupied facility.

d. A certified lead abatement contractor or a certified project designer shall develop an occupant protection plan for all lead abatement projects prior to starting lead abatement and shall implement the occupant protection plan during the lead abatement project. The occupant protection plan shall be unique to each residential dwelling or child-occupied facility. The occupant protection plan shall describe the measures and management procedures that will be taken during the abatement to protect the building occupants; from exposure to any lead-based paint hazards.

e. Approved methods must be used to conduct lead abatement and prohibited work practices must not be used to conduct lead abatement. The following are prohibited work practices:
   (1) Open-flame burning or torching of lead-based paint.
   (2) Machine sanding or grinding or abrasive blasting or sandblasting of lead-based paint unless used with High Efficiency Particulate Air (HEPA) exhaust control that removes particles of 0.3 microns or larger from the air at 99.97 percent or greater efficiency.
   (3) Uncontained water blasting of lead-based paint.
   (4) Dry scraping or dry sanding of lead-based paint except in conjunction with the use of a heat gun or around electrical outlets.
   (5) Operating a heat gun at a temperature at or above 1100 degrees Fahrenheit.

f. Soil abatement shall be conducted using one of the following methods:
   (1) If soil is removed, the lead-contaminated soil shall be replaced with soil that is not lead-contaminated.
   (2) If soil is not removed, the lead-contaminated soil shall be permanently covered.

g. Postabatement clearance procedures shall be conducted by a certified lead inspector. or a certified elevated blood lead (EBL) inspector using the following procedures:
   (1) Following an abatement, a visual inspection shall be performed to determine if deteriorated paint surfaces or visible amounts of dust, debris, or residue are still present. If deteriorated paint surfaces or visible amounts of dust, debris, or residue are present, these conditions must be eliminated prior to the continuation of the clearance procedures.
   (2) Following the visual inspection and any required postabatement cleanup, clearance sampling for lead-contaminated dust shall be conducted. Clearance sampling may be conducted by employing single-surface sampling or composite dust sampling.
   (3) Dust samples shall be collected a minimum of one hour after the completion of final postabatement cleanup activities.
   (4) Dust samples shall be collected using the documented methodologies specified in the Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, U.S. Department of Housing and Urban Development). Dust samples shall be analyzed by a recognized laboratory to determine the level of lead.
   (5) The following postabatement clearance activities shall be conducted as appropriate based upon the extent or manner of abatement activities conducted in the residential dwelling or child-occupied facility:
      1. After conducting an abatement with containment between abated and unabated areas, one dust sample shall be taken from one windowsill and window trough (if available) and one dust sample shall be taken from the floor of no fewer than four rooms, hallways, or stairwells within the containment area. In addition, one dust sample shall be taken from the floor outside the containment area. If there are fewer than four rooms, hallways, or stairwells within the containment area, then all rooms, hallways, and stairwells shall be sampled.
      2. After conducting an abatement with no containment, two dust samples shall be taken from no fewer than four rooms, hallways, or stairwells in the residential dwelling or child-occupied facility. One dust sample shall be taken from one windowsill and window trough (if available)

and one dust sample shall be taken from the floor of each room, hallway, or stairwell selected. If there are fewer than four rooms, hallways, or stairwells within the containment area, then all rooms, hallways, and stairwells shall be sampled.

3. Following an exterior abatement, a visual inspection shall be conducted. All horizontal surfaces in the outdoor living area closest to the abated surface shall be found to be cleaned of visible dust and debris. In addition, a visual inspection shall be conducted to determine the presence of paint chips on the drip line or next to the foundation below any exterior surface abated. If visible dust, debris, or paint chips are present, they must be removed from the site and properly disposed of according to all applicable federal, state, and local standards.

(6) The rooms, hallways, and stairwells selected for sampling shall be selected using the documented methodologies specified in the Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, U.S. Department of Housing and Urban Development).

(7) The certified lead inspector or certified elevated blood lead (EBL) inspector shall compare the residual lead level as determined by the laboratory analysis from each dust sample with applicable clearance levels for lead in dust on floors and window troughs. If the residual lead levels in a dust sample exceed the clearance levels, then all the components represented by the failed dust sample shall be recleaned and retested until clearance levels are met.

h. In a multifamily dwelling with similarly constructed and maintained residential dwellings, random sampling for the purpose of clearance may be conducted if the following conditions are met:

(1) The certified lead abatement contractors and certified lead abatement workers who abate or clean the dwellings do not know which residential dwellings will be selected for the random sampling.

(2) A sufficient number of residential dwellings are selected for dust sampling to provide a 95 percent level of confidence that no more than 5 percent or 50 of the residential dwellings (whichever is smaller) in the randomly sampled population exceed the appropriate clearance levels.

(3) The randomly selected residential dwellings shall be sampled and evaluated for clearance according to the procedures found in paragraph 70.6(6)"g."

i. The certified lead abatement contractor or a certified project designer shall prepare an abatement report containing the following information:

(1) Starting and completion dates of the lead abatement project.

(2) The name and address of each certified lead abatement contractor and certified lead abatement worker conducting the abatement.

(3) The occupant protection plan required by paragraph 70.6(6)"d."

(4) The name, address, and signature of each certified lead inspector or certified elevated blood lead (EBL) inspector conducting clearance sampling, the date on which the clearance testing was conducted, and the results of all postabatement clearance testing and all soil analyses, if applicable.

(5) The name and address of each laboratory that conducted the analysis of clearance samples and soil samples.

(6) A detailed written description of the lead abatement project, including lead abatement methods used, locations of rooms and components where lead abatement occurred, reasons for selecting particular lead abatement methods, and any suggested monitoring of encapsulants or enclosures.

(7) Maintain all reports and plans required in this subrule for a minimum of three years.

(8) Provide a copy of all reports required by this subrule to the building owner who contracted for the lead abatement.

70.6(7) A certified lead inspector a certified elevated blood lead (EBL) inspector, or a certified visual risk assessor must conduct visual risk assessments according to the following standards. Beginning on August 1, 1999, visual risk assessments shall be conducted only by a certified lead inspector, a certified elevated blood lead (EBL) inspector, or a certified visual risk assessor.

a. Background information regarding the physical characteristics of the residential dwelling or child-occupied facility and occupant use patterns that may cause lead-based paint exposure to at least one child six years of age or less shall be collected.

b. A visual inspection for risk assessment shall be undertaken to locate the existence of deteriorated paint and other potential lead hazards and to assess the extent and causes of the paint deterioration.

c. A certified lead inspector, a certified elevated blood lead (EBL) inspector, or a certified visual risk assessor shall prepare a written report for each residential dwelling or child-occupied facility where a

visual risk assessment is conducted and shall provide a copy of the report to the person requesting the visual risk assessment. A certified lead inspector, a certified elevated blood lead (EBL) inspector, or a certified visual risk assessor shall maintain a copy of the report for no fewer than three years. The report shall include, at least.

(1) Date of each visual risk assessment;
(2) Address of building;
(3) Date of construction;
(4) Apartment numbers (if applicable);
(5) The name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility;
(6) Name, signature, and certification number of each certified visual assessor assessor, certified lead inspector, or certified elevated blood level (EBL) inspector conducting the visual risk assessment;
(7) Specific locations of painted components identified as likely to contain lead-based paint and likely to be lead-based paint hazards; and
(8) Information for the owner and occupants on how to reduce lead hazards in the residential dwelling or child-occupied facility.

70.6(8) A certified elevated blood lead (EBL) inspection agency shall maintain the written records for all elevated blood lead (EBL) inspections conducted by persons that the agency employs or contracts with to provide elevated blood lead (EBL) inspections in the agency's service area.

70.6(9) A person may be certified as a lead inspector, visual risk assessor, or elevated blood lead (EBL) inspector and as a lead abatement contractor or lead abatement worker. However, a person who is certified both as a lead inspector, visual risk assessor, or elevated blood lead (EBL) inspector and as a lead abatement contractor or lead abatement worker shall not provide both lead inspection or visual risk assessment and lead abatement services at the same site unless a written consent or waiver, following full disclosure by the person, is obtained from the owner or manager of the site.

70.6(10) Any paint chip, dust, or soil samples collected pursuant to the work practice standards contained in this rule shall be collected by persons certified as a lead inspector or an elevated blood lead (EBL) inspector These samples shall be analyzed by a recognized laboratory.

70.6(11) Composite dust sampling shall be conducted only in the situations specified in subrules 70.6(4) to 70.6(6). If composite sampling is conducted it shall meet the following requirements:

a. Composite dust samples shall consist of at least two subsamples.
b. Every component that is being tested shall be included in the sampling.
c. Composite dust samples shall not consist of subsamples from more than one type of component.

SECTION 12

WASTEWATER MANAGEMENT

Iowa Supplement, April 2000

This section covers the state requirements for Wastewater Management and is intended to supplement the U.S. TEAM Guide. Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.

Federal Regulations Adopted by the State

The State of Iowa has adopted by reference the following Effluent Standards from Title 40, Code of Federal Regulations (CFR), July 1997 edition:

Part 129 (Iowa Administrative Code (IAC) 567-62.5)
Part 401
Part 403
Part 125, Subpart H
Parts 405 through 415
Parts 417 through 436
Part 439
Part 440
Part 443
Part 446
Part 447
Part 454
Part 455
Parts 457 through 461
Parts 463 through 469
Part 471 (IAC 567-62.4).

The State of Iowa has adopted by reference 40 CFR 122.27 as promulgated 1 April 1983 and 40 CFR 122.26 as promulgated 6 November 1990 (IAC 567-64.10 and 567-64.13, respectively).

Definitions

- *Acute Toxicity* - that level of pollutants which would rapidly induce a severe and unacceptable impact on organisms (IAC 567-60.2).

- *Alteration* (of an on-site wastewater treatment and disposal system) - any changes that effect the treatment or disposal of the waste. Repair of existing components that does not change the treatment or disposal would be exempt (IAC 567-69.1(3)c) [Added April 1999].

- *Animal-Feeding Operation* - a lot, yard, corral, building, or other area in which animals are confined and fed and maintained for 45 days or more in any 12 mo period. Two or more animal-feeding operations under common ownership or management are deemed to be a single animal-feeding operation if they are adjacent or utilize a common area or system for waste disposal (IAC 567-65.1).

- *Area Drain* - a drain installed to collect surface or storm water from an open area of a building or property (IAC 567-69.1) [Added April 1999].

- *Building Sewer* - that part of the horizontal piping from the building wall to its connection with the main sewer or the primary treatment portion of an on-site wastewater treatment and disposal system conveying the drainage of one building site (IAC 567-69.1) [Added April 1999].

- *Chronic Toxicity* - that level of pollutants which would, over long durations or recurring exposure, cause a continuous, adverse or unacceptable response in organisms (IAC 567-60.2).

- *Class I Sewage Sludge* - sewage sludge that has excellent quality and has been treated in a process equivalent to processes to further reduce pathogens and does not exceed the pollutant concentrations of Class I sewage sludge in Appendix 12-1 (IAC 567-67.7(1)).

- *Class II Sewage Sludge* - sewage sludge that has normal quality and has been treated in a process equivalent to processes to significantly reduce pathogens and does not exceed the pollutant concentrations of Class II sewage sludge in Appendix 12-1 (IAC 567-67.8(1)).

- *Class III Sewage Sludge* - any sewage sludge that cannot meet either Class I or II sewage sludge criteria (IAC 567-69.9(1)) [Citation Revised April 1999].

- *Cleaning* - removal of waste from private waste facilities and other actions incidental to that removal (IAC 567-68.2).

- *Commercial Septic Tank Cleaner* - a person or firm engaged in the business of cleaning and disposing of waste from private waste facilities, including a person or firm that owns and rents or leases portable toilets (IAC 567-68.2).

- *Designated Use Waters* - 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 segments include the following:
    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
    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
    3. high water quality (Class HQ) - waters with exceptionally better quality and with exceptional recreational and ecological importance
    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
    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 (IAC 567-61.3(1)(b)(1) through (8)).

- *Distribution Box* - a structure designed to accomplish the equal distribution of wastewater to two or more soil absorption trenches (IAC 567-69.1) [Added April 1999].

- *Drainage Ditch* - any watercourse meeting the classification of a "general use segment" under rule 567-61.3(455B) which includes intermittent watercourses and those watercourses which typically flow only for short

periods of time following precipitation in the immediate locality and whose channels are normally above the water table (IAC-69.1) [Added April 1999].

- *Dwelling* - any house or place used or intended to be used by humans as a place of residence (IAC 567-69.1) [Added April 1999].

- *Foundation Drain* - that portion of a building drainage system provided to drain groundwater from the outside of the foundation or over or under the basement floor not including any wastewater and not connected to the building drain (IAC 567-69.1) [Added April 1999].

- *Fill Soil* - clean soil, free of debris or large organic material, which has been mechanically moved onto a site and has been in place for less than 1 yr (IAC 567-69.1) [Added April 1999].

- *General Use Waters* - 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 (IAC 567-61.3(1)(a)).

- *Holding Tank for Wastes* - any receptacle for the retention or storage of wastes pending removal for further treatment or disposal (IAC 567-68.2).

- *Individual Mechanical Aerobic Wastewater Treatment System* - an individual wastewater treatment and disposal system employing bacterial action which is maintained by the utilization of air or oxygen and includes the aeration plant and equipment and the method of final effluent disposal (IAC 567-69.1) [Added April 1999].

- *Intermittent Sand Filters* - beds of granular materials 24 to 36 in. deep underlain by graded gravel and collecting tile. Wastewater is applied intermittently to the surface of the bed through distribution pipes or troughs and the bed is underdrained to collect and discharge the final effluent. Uniform distribution is normally obtained by dosing so as to flood the entire surface of the bed. Filters may be designed to provide free access (open filters), or may be buried in the ground (buried filters or subsurface sand filters) (IAC 567-69.1) [Added April 1999].

- *Lake* - a natural or man-made impoundment of water with more than one acre of water surface area at the high water level (IAC 567-69.1) [Added April 1999].

- *Mixing Zone* - a delineated portion of a stream or river in which wastewater discharges will be allowed to combine and disperse into the water body. The chronic criteria of subrule 61.3(3) will apply at the boundary of this zone (IAC 567-60.2).

- *Mound System* - an alternative aboveground system used to absorb effluents from septic tanks in cases where either seasonally high water table, high bedrock conditions, slowly permeable soils or limited land areas prevent conventional subsurface absorption systems (IAC 567-69.1) [Added April 1999].

- *On-site Wastewater Treatment and Disposal System* - all equipment and devices necessary for proper conduction, collection, storage, treatment, and disposal of wastewater from four or fewer dwelling units or other facility serving the equivalent of 15 persons (1500 gpd) or less. This includes domestic waste whether residential or nonresidential but does not include industrial waste of any flow rate. Included within the scope of this definition are building sewers, septic tanks, subsurface absorption systems, mound systems, sand filters, constructed wetlands and individual mechanical/aerobic wastewater treatment systems (IAC 69.1(1)) [Added April 1999].

- *Percolation Test* - a falling water level procedure used to determine the ability of soils to absorb primary treated wastewater (IAC 69.1(1)) [Added April 1999].

- *Pond* - a man-made impoundment of water with a water surface area of one acre or less at the high water level (IAC 69.1(1)) [Added April 1999].

- *Primary Treatment* - a unit or system to separate the floating and settleable solids from the wastewater before the partially treated effluent is discharged for secondary treatment (IAC 69.1(1)) [Added April 1999].

- *Private Waste Facilities* - includes, but not limited to, septic tanks as defined in subrule 567-69.3(1); holding tanks for wastes; impervious vault toilets; portable toilets, and chemical toilets as described in 567--Chapter 69; and all waste control systems identified in 567--Chapter 65 for animal confinement feeding operations (IAC 567-68.2).

- *Professional Soil Analysis* - an alternative to the percolation test which depends upon a knowledgeable person evaluating the soil factors, such as color, texture, and structure, in order to determine an equivalent percolation rate. Demonstrated training and experience in soil morphology (testing-absorption qualities of soil by the physical examination of the soil's color, mottling, texture, structure, topography and hillslope position) shall be required to perform a professional soil analysis (IAC 69.1(1)) [Added April 1999].

- *Roof Drain* - a drain installed to receive water collecting on the surface of a roof and discharging into an area or storm drain system (IAC 69.1(1)) [Added April 1999].

- *Secondary Treatment System* - a system which provides biological treatment of the effluent from septic tanks or other primary treatment units to meet minimum effluent standards as required in these rules and NPDES General Permit No. 4. Examples include soil absorption systems, sand filters, mechanical/aerobic systems, or other systems providing equivalent treatment (IAC 69.1(1)) [Added April 1999].

- *Septage* - the liquid contents (including sludge and scum) of a septic tank normally pumped out periodically and transported to another site for disposal (IAC 69.1(1)) [Added April 1999].

- *Septic Tank* - a watertight structure into which wastewater is discharged for solids separation and digestion, referred to as part of the closed portion of the treatment system (IAC 69.1(1)) [Added April 1999].

- *7-Day, 10-Yr Low Stream Flow* - the lowest average stream flow which would statistically occur for 7 consecutive days once every 10 yr (IAC 567-60.2).

- *Sinkhole* - any depression caused by the dissolution or collapse of subterranean materials in a carbonate formation or in gypsum or rock salt deposits through which water may be drained or lost to the local groundwater system. Such depressions may or may not be open to the surface at times. Intermittently, sinkholes may hold water forming a pond (IAC 567-60.2).

- *Sludge* - the digested or partially digested solid material accumulated in a wastewater treatment facility (IAC 69.1(1)) [Added April 1999].

- *Stream* - any watercourse listed as being a "designated use segment" in rule 567-61.3(455B) which includes any watercourse which maintains flow throughout the year or contains sufficient pooled areas during intermittent flow periods to maintain a viable aquatic community of significance (IAC 69.1(1)) [Added April 1999].

- *Subsurface Absorption System* - a system of perforated conduits connected to a distribution system, forming a series of subsurface, water-carrying channels into which the primary treated effluent is discharged for direct absorption into the soil (referred to as part of the open portion of the treatment system) (IAC 69.1(1)) [Added April 1999].

- *Subsurface Sand Filter* - a system in which the effluent from the primary treatment unit is discharged into perforated pipes, filtered through a layer of sand, and collected by lower perforated pipes for discharge to the surface or to a subsurface absorption system. A subsurface sand filter is an intermittent sand filter which is

placed within the ground and provided with a natural topsoil cover over the crown of the distribution pipes (IAC 69.1(1)) [Added April 1999].

- *Tank* - any container which is placed on a vehicle to transport waste removed from a private waste facility (IAC 567-68.2).

- *Vehicle* - a device used to transport a tank (IAC 567-68.2).

- *Waste* - human or animal excreta, water, scum, sludge, septage, and grease solids from private sewage disposal systems; impervious vault, or chemical toilets; and waste control systems for animal confinement feeding operations (IAC 567-68.2).

- *Wastewater Management District* - an entity organized in accordance with permitting legislation to perform various specific functions such as planning, financing, construction, supervision, repair, maintenance, operation and management of on-site wastewater treatment and disposal systems within a designated area (IAC 69.1(1)) [Added April 1999].

- *Zone of Initial Dilution* - a delineated portion of a mixing zone in which wastewater discharges will be allowed to rapidly combine and begin dispersing into the water body. The acute criteria of subrule 61.3(3) will apply at the boundary of this zone (IAC 567-60.2).

WASTEWATER MANAGEMENT
GUIDANCE FOR IOWA CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:
Missing Checklist Items	WA.2.1.IA
Permits	
NPDES	WA.10.1.IA
State Permits	WA.15.1.IA through WA.15.5.IA
Treatment Works	
Effluent Limitations	WA.20.1.IA through WA.20.7.IA
Wastewater Disposal Systems	WA.20.8.IA through WA.20.13.IA
Discharges to a POTW/FOTW	
General	WA.25.1.IA and WA.25.2.IA
Pretreatment Standards	WA.30.1.IA
Limitations for Mixing Zones	WA.90.1.IA through WA.90.6.IA
Other Discharges and Dischargers	WA.95.1.IA through WA.95.4.IA
Individual Sewage Systems	
Commercial Septic Tank Cleaners	WA.100.IA and WA.100.2.IA
On-Site Wastewater Treatment and Disposal Systems	WA.100.3.IA. through WA.100.11.IA.
Land Application of Sludge	
General	WA.105.1.IA through WA.105.4.IA
For areas not specifically addressed in this regulation, but which are addressed in Federal regulations at 40 CFR Part 503, as adopted 19 February 1993, the Federal regulation has been adopted under IAC 567-67.1(1). See the U.S. TEAM Guide.	
Vectors and Pathogens	WA.110.1.IA
Monitoring	WA.120.1.IA
Recordkeeping and Reporting	WA.125.1.IA and WA.125.2.IA
State Specific Requirements	WA.130.1.IA through WA.130.3.IA

WASTEWATER MANAGEMENT
GUIDANCE FOR IOWA APPENDIX USERS

REFER TO APPENDIX NUMBERS:	**REFER TO APPENDIX ITEMS:**
12-1	Class I and Class II Sludge Pollutant Concentration
12-2	Criteria for Dissolved Oxygen in Class B Surface Water
12-3	Criteria for Chemical Constituents
12-4	On-Site Wastewater Treatment and Disposal System Siting Distances
12-5	Cumulative Pollutant Loading Rates

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REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
WA.2 **MISSING CHECKLIST ITEMS**	
WA.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

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REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
PERMITS **WA.10.** **NPDES**	
WA.10.1.IA. Federal facilities proposing to conduct activities covered by a general permit must file a complete Notice of Intent to the Department (IAC 567-64.6).	Verify that the Federal facility proposing to conduct activities covered by a general permit file a complete Notice of Intent with the Department.

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REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
PERMITS **WA.15.** **State Permits**	
WA.15.1.IA. All constructions of, installations of, and modifications to wastewater disposal systems must be permitted and performed in accordance with a Director issued permit (IAC 567-64.2).	Verify that the construction of, installation of, or modification to the wastewater disposal system is permitted and performed in accordance with a Director issued permit. (NOTE: Construction permits are not required for the following: - storm sewers or storm water disposal systems that transports storm water only - any disposal system or extension or addition to any existing disposal system that receives only domestic or sanitary sewage from a building or housing occupied by 15 persons or less.)
WA.15.2.IA. Wastewater disposal systems and discharges to the environment must meet permitting requirements (567 IAC 60.1(455B, 17A) and 69.15(1)(b)(455B)).	Verify that systems have a wastewater construction permit prior to commencing construction of a wastewater disposal system. Verify that systems have a wastewater operation permit. Verify that systems discharging treated effluent into waters of the state have a discharge permit from the Department of Natural Resources.
WA.15.3.IA. Wastewater disposal systems must have an operation permit (IAC 567-64.3).	Verify that the wastewater disposal system has a Director issued operation permit. Verify that the wastewater disposal system is operated in compliance with permit conditions. (NOTE: The following systems do not require a permit: - private sewage disposal systems which do not discharge into a water of the state - semipublic sewage disposal system, the construction of which has been approved by the Department and which does not discharge into a waster of the state - discharges incidental to the normal operation of a marine vessel used as a means of transportation, this may not be misconstrued to apply to rubbish, trash, garbage, or other such materials - discharges to aquaculture projects as defined in 40 CFR 122.25 - discharges of dredged or fill material into navigable waters which are regulated under section 404 of IAC 567 - discharges of pollutants directly into another waste disposal system, other

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	than storm water point sources, for final treatment and disposal
	- discharges in compliance with 40 CFR 300
	- water pollution form agricultural and silvicultural activities, runoff from orchards, cultivated crops, pastures, range-lands, and forest land, except for:
	  - discharges from concentrated aquatic animal production facilities (40 CFR 122.24)
	  - discharges from concentrated animal feeding operations (40 CFR 122.23)
	  - discharges from silvicultural point sources (40 CFR 122.27)
	  - storm water discharge associated with industrial activity (IAC 567-60)
	- return flows from irrigated agriculture.)

WA.15.4.IA. Wastewater disposal permit holders must meet monitoring recordkeeping and reporting requirements (IAC 567-63.2, 567-63.7, and 567-63.8).	Verify that permit holders maintain records of all information resulting from any monitoring required in their permit. Verify that the following information is included for all samples: - date, exact place, and time of sampling - dates the analyses were performed - who performed the analyses and analytical techniques or methods used - the analyses results. Verify that records of monitoring activities and results (including all original strip chart recordings for continuous monitoring instrumentation and calibration and maintenance records) are maintained for a minimum of 3 yr. Verify that records of operation are submitted monthly and within 15 days following the close of the reporting period.
WA.15.5.IA. Agricultural drainage wells must be registered with the Department (IAC 567-51.8).	Verify that the agricultural drainage wells are registered with the Department.

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TREATMENT WORKS **WA.20.** **Effluent Limitations**	
WA.20.1.IA. Wastewater treatment plants must meet operator certification and notification requirements (IAC 567-81.2(3), (4), (6), (7), (9)(455B), and 81.12(1) and (2)(455B)).	Verify that the operator-in-charge is certified at the same classification as the plant and at an equal or higher grade than the grade designation for the plant. Verify that person(s) responsible for the operation of a plant operating shift and under the supervision of the operator-in-charge is Grade II certified for Grade III and IV plants and Grade I certified for all other plants. Verify that plant owners and operators notify the Department of a change in operators-in-charge within 30 days after the change. Verify that plant owners report the following to the Department in January of odd-numbered years: - method of treatment provided - average daily pumpage - the operator-in-charge. Verify that plant owners without a certified operator submit a compliance plan indicating what action will be taken to obtain a certified operator within 30 days of notice of violation. (NOTE: A municipality or other entity that is required to have a Grade I or II certified operator may sign an affidavit with a certified operator of the required classification and grade. Both the municipality or other entity and the certified operator must notify the Director at least 30 days before the termination of the agreement.)
WA.20.2.IA. Federal facilities must avoid prohibited discharges into water (IAC 567-62.1).	Verify that the Federal facility avoids the following discharges into navigable water: - any discharge of any pollutant from a point source unless authorized by a NPDES permit - any radiological, chemical, or biological warfare agent or high-level radioactive waste - any discharge which the Secretary of the Army acting through the Chief of Engineers finds would substantially impair anchorage and navigation - any discharge the Regional Administrator has objected in writing - any discharge form a point source which is in conflict with a plan or amendment to Section 208

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	- discharge of wastewater into a POTWs or a private 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 - wastes in such volumes or quantities as to exceed the design capacity of the treatment works or reduce the effluent quantity below that specified in the operation permit of the treatment works.

WA.20.3.IA. POTWs must meet the minimum level of effluent quality attainable by secondary treatment (IAC 567-62.3(1 and 2)).	Verify that the POTWs meets the following minimum levels of effluent quality by secondary treatment:
	
	- 5-day carbonaceous biochemical oxygen demand:
	- 30-day average may not exceed 25 mg/L
	- 7-day average may not exceed 40 mg/L
	- 30-day average percent removal may not be less than 85 percent
	- suspended solids
	  - 30-day average may not exceed 30 mg/L
	  - 7-day average may not exceed 45 mg/L
	  - 30-day average percent removal may not be less than 85 percent
	- the effluent values for pH are maintained within the limits of 6.0 to 9.0 unless the POTWs demonstrates the following:
	  - inorganic chemicals are not added to the waste stream as part of the treatment process
	  - contributions from industrial sources do not cause the pH of the effluent to be less than 6.0 or greater than 9.0.
	
	(NOTE: Under certain circumstances, on a case by case basis, the effluent quality standards may be lessened. Such circumstances are:
	- treatment works during wet weather that receive a combined flow from combined sewers (sewers that transport both sewage and storm water)
	- treatment works that take industrial wastes, when:
	  - the permitted discharge of the 5-day carbonaceous biochemical oxygen demand and suspended solids would not be greater than that which would be permitted if such discharges were discharged directly into the waters of the state
	  - the flow or loading of the 5-day carbonaceous biochemical oxygen demand and suspended solids introduced does not exceed 10 percent of the design flow or loading of the POTWs
	- waste stabilization ponds, when:
	  - suspended solids, the 30-day average does not exceed 80 mg/L
	  - suspended solids, the 7-day average does not exceed 120 mg/L
	- separate sewers, when approved by the Department
	- facilities designed to split flow, when approved by the Department
	- to match the degree of effluent reduction achievable by application of the best practicable control technology.)

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WA.20.4.IA. Effluent limitations must be achieved within a reasonable time after receipt of notice from the Department (IAC 567-62.6(2)).	Verify that upon receipt of notice from the Department, the Federal facility complies with effluent limitations within a reasonable time period.
WA.20.5.IA. Sources other than POTWs and privately owned domestic sewage treatment works that are not subject to the Federal adopted effluent standards must meet effluent limitations (IAC 567-62.6(3)).	Verify that POTWs and privately owned domestic sewage treatment works that are not subject to the Federal adopted effluent standards meet any effluent limitations set by the Department. (NOTE: Effluent limitations that represent the best engineering judgment of the Department will be established for wastes from sources other than POTWs and privately owned domestic sewage treatment works that are not subject to the Federal adopted effluent standards.)
WA.20.6.IA. Sources that are not major contributing industries or that do not have Federal pretreatment standards must meet pretreatment requirements for incompatible wastes (IAC 567-62.(4)).	(NOTE: This requirement establishes pretreatment requirements for incompatible pollutants from 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 there is not yet promulgated a pretreatment standard.) Verify that sources within a point source category adopted by reference in 62.4 (Federal effluent and pretreatment standards) for which there are promulgated effluent limitation guidelines, but no promulgated pretreatment standards, use the promulgated effluent limitation for the pretreatment standard for incompatible pollutants. (NOTE: If the treatment works which receives the pollutants is committed in its operating permit to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of the treatment works will be correspondingly reduced for that pollutant. For other sources, effluent limitations that represent the best engineering judgment in the Department will be established.) Verify that a source that is not a major contributing industry or that does not have a Federal pretreatment standard meet the effluent limitations established by the Department. Verify that in no case a discharge into a POTW or a privately owned domestic sewage treatment works by a source that is not major contributing industry or that does not have a Federal pretreatment standard intermittently change the pH of the raw waste reaching the treatment plant by more than 0.5 pH units or cause the pH

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	of the waste reaching the plant to be less than 6.0 or greater than 9.0.
WA.20.7.IA. An effluent, alone or with the effluent of other sources, must meet water quality standards (IAC 567-62.8(2)).	Verify that any effluent, alone or with the effluent of other sources, does not violate water quality standards. (NOTE: The Department of a POTW may impose pretreatment requirements more stringent that the applicable pretreatment standard of 62.4 (adoption of the Federal requirements) or pretreatment requirements of 62.6 (adoption of Federal requirements) if more stringent requirements are necessary to prevent violations of water quality standards, or the permit limitations of the treatment works.) Verify that any Department or POTW imposed pretreatment requirements are met.
Wastewater Disposal Systems	
WA.20.8.IA. Wastewater disposal systems must have a Departmental issued operation permit and certification (IAC 567-63.1).	Verify that the wastewater disposal system has a Departmental issued operation permit and certification.
WA.20.9.IA. Wastewater disposal systems must keep records of all monitoring activities (IAC 567-63.2).	Verify that the wastewater disposal system keeps the following records of all monitoring activities: - date, exact place, and time of sampling - dates analyses were performed - who performed the analyses - the analytical techniques or methods used - results of such analyses.
WA.20.10.IA. Waste dischargers must meet monitoring requirements (IAC 567-63.3).	Verify that organic waste dischargers, inorganic waste dischargers, and major contributing industries to POTWs meet all monitoring requirements incorporated in their operation permits. Verify that all permit required monitoring results are reported to the Department.

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WA.20.11.IA. All major municipal and industrial dischargers must carry out effluent toxicity testing (IAC 567-63.4).	(NOTE: Minor dischargers may be required by the Department to conduct effluent toxicity tests based on case-by-case evaluation of the impact of the discharge on the receiving stream or industrial contribution to the system.)
	
	Verify that effluent toxicity testing requirements specified in the operational permit are met by the discharger.
	
	Verify that the effluent toxicity tests are done in accordance with he following general requirements:
	
	- a 24 h composite sample of the effluent is collected at the location stated in the operation permit
	- all testing commences within 36 h after sample collection
	- results are reported to the Department within 30 days of completing the test (including tests performed at a greater frequency than required in the operating permit
	- testing follows the *Standard Operation Procedure: Effluent Toxicity Testing, Iowa Department of Natural Resources*
	- testing is performed using the water flea (Ceriodaphnia dubia) and the fathead minnow (Pimephales promelas)
	- testing includes, at a minimum, two different concentrations of effluent (one 100 percent, and the second of a diluted sample)
	- tests are pass/fail in nature
	- in the case of a positive toxicity test in the diluted effluent sample, the following procedures are required:
	  - at a minimum, quarterly effluent toxicity tests are performed until three successful tests are determined to be negative, after which normal testing will resume
	  - if a second test (in a row), or three out five tests are found to be positive, the discharger conducts a toxicity reduction evaluation.
	
	(NOTE: When the pretest chemical analysis for un-ionized ammonia nitrogen (NH_3-N) or total residual chlorine (TRC) on the diluted effluent sample exceeds 0.9 mg/L for NH_3-N and 0.1 mg/L for TRC, a positive test result is likely to have been caused by high concentrations of NH_3 or TRC, and the test result will not be used to determine if follow-up testing is needed

WA.20.12.IA. By-passes of sewage or wastes in the waste disposal system must be reported to the Department (IAC 567-63.6).	Verify that the by-pass of sewage or wastes follows the following reporting procedures: - for all by-passes except mechanical failure, permission from the Department is received before the by-pass - for by-passes as a result of a mechanical failure, the owner notifies the Department within 12 h.

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WA.20.13.IA. Records of operation must be submitted monthly to the Department (IAC 567-63.8).	Verify that the records of operation are submitted monthly to the Department.

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DISCHARGES TO A POTW/FOTW **WA.25. General**	
WA.25.1.IA. POTWs must have a Department approved plan of action which complies with its NPDES permit (IAC 567-64.7).	Verify that the POTW has a Department approved plan of action which complies with its NPDES permit. Verify that the POTW follows the conditions of its plan of action and its NPDES permit.
WA.25.2.IA. Federal facilities must not discharge into a POTWs and privately owned domestic sewage treatment works that are not subject to the Federal adopted effluent standards any pollutant which would cause pass through or interference (IAC 567-62.6(3)).	Verify that the following wastes are not introduced into privately owned treatment works: - wastes that create a fire or explosion hazard in the treatment works - wastes at a flow rate or pollution 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 so that the effluent limitations in the permit of the treatment works are violated.

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DISCHARGES TO A POTW/FOTW **WA.30.** **Pretreatment Standards**	
WA.30.1.IA. Pretreatment limitations must be achieved within a reasonable time after receipt of notice from the Department (IAC 567-62.6(2)).	Verify that upon receipt of notice from the Department, the Federal facility complies with pretreatment limitations within a reasonable time period.

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WA.90. LIMITATIONS FOR MIXING ZONES	
WA.90.1.IA. [Deleted May 1998].	
WA.90.2.IA. General water quality criteria must be met (IAC 567-61.3(2)(a) through (h)).	(NOTE: The criteria in this section apply 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 water quality criteria specified in WQ.90.2.IA through WQ.90.4.IA.) Verify that point sources do not discharge to surface waters wastewaters which contain substances that will settle to form sludge deposits. Verify that wastewater discharges or agricultural practices do not cause surface waters to contain the following: - floating debris, oil, grease, scum, and other floating materials in amounts sufficient to create a nuisance - materials producing objectionable color, odor, or other aesthetically objectionable conditions - substances in concentrations or combinations which are acutely toxic to human, animal, or plant life - substances in quantities which would produce undesirable or nuisance aquatic life. Verify that point source discharges do not cause the turbidity of the receiving water to be increased by more than 25 NTU. Verify that total dissolved solids do 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. Verify that waters which enter a sinkhole or losing stream segment do not exceed a fecal coliform content of 200 organisms/100 mL, except when the waters are materially affected by surface runoff. Verify that fecal coliform levels downstream from an existing discharge, which may contain pathogens to humans, are no more than 200 organisms/100 mL higher than the background level upstream from the discharge.

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	Verify that there are no new wastewater discharges on watercourses which directly or indirectly enter sinkholes or losing stream segment.
WA.90.3.IA. Specific water quality criteria must be met by Class A designated use waters (IAC 567-61.3(3)(a)).	Verify that, from 1 April through 31 October, Class A waters do not exceed a fecal coliform content of 200 organisms/100 mL, except when the waters are materially affected by surface runoff. Verify that fecal coliform levels downstream from an existing discharge, which may contain pathogens to humans, are no more than 200 organisms/100 mL higher than the background level upstream from the discharge. Verify that the pH of Class A waters is not less than 6.5 nor greater than 9.0. Verify that pH changes no more than 0.5 pH units as a result of a waste discharge.
WA.90.4.IA. Specific water quality criteria must be met by Class B designated use waters (IAC 567-61.3(3)(b)(1) through (5)).	(NOTE: Class B waters are those designated as Class B(CW), B(WW), B(LR), and B(LW).) Verify that dissolved oxygen in Class B waters is not less than the values in Appendix 12-2. Verify that the pH of Class B waters is not less than 6.5 nor greater than 9.0. Verify that pH changes no more than 0.5 pH units as a result of a waste discharge. Verify that instream concentrations above the acute criteria, listed in Appendix 12-3, only occur within the boundaries of the zone of initial dilution. Verify that exceedances of the chronic criteria, listed in Appendix 12-3, only occur within mixing zones or only for short-term periods outside of mixing zones and that chronic criteria exceedances do not exceed the acute criteria. Verify that the chronic criteria, listed in Appendix 12-3, are met as short-term average conditions at all times when the flow equals or exceeds either the 7-day, 10-yr flow or any established site-specific low flow. Verify that instream concentrations in excess of the human health criteria, listed in Appendix 12-3, only occur within mixing zones. Verify that Class B waters contain no substances in concentrations which will make fish or shellfish inedible due to undesirable tastes or cause a hazard to humans after consumption. Verify that heat causing an increase of more than 3 °C is not added to interior streams or the Big Sioux River, the rate of temperature change does not exceed 1

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	°C/h, and that heat causing stream temperature to rise above 32 °C is not added. Verify that heat causing an increase of more than 2 °C is not added to streams designated as cold water fisheries, the rate of temperature change does not exceed 1 °C/h, and that heat causing stream temperature to rise above 20 °C is not added. Verify that heat causing an increase of more than 2 °C is not added to streams designated as cold water fisheries, the rate of temperature change does not exceed 1 °C/h, and that heat causing stream temperature to rise above 32 °C is not added. Verify that heat causing an increase of more than 3 °C is not added to the Missouri River, the rate of temperature change does not exceed 1 °C/h, and that heat causing stream temperature to rise above 32 °C is not added. Verify that heat causing an increase of more than 3 °C is not added to the Mississippi River and that the rate of temperature change does not exceed 1 °C/h.
WA.90.5.IA. Specific water quality criteria must be met by Class C designated use waters (IAC 567-61.3(3)(c)(1) through (3)).	Verify that the following radioactive substance criteria are met: - the combined radium-226 and radium-228 does not exceed 5 pCi/L at the point of withdrawal - the gross alpha particle activity (including radium-226 but excluding radon and uranium) does not exceed 15 pCi/L at the point of withdrawal - 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 does not produce an annual dose equivalent to the total body or any internal organ greater than 4 mrem/yr - the average annual concentration of tritium does not exceed 20,000 pCi/L at the point of withdrawal - the average annual concentration of strontium-90 does not exceed 8 pCi/L at the point of withdrawal. Verify that all substances which are toxic or detrimental to humans or to treatment processes are limited to nontoxic or nondetrimental concentrations in the surface water. Verify that the pH of Class C waters is not less than 6.5 nor greater than 9.0.
WA.90.6.IA. Federal facilities must not dispose of any pollutant other than heat into a well (IAC567-62.9).	Verify that the Federal facility disposes of no pollutants other than heat into a well.

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WA.95. OTHER DISCHARGES AND DISCHARGERS	
WA.95.1.IA. Animal-feeding operations must have a Department issued permit (IAC 567-65.3).	Verify that the animal-feeding operation has an operation permit if any of the following conditions exist: - the capacity of an open feedlot exceeds any of the following: - 1000 beef cattle - 700 dairy cattle - 2500 butcher and breeding swine - 10,000 sheep or lambs - 55,000 turkeys - 500 horses - 1000 animal units - wastes from the operation are discharged into a water of the state through a man-made waste drainage system or are discharged directly into a water of the state which originates outside of and traverses the operation, and the capacity of operation exceeds: - 300 beef cattle - 200 dairy cattle - 750 butcher and breeding swine - 3000 sheep or lambs - 16,500 turkeys - 30,000 broiler or layer chickens - 150 horses - 300 animal units - notice from the Department requiring a permit.
WA.95.2.IA. Animal-feeding operations must meet minimum waste control requirements (IAC 567-65.2).	Verify that the animal-feeding operation meet the minimum waste requirements: (NOTE: Minimum waste requirements require removal of settleable solids from the wastes prior to discharge into a water of the state which can be accomplished by the use of solids-settling basins, terraces, diversions, or other solid-removal methods. Construction of solids-settling facilities are not required where existing site conditions provide adequate settleable solids removal. See the operation permit for specific requirements.)
WA.95.3.IA. Animal-feeding operations must have a construction permit prior to constructing, installing, or	Verify that the animal-feeding operation has a permit prior to the construction, installation, or modification of the waste control system.

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modifying the waste control system (IAC 567-65.6).	
WA.95.4.IA. Permitted animal-feeding operations must meet self-monitoring and reporting requirements (IAC 567-63.5).	Verify that animal-feeding operations meet the self-monitoring and reporting requirements in their operational permit. Verify that reports of self-monitoring results are submitted quarterly to the Department. (NOTE: The following are the minimum requirements which may be part of the operational permit: measurement of liquid level in waste storage facilities; measurement of daily precipitation; sampling and analysis of groundwater; and other measurements necessary to evaluate the adequacy of a waste disposal system.)

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REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
WA.100. INDIVIDUAL SEWAGE SYSTEMS **Commercial Septic Tank Cleaners**	
WA.100.1.IA. Commercial septic tank cleaners must obtain a license from the Department (IAC 567-68.3).	Verify that commercial septic tank cleaners obtain a Department issued license before engaging in the commercial cleaning of and disposing of waste from any private waste facility.
WA.100.2.IA. Licensed commercial septic tank cleaners must perform required practices (IAC 567-68.6 and 68.8 and 68.9(1) and (5)).	Verify that the licensed commercial septic tank cleaner performs the following practices: - supervises the removal and disposal of waste from a private waste facility - maintains records of private waste facilities cleaned and the location and method of waste disposal for 3 yr. Verify that the following standards for cleaning private waste facilities are followed: - all vehicles, tanks, and equipment are properly constructed and essentially rust free and sanitary - proper equipment is used for proper cleaning - vehicles, tanks, and equipment prevent dripping, spilling, falling, leaking, or discharging or waste onto roads or right-of-ways - tanks or equipment used for hauling wastes form private waste facilities are not be used to haul toxic wastes, or other wastes detrimental to land application or wastewater treatment plants - pumps and associated piping have watertight connections - equipment has agitation capability for use in cleaning private waste facilities to disperse sludge and scum into the liquid - vehicles display the license number assigned to the licensee in 3 in. or larger letters on the side of the tank or vehicle - name and address of the licensee is prominently displayed on the side of the tank or vehicle - direct connections are not made between a portable water source and the tank or equipment on the vehicle. Verify that the following standards for disposal of wastes from private waste facilities are followed:

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	- discharge of wastes may be made at a municipal or other permitted wastewater treatment system - discharge of wastes may be made at permitted septage lagoons or septage drying beds - wastes may be used in land application in accordance with WA.130.1.IA, through WA.130.3.IA. Verify that discharges to a permitted sanitary landfill meet the following requirements: - disposed of according to state requirements for solid wastes - stabilized by adding lime and thoroughly mixing until a pH of 12 is maintained (allow to set for 2 h before applying to the landfill) - septage is dewatered.
On-Site Wastewater Treatment and Disposal Systems	(NOTE: These requirements apply to on-site wastewater treatment and disposal systems constructed or altered after 13 May 1998 (IAC 567-69.1(3)c) [Added April 1999].)
WA.100.3.IA. On-site wastewater treatment and disposal systems must meet connection requirements (IAC 567-69.1(3)a) [Added April 1999].	Verify that no on-site wastewater treatment and disposal system is installed, repaired, or rehabilitated where a public sanitary sewer is available or where a local ordinance requires connection to a public system. (NOTE: The public sewer may be considered as not available when such public sewer, or any building or any exterior drainage facility connected thereto, is located more than 200 ft from any proposed building or exterior drainage facility on any lot or premises which abuts and is served by such public sewer.) Verify that, when a public sanitary sewer is not available, every building wherein persons reside, congregate, or are employed is provided with an on-site wastewater treatment and disposal system.
WA.100.4.IA. On-site wastewater treatment and disposal systems must be permitted by the local Board of Health (IAC 567-69.1(4)) [Added April 1999].	Verify that on-site wastewater treatment and disposal systems have a permit issued by the local Board of Health before installation or alteration.
WA.100.5.IA. On-site wastewater treatment and disposal systems must meet	Verify that wastewater is not discharged from an on-site wastewater treatment and disposal systems (except under an NPDES permit) to any ditch, stream, pond, lake, natural or artificial waterway, county drain tile, surface water drain tile, land

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discharge restrictions (IAC 567-69.1(3)b) [Added April 1999].	drain tile, or to the surface of the ground. Verify that effluent is not discharged from an on-site wastewater treatment and disposal system to any abandoned well, agricultural drainage well, or sinkhole.
WA.100.6.IA. On-site wastewater treatment and disposal systems must meet siting requirements (IAC 567-69.1(6)) [Added April 1999].	Verify that on-site wastewater treatment and disposal systems are located in accordance with the minimum distances listed in Appendix 12-4.
WA.100.7.IA. On-site wastewater treatment and disposal systems must meet septic tank requirements (IAC 567-69.5) [Added April 1999].	Verify that every on-site wastewater treatment and disposal system, except mechanical-aerobic systems, uses a septic tank as its primary treatment unit and that all wastewater from the facility serviced discharges into the septic tank. Verify that septic tanks are not located upon property under ownership different from the ownership of that property or lot upon which the wastewater originates unless easements to that effect are legally recorded and approved by the local Board of Health. Verify that all septic tank effluent is discharged into a secondary treatment system. Verify that septic tanks are not used for the disposal of chemical wastes or grease in quantities which might be detrimental to the bacterial action in the tank or for the disposal of drainage from roof drains, foundation drains, or area drains. Verify that septic tanks placed in fill soil are placed upon a level, stable base that will not settle. Verify that septic tanks have access openings at each end over the inlet and outlet that meet the following dimensions: - at least 18 in. in the smallest dimension if the tank has no other openings - a single opening at least 24 in. in diameter at the center of the tank allowing access to both tank compartments, with two smaller openings at least 6 in. in diameter over both inlet and outlet. Verify that, if the top of the tank is greater than 12 in. below the finished ground surface, a riser at least 24 in. in diameter is installed over each manhole of 18 in. in diameter or more to bring the top of the manhole lid to within 6 in. of the finished ground surface. Verify that septic tanks are not made of metal.

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WA.100.8.IA. On-site wastewater treatment and disposal systems must meet soil absorption system requirements (IAC 567-69.6(1)) [Added April 1999].	Verify that, where possible, on-site wastewater treatment and disposal systems use soil absorption for secondary treatment. Verify that a percolation test or professional soil analysis is performed before the soil absorption system is installed. Verify that nothing enters the subsurface absorption system which does not first pass through the septic tank. Verify that roof, foundation, and storm drains do not discharge into or upon subsurface absorption systems. Verify that there is no construction of any kind (including driveways) covering the septic tank, distribution box, or absorption field of an on-site wastewater treatment and disposal system. Verify that vehicle access over the septic tank, distribution box, or absorption field of an on-site wastewater treatment and disposal system is infrequent, primarily limited to vegetation maintenance. Verify that no wastewater is discharged upon any property under ownership different from the ownership of the property or lot upon which it originates unless casements to that effect are legally recorded and approved by the administrative authority.
WA.100.9.IA. Impervious vault toilets must meet specific requirements (IAC 567-69.13) [Added April 1999].	Verify that impervious vault toilets are located in accordance with the distances given in Appendix 12-4 for the closed portion of the treatment system. Verify that impervious vault toilets meet the following construction standards: - the vault is constructed of reinforced, impervious concrete at least 4 in. thick - the superstructure including floor slab, seat, seat cover, riser and building provide permanent safe, sanitary facilities - the vault has a cleanout opening fitted with a fly-tight cover. Verify that wastewater from impervious vault toilets is disposed of at a public sewage treatment facility.
WA.100.10.IA. Portable toilets must meet specific requirements (IAC 567-69.14) [Added April 1999].	Verify that portable toilets are designed to receive and retain the wastes deposited in them. Verify that portable toilets are located and maintained in a manner that will prevent the creation of any nuisance condition.

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	prevent the creation of any nuisance condition. Verify that disposal of waste from portable toilets is at a public sewage treatment facility.
WA.100.11.IA. Chemical toilets must meet specific requirements (IAC 567-69.15) [Added April 1999].	Verify that chemical toilets for use in isolated residences have a receptacle of smooth, impervious material that is resistant to chemicals and easily cleanable. Verify that chemical toilet vents are made of durable corrosion-resistant material and installed in a professional manner. Verify that the chemical toilet fixture is equipped with a mixing device and is charged with the proper concentration of bactericidal chemical or chemicals. Verify that chemical recharges are added and mixed with the contents when necessary to maintain sufficient solution strength and to suppress odors. Verify that chemical toilets are located in toilet rooms which are well lighted, ventilated, and maintained in a nuisance-free condition. Verify that the receptacle contents are disposed of in accordance with the requirements of WA.100.1 and WA.100.2. (NOTE: The recommended method of disposal is discharging to a municipal sewage treatment facility.)

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LAND APPLICATION OF SLUDGE **WA.105. General**	
WA.105.1.IA. Sewage sludge generators may only supply sewage to applicators who comply with applicable requirements (IAC 567-67.1(2)).	Verify that the sewage sludge is supplied only to applicators who comply with applicable requirements.

WA.105.2.IA. Applicators of Class I sewage sludge must follow required management practices (IAC 567-67.7(2)).	Verify that applicators of sewage sludge follow the following management practices:
	
	- only Class I sewage sludge may be applied to a lawn or home garden
	- sewage sludge may not be applied to land that is 35 ft from an open waterway
	- sewage sludge is applied to the land at an annual whole sludge application rate that is equal to or less than the agronomic nitrogen uptake rate, unless otherwise specified by the Department
	- provide and information sheet to anyone that receives the sewage sludge in a container of any sort that contains the following information:
	  - name and address of the sewage sludge generator
	  - a statement that application of the sewage sludge to the land is prohibited except in accordance with the instructions on the information sheet
	  - annual application rate for the sewage sludge.

WA.105.3.IA. Applicators of Class II sewage sludge must follow general management procedures (IAC 567-67.8(2)).	Verify that the applicator of Class II sewage sludge follows the following management procedures: - Class II sewage sludge may not be applied to home or garden - land application sites not meeting the pollutant concentrations for Class I sewage sludge, follow the cumulative loading rates listed in Appendix 12-5 - Class II sewage sludge may not be applied to land if it will adversely affect a threatened or endangered species or its designated critical habitat - apply Class II sewage sludge so that the annual whole sludge application rate is equal to or less than the agronomic nitrogen uptake rate, unless otherwise specified by the Department - apply Class II sewage sludge only to areas where soil is classified as

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	acceptable throughout the top 5 ft of soil
	- do not apply sewage sludge to soils classified as sand, loamy sand, and silt
	- maintain a soil pH level of 6.0 or higher unless:
	  - crops prefer lower pH conditions
	  - sludge meets the pollution concentrations in Appendix 12-1 for Class I
	  - the site does not exceed calcium carbonate equivalent levels according to sound farm management practices
	- Class II sewage sludge application must not cause soil loss exceeding the limits set by the soil conservation district, and no sewage may be applied to ground having greater than 9 percent slope unless approved by the Department
	- do not apply Class II sewage sludge to frozen or snow-covered ground unless necessary, if necessary do not apply to lands with a greater than 5 degree slope unless approved by the Department
	- do not apply Class II sewage sludge within 35 ft of an open waterway, if it is applied within 200 ft it must be incorporated into the soil within 48 h unless approved by the Department
	- if Class II sewage sludge is applied to land subject to flooding more frequently than once in 10 yr, sludge must be incorporated into the soil within 48 hr
	- do not apply Class II sewage sludge within 200 ft of any occupied residence or well unless written agreement of both the owner and an approved farm management plan are received, in which case the distance may be reduced to a minimum of 35 ft
	- food crops with harvested parts that come in contact with sewage sludge may not be harvested for 38 mo
	- food crops, feed crops, and fiber crops may not be harvested for 30 days after application of sewage sludge
	- animals may not graze on land for 30 days after application of sewage sludge
	- turf grown on land where sewage sludge has been applied may not be harvested for 1 yr after application, unless otherwise specified by the Department
	- public access to land with a high potential for public exposure is restricted for 1 yr after application of the sewage sludge
	- public access to land with a low potential for public exposure is restricted for 30 days after application of the sewage sludge
	- when required by the director, groundwater monitoring wells and surface monitoring points must be installed and a monitoring program implemented
	- written notice is given to the Department before initial application of sewage sludge, including:
	  - location, by legal description, of the land application site and the land owner
	  - name, address, telephone number, and National Elimination System permit number (if appropriate) of the sewage sludge generator and the applicator.
	
	(NOTE: The sewage sludge generator must provide the notice and necessary information to comply with the requirements to the applicator and owner.)

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WA.105.4.IA. Class III sewage sludge disposal must meet specific guidelines (IAC 567-67.9(2) and (3)).	Verify that Class III sewage sludge is disposed of according to the following guidelines: - is not used for beneficial land application - is disposed of according to the surface disposal subpart of 40 CFR 503 (see U.S. TEAM Guide) and 567-103.6 (specific requirements for sanitary landfills that accept only municipal sewage sludge) (see SO.135.32.IA and SO.135.33.IA) or the incineration subpart of 40 CFR 503 (see U.S. TEAM Guide).

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REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
LAND APPLICATION OF SLUDGE **WA.110.** **Vectors and Pathogens**	
WA.110.1.IA. Land application of Class I sewage sludge must meet vector attraction reduction requirements (567 IAC 67.7(1)(c) and 67.8(1)(c)).	Verify that land application Class I and Class II sewage sludge meets one of the following vector attraction reduction requirements: - the mass of volatile solids in the sewage sludge are reduced by a minimum of 38 percent - the specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process are equal to or less than 1.5 mg of oxygen per hour per gram of total solids (dry weight basis) at 20 °C - digest a portion of the previously anaerobically digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days between 30 and 37 °C. At the end of the 40 days, the volatile solids in tile sewage sludge at the beginning of that period is reduced by less than 17 percent - digest a portion of the previously aerobically digested sewage sludge that has a percent solids of 2 percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 °C. At the end of the 30 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 15 percent - sewage sludge are treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge are higher than 40 °C and the average temperature of the sewage sludge are higher than 45 °C - the pH of sewage sludge are raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 2 h and then at 11.5 or higher for an additional 22 h - sewage sludge are injected below the surface of the land and no significant amount of the sewage sludge are present on the land surface within 1 h after the sewage sludge is injected - sewage sludge applied to the land surface or placed on a surface disposal site are incorporated into the soil within 6 h after application to or placement on the land.

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REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
LAND APPLICATION OF SLUDGE **WA.120.** **Monitoring**	
WA.120.1.IA. Class I and Class II sewage sludge applications must be monitored (IAC 567-67.7(3) and 67.8(3)).	Verify that the applicator of Class I and Class II sewage sludge monitors, the following according to the time table in Appendix 12-1: - the following pollutants - arsenic - cadmium - chromium - copper - lead - mercury - molybdenum - nickel - selenium - zinc - pathogen density requirements - vector attraction reduction requirements. (NOTE: After 2 yr, the Department may reduce the frequency of monitoring, but in no case may the frequency of monitoring be less than once a year when sewage sludge is applied to the land.)

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REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
LAND APPLICATION OF SLUDGE **WA.125. Recordkeeping and Reporting**	
WA.125.1.IA. Both generator and bulk applicator of Class I sewage sludge must keep required records for 5 yr (IAC 567-67.7(4)).	Verify that the generator and Bulk sludge applicator of Class I sewage sludge develop and retain the following information for 5 yr: - the concentration level of each pollutant listed in Appendix 12-1 - a certification statement stating: "I certify, under the penalty of law, that the Class I sewage sludge requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment" - description of how the processes to further reduce pathogens requirements are met - description of how one of the vector attraction reduction requirements are met - description of how management practices are met for each site. (NOTE: Treatment works with a design flow rate of 1,000,000 gal/day or greater and treatment works that serve 10,000 or more shall submit the above information to the Department as well.)
WA.125.2.IA. Both the generator and applicator of Class II sewage sludge must keep required records for 5 yr (IAC 67.8(4)).	Verify that the generator and applicator of Class II sewage sludge develop and retain the following information for 5 yr: - the concentration level of each pollutant listed in Appendix 12-1 - a certification statement stating: "I certify, under the penalty of law, that the Class II sewage sludge requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment" - description of how the processes to further reduce pathogens requirements are met - description of how the vector attraction reduction requirements are met - description of how the management practices for class II sewage sludge are met for each site - location and area of each site - date and time and amount of sewage sludge applied to each site - the amount and cumulative amount of each pollutant listed in Appendix 12-1 in the sewage sludge applied to each sight (if subject to cumulative loading limits) - the amount of sewage sludge applied to each site.

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LAND APPLICATION OF SLUDGE **WA.130.** **State Specific Requirements**	
WA.130.1.IA. Application of waste from private waste facilities must meet specific requirements (IAC 567-68.9(1)(c)(1) and (2)).	Verify that land application of septage meets the following requirements: - application may not be made at a rate higher than 30,000 gal of septage per 365-day period per acre of cropland - septage may not be applied to a lawn or garden - septage may only be applied to soils classified as acceptable throughout the top 5 ft of soil profile - septage may not be applied to soils classified as sand, loamy sand, and silt - maintain a soil pH level of 6.0 or higher unless crops prefer lower pH conditions - septage application may not cause soil loss exceeding the limits set by the soil conservation district, and no sewage may be applied to ground having greater than 9 percent slope unless approved by the Department - do not apply septage to frozen or snow-covered ground unless necessary, if necessary do not apply to lands with a greater than 5 degree slope unless approved by the Department - do not apply septage within 35 ft of an open waterway, if it is applied within 200 ft it must be incorporated into the soil within 48 h unless approved by the Department - if septage is applied to land subject to flooding more frequently than once in 10 yr, sludge must be incorporated into the soil within 48 hr - septage may no be applied within 200 ft of an occupied residence nor within 500 ft of a well - food crops may no be harvested for 38 mo after the application of septage - animals may not be allowed to graze on the land for 30 days after the application of septage.
WA.130.2.IA. Application of waste from private waste facilities must meet specific requirements for vector reduction (IAC 567-68.9(1)(c)(3).	Verify that when septage is applied to land, one of the following vector attraction reduction requirements is met: - septage is injected below the surface of the land, with no significant amount of septage present on the land surface within 1 h after application - septage is applied to the surface of the land and incorporated into the soil within 6 h after application - septage is stabilized by mixing a sufficient quantity of lime to produce a mixture with a pH of 12, and allowed to sit for 2 h before land application - septage is stabilized by adding and thoroughly mixing 50 lb of lime with each 1000 gal of septage.

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WA.130.3.IA. Records of land applicators of septage from private waste facilities must be kept for 5 yr (IAC 567-68.9(1)(c)(4)).	Verify that the person who applies septage to land develops and maintains the following records for 5 yr: - location, by either street address or latitude and longitude, of each site on which septage is applied - number of acres in each site on which septage is applied - the date and time septage us applied to each site - the rate in gal/365-day period, at which septage is applied to each site - a description of how the vector attraction reduction requirements are met - the following statement: "I certify, under the penalty of law, that the pathogen and the vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

Appendix 12-1

Class I and Class II Sludge Pollutant Concentration
(Source: IAC 567-67.7(1) and 567-67.8(1))

Class I Sewage Sludge: The concentration of each pollutant in the sewage sludge shall not exceed the following:

Pollutant	Monthly Average Concentration (milligrams per kilogram)*
Arsenic	41
Cadmium	39
Chromium	1200
Copper	1500
Lead	300
Mercury	17
Molybdenum	75
Nickel	420
Selenium	36
Zinc	2800

* Dry weight basis.

Class II Sewage Sludge: The concentration of any pollutant in the sewage sludge shall not exceed the following:

Pollutant	Ceiling Concentration (milligrams per kilogram)*
Arsenic	75
Cadmium	85
Chromium	3000
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

* Dry weight basis

Appendix 12-2

Criteria for Dissolved Oxygen in Class B Surface Water
(Source: IAC 567-61.3(3))

	B(CW)*	B(WW)*	B(LR)*	B(LW)*
Minimum value for at least 16 h of every 24 h period	7.0	5.0	5.0	5.0**
Minimum value at any time during every 24 h period	5.0	5.0	4.0	5.0**

* Expressed in Milligrams Per Liter as N
** applies only to the upper layer of stratification in lakes

Appendix 12-3

Criteria for Chemical Constituents
(Source: IAC 567-61.3(3))

Human health criteria for carcinogenic parameters noted below were based on the prevention of an incremental cancer risk of 1 in 100,000. For parameters not having a noted human health criteria, the U.S. Environmental Protection Agency has not developed final national guideline values. For noncarcinogenic parameters, the recommended EPA criterion was selected. For Class C water, the EPA criteria for fish and water consumption were selected using the same considerations for carcinogenic and noncarcinogenic parameters as noted above.

		Use Designations				
Parameter		**B(CW)**	**B(WW)**	**B(LR)**	**B(LW)**	**C**
Alachlor	Acute	--	--	--	--	2
Aluminum	Chronic	87	3290	3290	742	--
	Acute	1435	9256	9256	1073	--
Antimony	Acute	--	--	--	--	6
Arsenic(III)	Chronic	200	200	1000	200	--
	Acute	360	360	1800	360	50
	Human Health	50	50	--	50	--
Asbestos	Acute	--	--	--	--	7{a}
Atrazine	Acute	--	--	--	--	3
Barium	Acute	--	--	--	--	2000
Benzene	Acute	--	--	--	--	5
	Human Health	712.8	712.8	--	712.8	--
Benzo(a)Pyrene	Acute	--	--	--	--	2
Beryllium	Acute	--	--	--	--	4
Cadmium	Chronic	1	15	25	1	--
	Acute	4	75	100	4	5
	Human Health+	168	168	--	168	--
Carbofuran	Acute	--	--	--	--	40
CarbonTetrachloride	Acute	--	--	--	--	5
	Human Health	44.2	44.2	--	44.2	--
Chloride	Acute	--	--	--	--	250*
Chlordane	Chronic	.004	.004	.15	.004	--
	Acute	2.5	2.5	2.5	2.5	2
	Human Health	.006	.006	--	.006	.006
Chlorobenzene	Human Health+	20	20	-	20	20
Chloropyrifos	Chronic	.041	.041	.041	.041	--
	Acute	.083	.083	.083	.083	--
Chromium(VI)	Chronic	40	40	200	10	--
	Acute	60	60	300	15	100
	Human Health+	3365	3365	--	3365	--
Copper	Chronic	20	30	55	10	--
	Acute	30	60	90	20	1000
	Human Health+	1000	1000	--	1000	--
Cyanide	Chronic	5	10	10	10	--
	Acute	20	45	45	45	200{b}
Dalapon	Acute	--	--	--	--	200
Dibromochloropropane	Acute	--	--	--	--	.2
4,4-DDT++	Chronic	.001	.001	.029	.001	--
	Acute	.9	.8	.95	.55	--
	Human Health	.0059	.0059	--	.0059	.0059

Parameter		Use Designations				
		B(CW)	B(WW)	B(LR)	B(LW)	C
o-Dichlorobenzene	Acute	--	--	--	--	600
para-Dichloro-benzene	Acute	--	--	--	--	75
	Human Health+	2.6*	2.6*	--	2.6*	--
3,3-Dichloro/benzidine	Human Health	.2	.2	--	.2	.1
1,2-Dichloroethane	Acute	--	--	--	--	5
	Human Health	986	986	--	986	--
1,1-Dichloroethylene	Acute	--	--	--	--	7
	Human Health	32	32	--	32	--
cis-1,2-Dichloro-ethylene	Acute	--	--	--	--	70
trans-1,2-Dichloro-ethylene	Acute	--	--	--	--	100
Dichloromethane	Acute	--	--	--	--	5
1,2-Dichloropropane	Acute	--	--	--	--	5
Di(2-ethylhexyl)-adipate	Acute	--	--	--	--	400
Di(2-ethylhexyl)-phthalate	Acute	--	--	--	--	6
Dieldrin	Chronic	.0019	.0019	.50	.0019	--
	Acute	1.25	2.1	2.1	--	--
	Human Health	.0014	.0014	--	.0014	.0014
Dinoseb	Acute	--	--	--	--	7
2,3,7,8-TCDD(Dioxin)	Acute	--	--	--	--	.00003
	Human Health	.00014	.00014	--	.00014	--
Diquat	Acute	--	--	--	--	20
2,4-D	Acute	--	--	--	--	70
Endosulfan	Chronic	.056	.15	.15	.15	--
	Acute	.11	.3	.3	.3	--
	Human Health	2400	2400	--	2400	1100
Endothall	Acute	--	--	--	--	100
Endrin	Chronic	.0023	.0023	.09	.0023	--
	Acute	.18	.18	.18	.18	2
	Human Health	8.1	8.1	--	8.1	--
Ethylbenzene	Acute	--	--	--	--	700
Ethylenedibromide	Acute	--	--	--	--	.05
Fluoride	Acute	--	--	--	--	4000
Glyphosate	Acute	--	--	--	--	700
Heptachlor	Chronic	.0038	.0038	.01	.0038	--
	Acute	.38	.38	.38	.38	.4
	Human Health	.002	.002	--	.002	--
Heptachlorepoxide	Acute	--	--	--	--	.2
Hexachlorobenzene	Acute	--	--	--	--	1
y-Hexachlorocyclo-hexane (Lindane)	Chronic	.25	.33	.33	.33	--
	Acute	3.2	4.1	4.1	4.1	.2
	Human Health	.63	.63	--	.63	--
Hexachlorocyclo-pentadiene	Acute	--	--	--	--	50
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

Parameter		Use Designations				
		B(CW)	B(WW)	B(LR)	B(LW)	C
	Human Health+	.15	.15	--	.15	--
Methoxychlor	Acute	--	--	--	--	40
Monochlorobenzene	Acute	--	--	--	--	100
Nickel	Chronic	350	650	750	150	--
	Acute	3250	5800	7000	1400	--
	Human Health+	4584	4584	--	4584	--
Nitrate as N	Acute	--	--	--	--	10*
Nitrate+ Nitrite as N	Acute	--	--	--	--	10*
Nitrite as N	Acute	--	--	--	--	1*
Oxamyl (Vydate)	Acute	--	--	--	--	200
Parathion	Chronic	.013	.013	.013	.013	--
	Acute	.065	.065	.065	.065	--
Pentachlorophenol	Chronic	{d}	{d}	{d}	{d}	--
(PCP)	Acute	{d}	{d}	{d}	{d}	1
	Human Health	82	82	--	82	--
Picloram	Acute	--	--	--	--	500
Polychlorinated	Chronic	.014	.014	1	.014	--
Biphenyls(PCBs)	Acute	2	2	2	2	.5
	Human Health	.0004	.0004	--	.0004	.0004
PolynuclearAromatic	Chronic	.03	.03	3	.03	--
HydroCarbons	Acute	30	30	30	30	--
(PAHs)**	Human Health	.3	.3	--	.3	.028
Phenols	Chronic	50	50	50	50	--
	Acute	1000	2500	2500	1000	50
	Human Health+	300	300	--	300	--
Selenium (VI)	Chronic	10	125	125	70	--
	Acute	15	175	175	100	50
Silver	Chronic	2.5	8.5	8.5	.35	--
	Acute	30	100	100	4	50
2,4,5-TP(Silvex)	Acute	--	--	--	--	50
Simazine	Acute	--	--	--	--	4
Styrene	Acute	--	--	--	--	100
Tetrachloroethylene	Acute	--	--	--	--	5
Thallium	Acute	--	--	--	--	2
Toluene	Chronic	50	50	150	50	--
	Acute	2500	2500	7500	2500	1000
	Human Health+	300*	300*	--	300*	--
TotalResidual	Chronic	10	20	25	10	--
Chlorine(TRC)	Acute	35	35	40	20	--
Toxaphene	Chronic	.0002	.0002	.019	.0002	--
	Acute	.81	.73	.79	.73	3
	Human Health	.0075	.0075	--	.0075	--
1,2,4-Trichlorobenzene	Acute	--	--	--	--	70
1,1,1-Trichloroethane	Acute	--	--	--	--	200
	Human Health+	173*	173*	--	173*	--
1,1,2-Trichloroethane	Acute	--	--	--	--	5
Trichloroethylene	Chronic	80	80	80	80	--
(TCE)	Acute	4000	4000	4000	4000	5
	Human Health	807	807	--	807	--
Trihalomethanes (total) {c}	Acute	--	--	--	--	100

Parameter		Use Designations				
		B(CW)	**B(WW)**	**B(LR)**	**B(LW)**	**C**
VinylChloride	Acute	--	--	--	--	2
	Human Health	5250	5250	--	5250	--
Xylenes(Total)	Acute	--	--	--	--	10*
Zinc	Chronic	200	450	2000	100	--
	Acute	220	500	2200	110	1000
	Human Health+	5000	5000	--	5000	--

* units expressed as milligrams/liter

** to include the sum of known and suspected carcinogenic PAHs expressed as nanograms/liter

\+ Represents the noncarcinogenic human health parameters

++ The concentrations of 4,4-DDT or its metabolites; 4,4-DDE and 4,4-DDD, individually shall not exceed the human health criterion

{a} units expressed as million fibers/liter (longer than 10 micrometers)

{b} measured as free cyanide

{c} total trihalomethanes incudes the sum of bromodichloromethane, dibromochloromethane, tribromomethane (bromoform), and trichloromethane (chloroform)

{d} Class B numerical criteria are a function of pH using the equation: Criterion ([µ]g/l) = e[1.005(pH) - x], where e = 2.17828 and x varies according to the following table.

	B(CW)	B(WW)	B(LR)	B(LW)
Acute	3.65	4.83	3.34	4.83
Chronic	4.11	5.29	3.80	5.29

Appendix 12-4

On-Site Wastewater Treatment and Disposal System Siting Distances
(Source: IAC 567-69.1(6)) [Added April 1999]

Minimum Distance (ft)	Closed Portion of Treatment System[1]	Open Portion of Treatment System[2]
Private water supply well	50	100
Public water supply well	200	200
Groundwater heat pump borehole	50	100
Lake or reservoir	50	100
Stream or pond	25	25
Edge of drainage ditch	10	10
Dwelling or other structure	10	10
Property lines (unless a mutual easement is signed and recorded)	10	10
Other type subsurface treatment system	5	10
Water lines continually under pressure	10	10
Suction water lines	50	100
Foundation drains or subsurface tiles	10	10

[1]Includes septic tanks, mechanical aeration tanks and impervious vault toilets.
[2]Includes subsurface absorption systems, mound systems, intermittent sand filters, constructed wetlands or waste stabilization ponds.

Appendix 12-5

Cumulative Pollutant Loading Rates
(Source: IAC 567-67.8(2))

Pollutant	**Cumulative kilograms per hectare**	**Pollutant Loading Rate pounds per acre**
Arsenic	41	36
Cadmium	39	34
Chromium	3000	2670
Copper	1500	1335
Lead	300	267
Mercury	17	15
Molybdenum	75	66
Nickel	420	373
Selenium	100	89
Zinc	2800	2490

SECTION 13

WATER QUALITY MANAGEMENT

Iowa Supplement, April 2000

This section covers the state requirements for Water Quality Management and is intended to supplement the U.S. TEAM Guide. Refer to the U.S. TEAM Guide and the DOD Component Supplements for Federal, DOD, and service-specific requirements.

Definitions

- *Abandoned Well* - a well whose use has been permanently discontinued (Iowa Administrative Code (IAC) 567-49.1). The term also includes wells which are no longer in use or which are in such a state of disrepair that continued use for the purpose of accessing water is unsafe or impractical (IAC 567-39.3).

- *Action Level* - the concentration of lead or copper in water which determines, in some cases, the treatment requirements that a water system is required to complete (IAC 567-40.2).

- *Administrative Authority* - local boards of health (IAC 567-49.1).

- *Antisiphon Device* - a device which will prevent back siphonage by means of a relief valve which automatically opens to the atmosphere, preventing the creation of subatmospheric pressure within a pipe, thereby preventing water from reversing its flow (IAC 567-40.2).

- *ASTM* - Annual Book of ASTM Standards, by the American Society for Testing and Materials (IAC 567-41.3(1)(e)(1)).

- *Backflow* - the flow of water or other liquids, mixtures, or substances into the distribution system of a potable water supply from any source other than its permitted source (IAC 567-40.2).

- *Backflow Preventer* - a device or means to prevent backflow into a potable water system (IAC 567-40.2).

- *Casing* - a tubular retaining structure installed in an excavated hole to maintain the well opening (IAC 567-39.3).

- *Cesspool* - a covered excavation, lined or unlined, into which wastes from toilets or urinals are discharged for disposal. Cesspools are not an approved method of sewage disposal (IAC 567-49.1).

- *Cistern* - a tank in which rainwater from roof drains is stored (IAC 567-40.2).

- *Class 1 Well* - a well 100 ft or less in depth and 18 in. or more in diameter (IAC 567-39.3).

- *Class 2 Well* - a well more than 100 ft in depth and less than 18 in. in diameter or a bedrock well. Bedrock wells include wells completed in a single confined aquifer, in a single unconfined aquifer, and in multiple aquifers (IAC 567-39.3).

- *Class 3 Well* - a sandpoint well or a well 50 ft or less in depth constructed by joining a screened drive point with lengths of pipe and driving the assembly into a shallow sand and gravel aquifer (IAC 567-39.3).

- *Classification* - the type of plant or system, either wastewater treatment plants, water treatment plants, or water distribution systems (IAC 567-81.1).

- *Coagulation* - a process using coagulation chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs (IAC 567-40.2).

- *Compliance Cycle* - the 9-yr cycle during which public water systems must monitor. Each compliance cycle consists of three 3-yr compliance periods. The first calendar year cycle begins 1 January 1993 and ends 31 December 2001; the second begins 1 January 2002 and ends 31 December 2010; and the third begins 1 January 2011 and ends 31 December 2019 (IAC 567-40.2).

- *Compliance Period* - a 3-yr period within a compliance cycle. Within the first compliance cycle, the first compliance period runs from 1 January 1993 to 31 December 1995; the second from 1 January 1996 to 31 December 1998; and the third from 1 January 1999 to 31 December 2001 (IAC 567-40.2).

- *Contaminant* - any physical, chemical, biological, or radiological substance or matter in water (IAC 567-40.2).

- *Corrosion Inhibitor* - a substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials (IAC 567-40.2).

- *Cross-Connection* - any actual or potential connection between a potable water supply and any other source or system through which it is possible to introduce into the potable system any used water, industrial fluid, gas, or other substance other than the intended potable water with which the system is supplied (IAC 567-40.2).

- *Diatomaceous Earth Filtration* - a process resulting in substantial particulate removal in which
    1. precoat cakes of diatomaceous earth filter media is deposited on a support membrane (septum)
    2. while the water is filtered by passing through the cake on the septum, additional filter media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake (IAC 567-40.2).

- *Direct Filtration* - a series of processes including coagulation and filtration, but excluding sedimentation, resulting in substantial particulate removal (IAC 567-40.2).

- *Director* - the director of the Department (IAC 567-81.1).

- *Disinfectant* - any oxidant, including but not limited to, chlorine, chlorine dioxide, chloramines, and ozone, added to water in any part of the treatment process or distribution process that is intended to kill or inactivate pathogenic microorganisms (IAC 567-40.2).

- *Disinfection* - a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents (IAC 567-40.2).

- *Dose Equivalent* - the product of the absorbed dose from ionizing radiation and factors which account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (IAC 567-40.2).

- *Established Grade* - the permanent point of contact of the ground to artificial surface with the casing or curbing or the well (IAC 567-49.1).

- *Filtration* - a process for removing particulate matter from water by passage through a porous media (IAC 567-40.2).

- *First-Draw Sample* - a 1-L sample to tap water that has been standing in plumbing pipes at least 6 h and is collected without flushing the tap (IAC 567-40.2).

- *Grade* - one of six levels of classification of operator certification, designated as either I, IL, II, IIL, III, or IV (IAC 567-81.1).

- *Initial Compliance Period* - the first full 3-yr compliance period of a compliance cycle (IAC 567-40.2).

- *Landowner* - an individual, trust, partnership, corporation, government or governmental subdivision or agency, association, or other legal entity that has legal or equitable title to a piece of land (IAC 567-38.1).

- *Landowner's Agent* - a person who acts for or in place of the landowner by authority from the landowner (IAC 567-38.1).

- *Lead Service Line* - a service line made of lead which connects the water main to the building inlet and any lead pigtail, gooseneck, or other fitting which is connected to the lead line. A lead gooseneck is not considered a lead service line unless it exceeds 10 ft (IAC 567-40.2).

- *Major Rehabilitation or Reconstruction* - replacement, extension, or removal of all or a portion of the well casing (IAC 567-49.1).

- *Maximum Total Trihalomethane (TTHM) Potential* - the maximum concentration of TTHM produced in a given water containing a disinfectant residual after 7 days at 25 °C or above (IAC 567-40.2).

- *Medium-Size Water System* - a water system that serves greater than 3300 and less than or equal to 50,000 persons (IAC 567-40.2).

- *Nonpublic Water Supply* - a water system that has fewer than 15 service connections or serves less than 25 people, or one that has more than 15 service connections or services more than 25 people for less than 60 days a year (IAC 567-49.1).

- *Nontransient, Noncommunity (NTNC) Water System* - a public water system other than a community water system which regularly serves at least 25 of the same persons 4 h or more per day, for four or more days per week, for 26 or more weeks per year (IAC 567-40.2).

- *Operator-in-Charge* - the person(s) on-site directly responsible for a plant or distribution system. A city manager, superintendent of public works, city clerk, council member, business manager, or other administrative official is not deemed to the operator-in-charge of a system or facility unless their duties include the active, on-site responsibility for the daily operation of the system or facility. On-site operation may not necessarily mean full-time attendance at the plant or distribution system (IAC 567-81.1).

- *Optimal Corrosion Control Treatment* - the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while ensuring that the treatment does not cause the water system to violate any drinking water standards (IAC 567-40.2).

- *Plant* - those facilities which are identified as either a water treatment plant or wastewater treatment plant (IAC 567-81.1).

- *Plug* - the closure of an abandoned well with plugging materials by procedures which will permanently seal the well from contamination by surface drainage and permanently seal off the well from contamination into an aquifer (IAC 567-39.3).

- *Point-of-Use Treatment Device* - a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap (IAC 567-40.2).

- *Private Water Well* - a well that does not supply a public water supply system (IAC 567-38.1).

- *Public Water Supply System (also referred to as a system or a water system)* - a system for the provision to the public of piped water for human consumption, if the 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. The term also includes (1) any collection, treatment, storage, and distribution facilities under control of the supplier of water and used primarily in connection with the system, and (2) any collection (including wells) or pretreatment storage facilities not under this control which are used primarily in connection with the system. A public water supply system is either a community water system or a noncommunity water system, defined as follows:
    1. community water system - a public water supply system which has at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents
    2. noncommunity water system - a public water supply system that is not a community water system (IAC 567-40.2).

- *Pumpage* - average daily water use during the most recent 1-yr period of record (IAC 567-81.1).

- *Regional Water System* - a public water supply system in which the projected number of service connections in at least 50 percent of the length of the distribution system does not average more than eight service connections per linear mile of water main (IAC 567-40.2).

- *Sanitary Survey* - a review and on-site inspection conducted by the Department of the water source, facilities, equipment, operation, maintenance, and records of a public water supply system for the purpose of evaluating the adequacy of these inspected items for producing and distributing safe drinking water and identifying improvements necessary to maintain or improve drinking water quality (IAC 567-40.2).

- *Slow Sand Filtration* - a process involving passage of raw water through a bed of sand at low velocity (generally less than 0.4 mi/h (0.02 ft/min)) resulting in substantial particulate removal by physical and biological mechanisms (IAC 567-40.2).

- *SM - Standard Methods for the Examination of Water and Wastewater*, 17th edition, by the American Public Health Association, American Water Works Association, and the Water Pollution Control Federation (IAC 567-41.3(1)(e)(1)).

- *Small Water System* - a water system that serves 3300 persons or fewer (IAC 567-40.2).

- *Standby Well* - a water well which is temporarily taken out of service with the expectation of being returned to service at a future date (IAC 567-39.3).

- *Supplier of Water* - any person who owns or operates a public water supply system (IAC 567-40.2).

- *Surface Water* - all water which is open to the atmosphere and subject to surface runoff (IAC 567-40.2).

- *Total Trihalomethanes (TTHM)* - the sum of the concentration in mg/L of the trihalomethane compounds trichloromethane (chloroform), dibromochloromethane, bromodichloromethane, and tribromomethane (bromoform), rounded to two significant figures (IAC 567-40.2).

- *Unregulated Contaminants* - a contaminant for which no maximum contaminant level (MCL) has been set, but which does have monitoring requirements set (IAC 567-40.2).

- *USEPA Methods - Methods for Chemical Analysis of Water and Wastes* (IAC 567-40.2).

- *USGS* - U.S. Geological Survey, which publishes methods in *Methods for Determination of Inorganic Substances in Water and Fluvial Sediments* (IAC 567-41.3(1)(e)(1)).

- *Virus* - a virus of fecal origin which is infectious to humans by waterborne transmission (IAC 567-40.2).

- *Water Well* - an excavation that is drilled, cored, bored, augured, washed, driven, dug, jetted, or otherwise constructed for assessing groundwater (IAC 567-39.3).

WATER QUALITY MANAGEMENT
GUIDANCE FOR IOWA CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:
Missing Checklist Items	WQ.2.1.IA
Permits/Notifications/Exemptions	WQ.5.1.IA. and WQ.5.2.IA.
Operators	WQ.6.1.IA.
Public Water Systems	
General	WQ.10.1.IA. through WQ.10.4.IA.
Monitoring/Sampling	WQ.15.1.IA. through WQ.15.4.IA.
Disinfection and Filtration	WQ.20.1.IA. through WQ.20.7.IA.
Lead and Copper	WQ.25.1.IA. through WQ.25.8.IA.
Notification and Reporting Requirements	WQ.30.1.IA. through WQ.30.7.IA.
Community Water Systems	
Standards	WQ.35.1.IA. through WQ.35.5.IA.
Monitoring/Sampling	WQ.40.1.IA. through WQ.40.21.IA.
Lead and Copper	WQ.50.1.IA. through WQ.50.7.IA.
Noncommunity Water Systems	
Standards	WQ.60.1.IA. and WQ.60.2.IA.
Monitoring/Sampling	WQ.65.1.IA. through WQ.65.5.IA.
Nontransient Noncommunity Water Systems	
Standards	WQ.76.1.IA. through WQ.76.3.IA.
Monitoring/Sampling	WQ.77.1.IA. through WQ.77.16.IA.
Lead and Copper	WQ.78.1.IA. through WQ.78.7.IA.
Private/Other	WQ.85.1.IA.
Drinking Water Well	
General	WQ.90.1.IA .
Nonpublic Water Wells	WQ.90.2.IA. through WQ.90.9.IA.
Injection Control Wells	
(NOTE: The disposal of hazardous waste into wells is prohibited (IAC 567-141.7).)	
Water Use Permits	WQ.120.1.IA. through WQ.120.5.IA.

WATER QUALITY MANAGEMENT
GUIDANCE FOR IOWA APPENDIX USERS

REFER TO APPENDIX NUMBERS:	**REFER TO APPENDIX ITEMS:**
13-1	Total Coliform Monitoring Frequency for Regional Water Systems
13-2	Minimum Lateral Distance Requirements for Nonpublic Water Wells

COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
WQ.2 **MISSING CHECKLIST ITEMS**	
WQ.2.1.IA. Federal facilities are required to comply with all applicable state regulatory requirements not contained in the checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of findings).	Determine whether any new regulations have been issued since the finalization of the manual. Determine whether the Federal facility has activities or facilities that are regulated but not addressed in the checklists. Verify that the Federal facility is in compliance with all applicable and newly issued regulations

COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000 [Reorganized October 1999]**
WQ.5. PERMITS/ NOTIFICATIONS/ EXEMPTIONS	
WQ.5.1.IA. Federal facilities with public water supply systems must meet specific permitting and approval requirements (IAC 567-40.1 and 40.4(2) [Moved in structural reorganization of WQ.5 October 1999].	Verify that systems have a valid permit prior for any construction or modification to the system. Verify that systems have a valid operating permit and operates within its parameters. Verify that public water sources and underground finished water storage facilities have approval from the Department prior to conducting site surveys.
WQ.5.2.IA. Public water systems must meet permitting requirements (IAC 567-43.2(1), (5), and 43.3(3)) [Moved in structural reorganization of WQ.5 October 1999].	Verify that systems have a valid operating permit. Verify that system owners notify the Director within 30 days of any change in conditions identified in the permit application. Verify that systems have a valid construction permit prior to constructing, installing, or modifying any project. (NOTE: Construction permits are not required for point-of-use treatment devices installed by a noncommunity water system, except those devices required by the Department to meet a drinking water standard.)

COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000 [Reorganized October 1999]**
WQ.6. **OPERATORS**	
WQ.6.1.IA. Water treatment plants and water distribution systems must meet operator certification and notification requirements (IAC 567-81.2(3), (4), (6), (7), (9), and 81.12(1) and (2)) [Moved in structural reorganization of WQ.5 October 1999].	Verify that the operator-in-charge is certified at the same classification as the plant or water distribution system and at an equal or higher grade than the grade designation for the plant or water distribution system. Verify that person(s) responsible for the operation of a plant operating shift or a water distribution subsystem and under the supervision of the operator-in-charge is Grade II certified for Grade III and IV plants and water distribution systems and Grade I certified for all other plants and water distribution systems. Verify that plant and water distribution system owners and operators notify the Department of a change in operators-in-charge within 30 days after the change. Verify that plant and water distribution system owners report the following to the Department in January of odd-numbered years: - method of treatment provided - average daily pumpage - the operator-in-charge. Verify that plant and water distribution system owners without a certified operator submit a compliance plan indicating what action will be taken to obtain a certified operator within 30 days of notice of violation. (NOTE: An entity that is required to have a Grade I or II certified operator may sign an affidavit with a certified operator of the required classification and grade. The owner of a Grade III surface water treatment plant may also obtain a Grade III operator by affidavit provided that there is a full time Grade II operator at the plant. Both the municipality or other entity and the certified operator must notify the Director at least 30 days before the termination of the agreement.)

COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS: April 2000**
PUBLIC WATER SYSTEMS **WQ.10.** **General**	(NOTE: Sections WQ.10 through WQ.30 apply to all public water supply systems, unless a system meets all of the following conditions: - consists of distribution and storage facilities only (i.e., does not have any collection and treatment facilities) - obtains all of its water from, but is not owned or operated by, a public water supply system to which primary drinking water standards apply - does not sell water to any person - is to a carrier which conveys passengers in interstate commerce.)
WQ.10.1.IA. Public water systems must meet use requirements for bottled water, point-of-use devices, and point-of-entry devices (IAC 567-43.1(3)(a) and (b)).	Verify that bottled water, point-of-use devices, or point-of-entry devices are not used to achieve permanent compliance with a maximum contaminant level (MCL), action level, or treatment technique requirement for primary drinking water standards and water supplies. (NOTE: The Department may require a system which exceeds an action level or a required treatment technique to use bottled water as a condition of an interim compliance schedule or as a temporary measure to avoid an unreasonable risk to health.)
WQ.10.2.IA. Public water systems must meet cross-connection control requirements (IAC 567-43.1(4)(a) and (b)).	Verify that connection between a public water supply and any other system which does not meet monitoring or drinking water standards does not occur. Verify that piping systems or plumbing equipment carrying nonpotable water, contaminated water, stagnant water, liquids, mixtures, or waste mixtures are not connected to a public water supply unless properly equipped with an antisiphon device or backflow preventer approved by the Department. Verify that positive separation is provided by the use of an air gap separation or an approved backflow preventer at all loading stations for bulk transport tanks and that the following requirements are met: - the minimum air gap is twice the diameter of the discharge pipe - the backflow preventer for this application is a reduced pressure backflow preventer or an antisiphon device which complies with the standards of the American Water Works Association and has been approved by the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California.
WQ.10.3.IA. Public water systems must meet specific requirements where phosphate	Verify that, when phosphate compounds are added to any public water supply system which includes iron or manganese removal or ion exchange softening, these compounds are applied after the iron or manganese removal or ion exchange

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compounds are used (IAC 567-43.7(2)(b)).	softening treatment units, unless the Director has approved addition prior to these units. Verify that total phosphate concentration in the finished water does not exceed 10 mg/L as PO_4. Verify that chlorine is applied to the phosphate solution in sufficient quantity to give an initial concentration of 10 mg/L in the phosphate solution and that a chlorine residual is maintained in the phosphate solution at all times. Verify that test kits are provided which are capable of measuring polyphosphate and orthophosphate in a range from 0.0 to 10.0 mg/L in increments no greater than 2.0 mg/L. Verify that continuous application or injection of phosphate compounds directly into a well does not occur.
WQ.10.4.IA. Public water systems must meet specific requirements where hydrofluosilicic acid is used (IAC 567-43.7(2)(c)).	Verify that, where hydrofluosilicic acid is added to a public water supply, the operator is equipped with a fluoride test kit with a minimum range of 0.0 to 2.0 mg/L in increments no greater than 0.1 mg/L. Verify that distilled water and standard fluoride solutions of 0.2 mg/L and 1.0 mg/L are provided.

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PUBLIC WATER SYSTEMS	
WQ.15. Monitoring/Sampling	(NOTE: When a system supplies water to one or more other public water systems, the Department may modify the monitoring requirements imposed to the extent that the interconnection of the systems justifies treating them as a single system for monitoring purposes.)
WQ.15.1.IA. Public water systems must meet sampling requirements (IAC 567-43.5(4)(a)).	Verify that measurements for pH, temperature, turbidity, and disinfectant residual concentrations are conducted by one of the following: - a Grade II, III, or IV certified operator - any person under the supervision of a Grade II, III, or IV certified operator - a laboratory certified by the Department. Verify that measurements for heterotrophic plate count (HPC) bacteria are conducted by a laboratory certified by the Department.
WQ.15.2.IA. Public water systems must meet routine total coliform monitoring requirements (IAC 567-41.2(1)(c)(1)(1) and (1)(2)).	Verify that systems collect total coliform samples at sites representative of water throughout the distribution system, according to a written sample siting plan. Verify that the sample siting plan has been reviewed or updated within the last 2 yr and that it contains the following: - a map of the distribution system - notation or a list of routine sample location(s) for each sample period - resample locations for each routine sample - a log of samples taken. (NOTE: The regulations for monitoring frequency are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)
WQ.15.3.IA. Public water systems which exceed the total coliform MCL must meet repeat total coliform monitoring requirements (IAC 567-41.2(1)(c)(1)(7) and (c)(2) through (c)(4)(1)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: Systems with single service connections may collect the required set of repeat samples over a 4-day period. A system with a single service connection is a system which supplies drinking water to consumers through a single service line.) (NOTE: Repeat samples are not considered special purpose samples and must be

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	used to determine compliance with the MCL for total coliforms.) Verify that systems which collect fewer than five routine samples per month and which have one or more total coliform-positive samples collect at least five routine samples during the next month the system provides water to the public. (NOTE: For systems monitoring on a quarterly basis, the additional five routine samples may be required to be taken within the same quarter in which the original total coliform-positive sample occurred. The Department may waive the required additional routine samples. In this case, the system is required to still take at least one routine sample before the end of the next month it serves water to the public and use it to determine compliance with the MCL for total coliforms.) Verify that invalidated total coliform-positive samples are not used to meet minimum monitoring requirements. (NOTE: The regulations for fecal coliforms/*E. coli* testing are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)
WQ.15.4.IA. Public water systems must meet analytical methodology requirements for total coliform monitoring (IAC 567-41.2(1)(e)(1) through (4), and (6)).	Verify that systems use a standard sample volume of 100 mL. (NOTE: System do not need to determine total coliform density.) Verify that systems use one of the following test methods for total coliform analyses: - multiple-tube fermentation technique - membrane filter technique - presence-absence coliform test - minimal medium ONPG-MUG (MMO-MUG) test (or autoanalysis colilert system). (NOTE: In lieu of the 10-tube multiple-tube fermentation technique, systems may use the five-tube multiple-tube fermentation technique or a single culture bottle containing the culture medium for the multiple-tube fermentation technique.) Verify that systems use one of the following test methods for *E. coli* analyses: - EC medium supplemented with 50 mg/L MUG (final concentration) - Nutrient agar supplemented with 100 mg/mL MUG (final concentration) - Minimal Medium ONPG-MUG (MMO-MUG) Test.

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PUBLIC WATER SYSTEMS	
WQ.20. Disinfection and Filtration	(NOTE: This section applies to community and noncommunity water systems using surface water or groundwater under the direct influence of surface water, in whole or in part. All public water systems that use a surface water source or source under the direct influence of surface water must provide treatment consisting of disinfection and filtration.)
WQ.20.1.IA. Public water systems must meet treatment technique requirements (IAC 567-43.5(1)(a)(1), and (2), 43.5(2)(a), (3), and (4)(a) and (b)).	(NOTE: The regulations for percent removal or inactivation of cysts and viruses are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: The regulations for disinfection, filtration, analytical requirements, and monitoring requirements are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)
WQ.20.2.IA. Public water systems must meet disinfectant residual requirements (IAC 567-41.2(3)(e)(1), 41.7(2)(a) through (e), and 43.5(2)(b) through (d)).	Verify that the disinfection system includes either of the following: - redundant components, including an auxiliary power supply with automatic start-up and alarm to ensure that disinfectant application is maintained continuously while water is being delivered to the distribution system - automatic shut-off of delivery of water to the distribution system whenever there is less than 0.3 mg/L of residual disinfectant concentration in the water. (NOTE: If the Department determines that automatic shut-off would cause unreasonable risk to health or interfere with fire protection, the system must include redundant components.) Verify that disinfectant residual concentration in the water entering the distribution system is not less than 0.3 mg/L free residual chlorine for more than 4 h. (NOTE: Water within the distribution system with a heterotrophic bacteria concentration less than or equal to 500/mL, measured as HPC, is deemed to have a detectable disinfectant residual for purposes of determining compliance. Systems are required to conduct HPC analyses using Method 92115B and laboratories must be certified by the Department.) (NOTE: The regulations for disinfectant residual monitoring requirements are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) Verify that, if at any time the disinfectant concentration falls below 0.3 mg/L in a

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	system using grab sampling in lieu of continuous monitoring, the system takes a grab sample every 4 h until the residual disinfectant concentration is equal to or greater than 0.3 mg/L.
WQ.20.3.IA. Public water systems must meet continuous disinfection requirements (IAC 567-43.7(2)(a)(1) through (5)).	Verify that continuous disinfection is provided at all public water supply systems. (NOTE: Groundwater systems which meet the following requirements are exempt from the continuous disinfection requirements: - have no treatment facilities or have only fluoride, sodium hydroxide, or soda ash addition - meet bacterial drinking water standards - do not show other actual or potential hazardous contamination by microorganisms.) (NOTE: Chlorine is the preferred disinfecting agent and may be accomplished with liquid chlorine, calcium or sodium hypochlorites, or chlorine dioxide. Other disinfecting agents will be considered provided a residual can be maintained in the distribution system, reliable application equipment is available, and testing procedures for a residual are recognized in SM.) Verify that a minimum free available chlorine residual of 0.3 mg/L or a minimum total available chlorine residual of 1.5 mg/L is continuously maintained throughout the water distribution system, except for those point on the distribution system that terminate as dead ends or areas that represent very low use when compared to usage throughout the rest of the distribution system. Verify that test kits capable of measuring free and combined chlorine residuals in the following increments are provided at all chlorination facilities: - increments no greater than 0.1 mg/L in the range below 0.5 mg/L - increments no greater than 0.2 mg/L in the range 0.5 mg/L to 1.0 mg/L - increments no greater than 0.3 mg/L in the range 1.0 mg/L to 2.0 mg/L - method of analysis is recognized in SM. Verify that a bottle of at least 56 percent ammonium hydroxide is provided at all gas chlorination installations for leak detection and that leak repair kits are available where ton chlorine cylinders are used.
WQ.20.4.IA. Public water systems using a surface water source or a groundwater source under the direct influence of surface water must meet specific reporting and recordkeeping require-	(NOTE: These systems must report the information specified in this section monthly beginning 29 June 1993 or when filtration is installed, whichever is later.) Verify that turbidity measurements are reported within 10 days after the end of each month the system serves water to the pubic, including the following information:

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ments (IAC 567-43.7(3)).	- total number of filtered water turbidity measurements taken during the month
	- number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits for the filtration technology being used
	- date and value of any turbidity measurements taken during the month that exceed 5 NTU.
	
	Verify that disinfection information is reported within 10 days after the end of each month the system serves water to the pubic, including the following:
	
	- lowest daily measurement of residual disinfectant concentration in mg/L in water entering the distribution system
	- date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.3 mg/L and when the Department was notified of the occurrence
	- the following information on samples taken in conjunction with total coliform monitoring:
	  - number of instances where the residual disinfectant concentration is measured
	  - number of instances where the residual disinfectant concentration is not measured but HPC is measured
	  - number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured
	  - number of instances where no residual disinfectant concentration is detected and where HPC is greater than 500/mL
	  - number of instances where the residual disinfectant concentration is not measured and HPC is greater than 500/mL.

WQ.20.5.IA. Public water systems providing filtration after 30 December 1991 must meet turbidity MCL requirements when filtration is installed (IAC 567-41.7(1)(a) and (b)(1) through (4)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)
WQ.20.6.IA. Public water systems must meet turbidity monitoring requirements (IAC 567-41.7(1)(c)(1) and (2)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: Systems may substitute continuous monitoring for grab sampling if it validates the continuous measurement for accuracy on a regular basis using a Department approved calibration protocol which is audited for compliance during sanitary surveys.) (NOTE: For systems using slow sand filtration or filtration treatment other than

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	conventional treatment, direct filtration, or diatomaceous earth filtration, the Department may reduce the sampling frequency to once per day.) (NOTE: For systems serving 500 or fewer persons, the Department may reduce the sampling frequency to once per day.) Verify that suppliers of water serving a population of greater than 100,000 persons, or the equivalent, provide a continuous or rotating cycle turbidity monitoring and recording device or take hourly grab samples to determine compliance with the turbidity MCL.
WQ.20.7.IA. Public water systems must meet analytical methodology requirements for turbidity, temperature, and pH monitoring (IAC 567-41.7(1)(e), (3)(e), and (4)(e)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) Verify that turbidity, temperature, and pH measurements are conducted by one of the following: - Grade II, III, or IV certified operator - any person under the supervision of a Grade II, III, or IV certified operator - laboratory certified by the Department.

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PUBLIC WATER SYSTEMS **WQ.25.** **Lead and Copper**	
WQ.25.1.IA. Public water systems must meet lead use restrictions (IAC 567-43.1(2)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)
WQ.25.2.IA. Public water systems must meet corrosion control requirements (IAC 567-43.8(1)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)
WQ.25.3.IA. Public water systems exceeding the lead or copper action level must meet corrosion control treatment requirements (IAC 567-43.8(2)(a), (e), and (g)).	Verify that small and medium-size water systems exceeding the lead or copper action level recommend installation of one or more of the corrosion control treatments which the system believes constitutes optimal corrosion control for that system based on corrosion control studies. Verify that systems properly install and operate throughout the distribution system the optimal corrosion control treatment approved by the Department. Verify that systems maintain water quality parameter values at or above minimum values, or within ranges designated by the Department, in each sample collected for monitoring after implementation of corrosion control treatment. (NOTE: Systems may take a confirmation sample for any water quality parameter value no later than 3 days after the first sample. If one is taken, the result must be averaged with the first sampling result and the average used for any compliance determinations.)
WQ.25.4.IA. Public water systems must meet specific requirements when conducting corrosion control studies (IAC 567-43.8(2)(c)).	Verify that corrosion control studies evaluate the effectiveness of each of the following treatments, and combinations of treatments, to identify the optimal corrosion control treatment: - alkalinity and pH adjustment - calcium hardness adjustment

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	- addition of a phosphate or silicate based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples. Verify that systems evaluate each of the corrosion control treatments using one of the following: - pipe rig/loop tests - metal coupon tests - partial-system tests - analyses based on documented analogous treatments with other systems of similar size, water chemistry, and distribution system configuration. Verify that systems measure the following water quality parameters in any tests conducted, before and after evaluating the corrosion control treatments: - lead - copper - pH - alkalinity - calcium - conductivity - orthophosphate, when an inhibitor containing a phosphate compound is used - silicate, when an inhibitor containing a silicate compound is used - water temperature. Verify that all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment are identified. Verify that systems evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes. Verify that systems recommend to the Department the treatment option that the corrosion control studies indicate constitutes optimal corrosion control for that system.
WQ.25.5.IA. Public water systems must meet source water treatment requirements (IAC 567-43.8(3)(a) and (b)(1) through (3), and (5)).	(NOTE: The regulations for source water treatment deadlines are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) Verify that systems which exceed the lead or copper action level recommend to the Department the installation and operation of one of the following source water treatments: - ion exchange - reverse osmosis - lime softening

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	- coagulation/filtration. Verify that systems properly install and operate the source water treatment designated by the Department. Verify that systems maintain lead and copper levels below the maximum permissible concentrations designated by the Department at each sampling point monitored.
WQ.25.6.IA. Public water systems must meet lead service line replacement requirements (IAC 567-43.8(4)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)
WQ.25.7.IA. Public water systems which exceed the lead action level must meet public education requirements (IAC 567-41.10(3) and (4)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)
WQ.25.8.IA. Public water systems must meet record-keeping and reporting requirements for lead and copper, source water monitoring and treatment, corrosion control, lead service line replacement, and public education program (IAC 567-41.10(6)(e) and (7)(a) through (g)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)

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PUBLIC WATER SYSTEMS **WQ.30. Notification and Reporting Requirements**	
WQ.30.1.IA. Public water systems must meet construction certification requirements (IAC 567-43.4).	Verify that systems submit a certification by a registered professional engineer that the project was completed in accordance with the approved plans and specifications within 30 days after completion of construction, installation, or modification of any project.

WQ.30.2.IA. Public water systems must meet operation recordkeeping requirements (IAC 567-43.7(1)(a), (b)(1) through (3), (5), (6), and 43.7(2)).	Verify that systems complete monthly operation records unless the system meets all of the following:
	
	- supplies an annual average of not more than 25,000 gpd or serves no more than an average of 250 individuals daily
	- does not provide any type of treatment
	- does not utilize surface water, either in whole or in part, as a water source.
	
	Verify that monthly operation reports are completed as follows:
	
	- noncommunity supplies measure and record total water used each week (daily measurement/recording recommended)
	- community supplies measure and record daily water used
	- record of measurement of intended effect of any treatment at locations and by methods best indicating effectiveness of treatment process
	- where the raw water does not meet primary drinking water standards and treatment is used, record of daily measurement of the primary standard constituent or an appropriate indicator constituent
	- record of daily measurement of chemicals which are potentially toxic in excessive concentration, such as fluoride, iodine, bromine, and chlorine, including:
	  - amount of chemical applied each day
	  - record of weekly measurement of all other chemicals applied, and
	  - where the supplier of water is attempting to maintain a residual of the chemical throughout the system, record of daily measurement of the chemical
	- record of monthly measurement of static water levels and pumping water levels for all groundwater sources.
	
	Verify that the supplier of water maintains a record of all chemicals used, including a clear identification of the chemical by brand or generic name, and

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	dosage rate.
WQ.30.3.IA. Public water systems which exceed the total coliform MCL must meet reporting and public notification requirements (IAC 567-41.2(1)(c)(5)(1) through (3)).	Verify that systems which exceed the MCL for total coliforms report the violation to the water supply section of the Department by telephone no later than the end of the next business day after it learns of the violation and notifies the public. Verify that systems which fail to meet a coliform monitoring requirement report to monitoring violation to the Department within 10 days after the system discovers the violation and notifies the public. Verify that, if fecal coliforms or *E. coli* are detected in a routine or repeat sample, systems notify the Department by telephone by the end of the day when the system is notified of the test result and notify the public. (NOTE: If systems are notified after the Department office is closed, they must notify the Department before the end of the next business day.)
WQ.30.4.IA. Public water systems must meet reporting requirements (IAC 567-41.10(1)(a) through (c)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)
WQ.30.5.IA. Public water systems must meet public notification requirements (IAC 567-41.10(2)(a) through (e)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) Verify that system use the required language in the public notices. (See IAC 567-41.10(2)(e).)
WQ.30.6.IA. Public water systems must meet public notification requirements for operation permits (IAC 567-41.10(5)(a)).	Verify that, if a system is functioning under a draft or modified operation permit prior to the issuance of a final permit, the system circulates a public notice, prepared by the Department, within its geographical area.
WQ.30.7.IA. Public water systems must meet record-keeping requirements (IAC 567-41.10(6)(a) through (d)).	(NOTE: The regulations for bacterial and chemical records and records of action are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: For bacterial and chemical records, actual laboratory reports must be

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	kept or the data may be transferred to tabular summaries, provided that all of the following information is included: - the date, place, and time of sampling, and the name of the person who collected the sample - identification of the sample as to whether it was a routine distribution system sample, check sample, raw or process water sample, or other special purpose sample - date of analysis - laboratory and person responsible for performing analysis - the analytical technique or method used - results of the analysis.) Verify that copies of any written reports, summaries, or communications relating to sanitary surveys of the system, conducted by the system itself, by a private consultant, or by any local, state, or Federal agency, are maintained for at least 10 yr after completion of the sanitary survey involved. Verify that records concerning an operation or construction permit are maintained for at least 5 yr after the system achieves compliance with the MCL, the action level, the treatment technique requirement, the health advisory level, or after the system completes the associated construction project.

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COMMUNITY WATER SYSTEMS **WQ.35.** **Standards**	
WQ.35.1.IA. Community water systems must meet microbiological MCL requirements (IAC 567-41.2(1)(b)(1)(1), (b)(1)(2), (b)(2), and (b)(3)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) Verify that systems base compliance with the MCL for total coliforms on each month they are required to monitor for total coliforms.
WQ.35.2.IA. Community water systems using surface water or groundwater under the direct influence of surface water must meet MCL and analytical methodology requirements for macroscopic organisms and algae (IAC 567-41.2(4)(a), (b), and (e)).	Verify that the finished water is free of any macroscopic organisms, such as plankton, worms, or cysts. Verify that the finished water algal cell count does not exceed 500 organisms/mL or 10 percent of the total cells found in the raw water, whichever is greater. Verify that systems measure algal cells using Method 10200F.
WQ.35.3.IA. Community water systems must meet inorganic chemical (IOC) MCL requirements (IAC 567-41.3(1)(b)(1)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: The recommended fluoride level is 1.1 mg/L.)
WQ.35.4.IA. Community water systems must meet synthetic organic chemical (SOC), volatile organic compound (VOC), and TTHM MCL requirements (IAC 567-41.5(1)(a) and (b)(1) through (3)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)

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WQ.35.5.IA. Community water systems must meet radionuclide MCL requirements (IAC 567-41.8(1) and (2)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) Verify that, except for tritium and strontium-90, the concentration of man-made radionuclides causing 4 mrem total body or organ dose equivalents are calculated on the basis of a 2 L/day drinking water intake. Verify that the concentration of tritium causing 4 mrem total body dose equivalents are calculated on the basis of a 20 pCi/L drinking water intake. Verify that the concentration of strontium-90 causing 4 mrem bone marrow dose equivalents are calculated on the basis of a 8 pCi/L drinking water intake.

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COMMUNITY WATER SYSTEMS **WQ.40. Monitoring/Sampling**	
WQ.40.1.IA. Community water systems must meet routine total coliform monitoring requirements (IAC 567-41.2(1)(c)(1)(3) and (1)(7)).	(NOTE: The regulations for total coliform monitoring frequency are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: The U.S. TEAM Guide specifies the monitoring frequency for population sizes served above 3,960,001 and the IAC has adopted those frequencies only through population size 970,000. The frequency specified for systems serving 25 to 1000 persons also applies to systems which have at least 15 service connections, but serve fewer than 25 persons.) Verify that systems serving fewer than 4101 persons collect a minimum of five routine samples per month, unless the Department specifies another monitoring frequency. Verify that special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, are not be used to determine compliance with the MCL for total coliforms.
WQ.40.2.IA. Community water systems must meet IOC compliance calculation requirements (IAC 567-41.3(1)(b)(2)(1) through (4)).	Verify that systems monitoring more often than annually determine compliance with MCLs for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, and thallium by running an annual average at any sampling point. Verify that samples below the method detection limit (MDL) are calculated at zero for the purpose of determining the annual average. Verify that, if confirmation samples are required by the Department, systems base compliance on the average of the two samples. Verify that, if the MCL for nitrates and nitrites is exceeded, systems collect a confirmation sample and determine compliance based on the average of the initial and confirmation samples. (NOTE: The Department may allow systems which have a distribution system separable from other parts of the distribution system with no interconnections to give public notice to only the area served by that portion of the system which is

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	out of compliance.)
WQ.40.3.IA. Community water systems must meet routine IOC monitoring requirements (IAC 567-41.3(1)(c)(2) and (9)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: The regulations for IOC detection limits are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: For the initial analysis of any IOC, data for surface waters acquired within 1 yr prior to 1 January 1993 and data for groundwaters acquired within 3 yr prior to 1 January 1993 may be substituted at the discretion of the Department.)
WQ.40.4.IA. Community water systems must meet asbestos monitoring requirements (IAC 567-41.3(1)(c)(3)(1) through (10)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) Verify that systems vulnerable to asbestos contamination due solely to source water monitor as specified for surface and groundwater in WQ.40.3.IA. (NOTE: If monitoring data collected after 1 January 1990 are generally consistent with asbestos monitoring requirements in the U.S. TEAM Guide, then the system may be allowed to use that data to satisfy the monitoring requirement for the initial compliance period beginning 1 January 1993.)
WQ.40.5.IA. Community water systems must meet monitoring frequency requirements for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, and thallium (IAC 567-41.3(1)(c)(4)(1) through (8)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: The Department may decrease the quarterly monitoring requirement.)
WQ.40.6.IA. Community water systems must meet monitoring requirements for nitrates and nitrites (IAC 567-41.3(1)(c)(5) and (6)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)

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WQ.40.7.IA. Community water systems which exceed IOC MCLs must meet confirmation sampling requirements (IAC 567-41.3(1)(c)(7)(1) through (3)).	(NOTE: Systems which exceed the MCL for asbestos, barium, cadmium, chromium, fluoride, mercury, or selenium may be required by the Department to collect one additional sample as soon as possible after the initial sample was taken, but not exceeding 2 wk, at the same sampling point. Results of confirmation samples collected within this time frame must be averaged with the results of the initial sample and this average used to determine MCL compliance.) Verify that systems which exceed the MCL for nitrates or nitrites collect a confirmation sample within 24 h of notification of the results of the first sample. Verify that systems which do not meet the 24 h sampling requirement immediately notify the consumers served by the system and complete an analysis of a confirmation sample within 2 wk of notification of the results of the first sample.
WQ.40.8.IA. Community water systems must meet IOC analytical methodology requirements (IAC 567-41.3(1)(e)(1) through (4) and (1)(f)).	Verify that systems use USEPA, ASTM, SM, and USGS analytical methods for IOC monitoring (see definitions for ASTM, SM, and USGS). Verify that systems meet sample preservation, container, and maximum holding time procedure requirements for collection of samples for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium. Verify that USEPA analytical methods are used for unregulated IOC monitoring.
WQ.40.9.IA. Community water systems must meet organic chemical compliance calculation requirements (IAC 567-41.5(1)(b)(4)).	Verify that systems monitoring more often than annually determine compliance with MCLs for organic chemicals by running an annual average at any sampling point. Verify that samples below the MDL are calculated at zero for the purpose of determining the annual average. Verify that, if confirmation samples are required by the Department, systems base compliance on the average of the two samples. (NOTE: The Department may allow systems which have a distribution system separable from other parts of the distribution system with no interconnections to give public notice to only the area served by that portion of the system which is out of compliance.)
WQ.40.10.IA. Community water systems must meet treatment technique requirements for acrylamide and	Verify that systems annually provide written certification to the Department, using third party or manufacturer's certification, that when acrylamide and epichlorohydrin are used in drinking water systems, the combination, or product, of dose and monomer level does not exceed the following levels:

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epichlorohydrin (IAC 567-41.5(1)(b)(5)).	of dose and monomer level does not exceed the following levels: - acrylamide = 0.05 percent dosed at 1 ppm (or equivalent) - epichlorohydrin = 0.01 percent dosed at 20 ppm (or equivalent).
WQ.40.11.IA. Community water systems must meet VOC monitoring requirements (IAC 567-41.5(1)(c)(1)(2)(1) through (2)(6), (2)(8) through (2)(11), and (1)(4)).	Verify that systems began monitoring VOCs on 1 January 1993. (NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: Groundwater systems which do not detect a VOC contaminant may apply to the Department for a waiver from initial monitoring frequency. Groundwater systems with waivers must take one sample at each sampling point during the time the waiver is effective and update its vulnerability assessment.) (NOTE: Small systems may have a waiver for the initial round of monitoring for 1,2,4-trichlorobenzene. Detection is defined as greater than or equal to 0.0005 mg/L.) (NOTE: Surface water systems which do not detect a VOC contaminant may apply to the Department for a waiver after initial monitoring.) (NOTE: The Department may decrease quarterly monitoring requirement to annually. Systems monitoring annually must monitor during the quarter(s) which previously yielded the highest analytical result. Systems which have three consecutive annual samples with no detection of a contaminant may apply for a waiver.) (NOTE: If the results of the first required analyses do not detect vinyl chloride, the Department may reduce quarterly monitoring to one sample required during each compliance period.) Verify that surface water systems monitor for vinyl chloride as specified by the Department. Verify that, if a confirmation sample is required, systems average the result with the first sampling result and use the average for determination of compliance.
WQ.40.12.IA. Community water systems must meet SOC monitoring requirements (IAC 567-41.5(1)(c)(1)(3)(1) through (3)(5), (3)(7), (3)(8), and (1)(4)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: Systems may apply to the Department for a waiver from specific SOC monitoring requirements.) Verify that, if a confirmation sample is required, systems average the result with the first sampling result and use the average for determination of compliance.

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WQ.40.13.IA. Community water systems must meet composite sampling requirements (IAC 567-41.5(1)(c)(1)(5)(1) through (5)(3), and (5)(6)).	(NOTE: The Department may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed, provided the detection limit of the method used for analysis is less than one-fifth of the MCL.) Verify that compositing of samples is done in the laboratory and analyzed within 14 days of sample collection. Verify that, if the concentration in the composite sample is greater than or equal to 0.0005 mg/L for any VOC or SOC contaminant, systems collect a follow-up sample from each sampling point included in the composite and analyze it within 14 days. (NOTE: If duplicates of the original sample taken from each sampling point used in the composite are available, the system may use these instead of resampling. The duplicate must be analyzed and the results reported to the Department within 14 days of collection.) (NOTE: Compositing may only be permitted by the Department at sampling points within a single system, unless the population served by the system is less than 3300 persons. In systems serving less than or equal to 3300 persons the Department may permit compositing among different systems provided the five sample limit is maintained.) (NOTE: The Department may allow the use of monitoring data collected after 1 January 1988, for VOCs, and 1 January 1990, for SOCs, for purposes of initial monitoring compliance. If the data meet other requirements, the Department may use the data to meet the initial monitoring requirement for the initial compliance period beginning 1 January 1993. Systems which use grandfathered samples for VOCs and which did not detect any VOC contaminants must have begun monitoring annually beginning 1 January 1993.)
WQ.40.14.IA. Community water systems must meet general sampling requirements for TTHMs (IAC 567-41.5(1)(e)(1), (2), and (4)).	Verify that systems base the number of samples taken on the number of treatment plants used by the systems and that all samples required within a calendar quarter are collected within a 24-h period. (NOTE: Multiple wells drawing from a single aquifer may be considered as one treatment plant for determining the minimum number of samples.) Verify that the following systems perform analyses for TTHMs at quarterly intervals on at least four water samples for each treatment plant used by the systems: - systems utilizing surface water sources, in whole or in part

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	- systems utilizing only groundwater sources, which have not been determined by the Department to qualify for the groundwater monitoring requirements. Verify that at least 25 percent of these samples are collected at locations within the distribution system reflecting the maximum residence time of the water in the system and that the remaining 75 percent are collected at representative locations in the distribution system, taking into account the following: - number of persons served - different sources of water - different treatment methods employed. Verify that quarterly results are averaged. (NOTE: The Department may allow a system to reduce monitoring frequency to a minimum of one sample analyzed for TTHMs per quarter collected at a location within the distribution system reflecting the maximum residence time of the water in the system. If any time during this reduce monitoring the results from any analysis exceed 0.10 mg/L of TTHMs and the results are confirmed by at least one check sample taken promptly after the results are received or if the system makes any significant change to its source of water or treatment program, the system is required to immediately begin monitoring at the pre-reduced frequency level and does so for at least 1 yr before the frequency may be reduced again.) Verify that systems determine compliance with the TTHM MCL based on a running annual average of quarterly samples. Verify that, if the average covering any 12-mo period exceeds the MCL, the supplier of water notifies the public and monitors as specified by the Department after the public notification.
WQ.40.15.IA. Community water systems utilizing only groundwater sources must meet specific sampling requirements for TTHMs (IAC 567-41.5(1)(e)(3)).	(NOTE: The Department may allow a system to reduce monitoring frequency to a minimum of one sample analyzed for TTHMs per quarter collected at a location within the distribution system reflecting the maximum residence time of the water in the system.) Verify that, if any time during this reduce monitoring the results from any analysis exceed 0.10 mg/L of TTHMs and the results are confirmed by at least one check sample taken promptly after the results are received or if the system makes any significant change to its source of water or treatment program, the system immediately begins monitoring at the pre-reduced frequency level and does so for at least 1 yr before the frequency is be reduced again. Verify that, in the event of any significant change to the system's raw water or treatment program, the system immediately analyses an additional sample for maximum TTHM potential, collected at a point in the distribution system reflecting the maximum residence time of the water in the system, and uses it in

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	determining whether the system is required to comply with the general monitoring requirement specified in WQ.40.14.IA.
WQ.40.16.IA. Community water systems must meet approval requirements prior to modifying existing treatment processes (IAC 567-41.5(1)(e)(6)).	Verify that systems have Departmental approval of a modification plan and of safeguards protecting the bacteriological quality of drinking water prior to modifying existing treatment processes
WQ.40.17.IA. Community water systems must meet analytical methodology requirements for TTHMs, endrin, VOCs, and SOCs (IAC 567-41.5(1)(e)(5) and (f)(1) through (3)).	Verify that systems monitor for TTHMs, VOCs, and SOCs using USEPA methods. Verify that systems monitor for endrin using USEPA Methods 505 and 508.
WQ.40.18.IA. Community water systems which monitor for polychlorinated biphenyls, as one of seven Aroclors, must meet detection limit and analytical methodology requirements (IAC 567-41.5(1)(f)(4)).	Verify that systems monitor for polychlorinated biphenyls using USEPA Method 505 or 508. Verify that, if polychlorinated biphenyls are detected, based on the following detection limits, systems reanalyze the sample using USEPA Method 508A: <u>Aroclor Detection Limit</u> 1016 0.00008 mg/L 1221 0.02 mg/L 1232 0.0005 mg/L 1242 0.0003 mg/L 1248 0.0001 mg/L 1254 0.0001 mg/L 1260 0.0002mg/L.
WQ.40.19.IA. Community water systems must meet monitoring requirements for unregulated organic chemicals (IAC 567-41.11(1)(b) through (d)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: Systems may be required to monitor for the following additional unregulated organic chemicals: - ethylene dibromide and 1,2-dibromo-3-chloropropane - 1,2,4-trimethylbenzene - 1,2,3-trichlorobenzene

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	- n-propylbenzene - n-butylbenzene - naphthalene - hexachlorobutadiene - 1,3,5-trimethylbenzene - p-isopropyltoluene - isopropylbenzene - tert-butylbenzene - sec-butylbenzene - fluorotrichlormethane - dichlorodifluoromethane - bromochloromethane.) (NOTE: The Department may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed.) Verify that compositing of samples is done in the laboratory and analyzed within 14 days of sample collection. (NOTE: Compositing may only be permitted by the Department at sampling points within a single system, unless the population served by the system is less than 3300 persons. In systems serving less than or equal to 3300 persons the Department may permit compositing among different systems provided the five sample limit is maintained.) Verify that analyses are performed by laboratories certified by the Department.
WQ.40.20.IA. Community water systems must meet special monitoring requirements for IOCs and VOCs (IAC 567-41.11(2)(a) through (c)(4), and (c)(6) through (c)(8)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: The U.S. TEAM Guide includes aldicarb, aldicarb sulfone, and aldicarb sulfoxide but the state regulations do not.) Verify that systems use USEPA methods to conduct special monitoring requirements for IOCs and VOCs. (NOTE: The system may have a waiver from monitoring requirements.) (NOTE: The Department may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed.) Verify that compositing of samples is done in the laboratory and analyzed within 14 days of sample collection. (NOTE: Compositing may only be permitted by the Department at sampling

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	points within a single system, unless the population served by the system is less than 3300 persons. In systems serving less than or equal to 3300 persons the Department may permit compositing among different systems provided the five sample limit is maintained.) (NOTE: Systems serving fewer than 150 service connections may send a letter by 1 January 1994 which states that it is available for sampling, instead of performing the required monitoring for this section.)
WQ.40.21.IA. Community water systems must meet sodium monitoring requirements (IAC 567-41.11(3)(a) through (c)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: Systems utilizing multiple wells drawing raw water from a single aquifer may be considered as one source for determining the minimum number of samples to be collected.)

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COMMUNITY WATER SYSTEMS **WQ.50.** **Lead and Copper**	
WQ.50.1.IA. Community water systems must meet lead and copper action levels (IAC 567-41.4(1)(b)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)
WQ.50.2.IA. Community water systems must meet tap sample site selection requirements (IAC 567-41.4(1)(c)(1)(1) through (5)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) Verify that systems use the information on lead, copper, and galvanized steel when conducting a materials evaluation. (NOTE: Systems are required to collect this information as part of their responsibility for the special monitoring for corrosivity characteristics.) Verify that, when an evaluation of the information collected is insufficient to locate the requisite number of lead and copper sampling sites that meet targeting criteria, systems review the following: - all plumbing codes, permits, and records in the files of the building department(s) which indicate the plumbing materials that are installed within publicly and privately owned structures connected to the distribution system - all inspections and records of the distribution system which indicate the material composition of the service connections that connect a structure to the distribution system - all existing water quality information which includes the results of all prior analyses of the system or individual structures connected to the system and which indicates locations that may be particularly susceptible to high lead or copper concentrations. Verify that systems also seek to collect this information where possible in the course of its normal operations (e.g., checking service line materials when reading water meters or performing maintenance activities).
WQ.50.3.IA. Community water systems must meet tap sample site selection reporting	Verify that systems whose sampling pool does not consist exclusively of tier 1 sites submit a letter to the Department which demonstrates why a review of the information listed in WQ.50.3.IA was inadequate to locate a sufficient number of

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requirements (IAC 567-41.4(1)(c)(1)(8)).	tier 1 sites. Verify that a system which includes tier 3 sampling sites in its sampling pool demonstrates in the letter why it was unable to locate a sufficient number of tier 1 and tier 2 sampling sites. Verify that systems whose distribution system contains lead service lines draws 50 percent of the samples it collects during each monitoring period from sites that contain lead pipes or copper pipes with lead solder and the other 50 percent from sites served by a lead service line. Verify that a system which cannot identify a sufficient number of sampling sites served by a lead service line submits a letter to the Department which demonstrates why it was unable to locate a sufficient number of sites and collects first-draw samples from all of the sites identified as being served by lead service lines.
WQ.50.4.IA. Community water systems must meet tap sample collection requirements (IAC 567-41.4(1)(c)(2)(1) through (4)).	Verify that tap samples for lead and copper, with the exception of lead service line samples, are first-draw samples. Verify that first-draw tap samples for lead and copper are 1 L and stood motionless in the plumbing system of each sampling site for at least 6 h. Verify that first-draw samples from residential housing are collected from the cold-water kitchen tap or bathroom sink tap and first-draw samples from nonresidential buildings are collected at an interior tap from which water is typically drawn for consumption. (NOTE: First-draw samples may be collected by the system or the system may allow residents to collect them after instructing the residents of the sampling procedures. To avoid problems of residents handling nitric acid, acidification of first-draw samples may be done up to 14 days after the sample is collected. If the sample is not acidified immediately after collection, then the sample must stand in the original container for at least 28 h after acidification. If a system allows residents to perform sampling it may not challenge the accuracy of sampling results, based on alleged errors in sample collection.) Verify that service line samples collected to determine if the service line is directly contributing lead are 1 L and have stood motionless in the lead service line for at least 6 h and are collected at the tap after flushing the volume of water between the tap and the lead service line. (NOTE: The volume of water must be calculated based on the interior diameter and length of the pipe between the tap and the lead service line; tapping directly into the lead service line; or, if the sampling site is a building constructed as a single-family residence, allowing the water to run until there is a significant change in temperature which would be indicative of water that has been standing

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	in the lead service line.) Verify that systems collect each first-draw tap sample from the same sampling site from which it collected a previous sample. (NOTE: If the system cannot gain entry to a sampling site in order to collect a follow-up tap sample, the system may collect the follow-up sample from another sampling site in its sampling pool as long as the new site meets the same targeting criteria and is within reasonable proximity of the original site.)
WQ.50.5.IA. Community water systems must meet specific monitoring requirements (IAC 567-41.4(1)(c)(3), (4), and (1)(d)).	(NOTE: The regulations for number of tap samples, timing of tap monitoring, monitoring after installation of corrosion control and source water treatment, reduced monitoring, and water quality parameter monitoring requirements are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)
WQ.50.6.IA. Community water systems which exceed the lead or copper action level must meet source water monitoring requirements (IAC 567-41.4(1)(e)(1) through (5) and (1)(f)(1) through (5)).	Verify that water systems which fail to meet the lead or copper action level on the basis of tap samples collect lead and copper source water samples in accordance with the requirements regarding sample location, number of samples, and collection methods specified for IOC sampling. (NOTE: Where the results of sampling indicate an exceedance of maximum permissible source water levels specified by the Department, the Department may require that one additional sample be collected as soon as possible after the initial sample was taken, but not to exceed 2 wk, at the same sampling point. If a confirmation sample is taken for lead or copper, the results of the initial and confirmation samples must be averaged and the average used in determining compliance with the maximum permissible levels.) Verify that lead and copper analytical results below the detection limit is considered to be zero. Verify that analytical results above the detection limit but below the practical quantification level (PQL) are either considered as the measured value or one-half the PQL. (NOTE: The regulations for monitoring after an exceedance of the tap water action level, after installation of source water treatment, after the Department specifies maximum permissible source water levels, reduced monitoring frequency, and corrosivity monitoring are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: Corrosivity monitoring requirements are under the Monitoring/Sampling heading of the U.S. TEAM Guide, not under the Lead and Copper heading.)

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	Verify that systems identify whether or not the following construction materials are present in their distribution system and report the information to the Department: - lead from piping, solder, caulking, interior lining of distribution mains, alloys, and home plumbing - copper from piping and alloys, service lines, and home plumbing - galvanized piping, service lines, and home plumbing - ferrous piping materials, such as cast iron and steel - asbestos cement pipe - vinyl lined asbestos cement pipe - coal tar lined pipes and tanks.
WQ.50.7.IA. Community water systems must meet analytical methodology and reporting requirements for lead and copper (IAC 567-41.4(1)(g)(1) through (4)).	Verify that systems use USEPA, ASTM, SM, and USGS analytical methods for IOC monitoring (see definitions for ASTM, SM, and USGS.). Verify that analyses are conducted by laboratories certified by the Department. Verify that all lead levels measured between the PQL and the MDL are either reported as measured or reported as one-half the PQL. Verify that all lead levels below the lead MDL are reported as zero. Verify that all copper levels measured between the PQL and the MDL are either reported as measured or reported as one-half the PQL. Verify that all copper levels below the copper MDL are reported as zero.

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NONCOMMUNITY WATER SYSTEMS **WQ.60. Standards**	
WQ.60.1.IA. Noncommunity water systems using surface water or groundwater under the direct influence of surface water must meet MCL and analytical methodology requirements for macroscopic organisms and algae (IAC 567-41.2(4)(a), (b), and (e)).	Verify that finished water is free of any macroscopic organisms, such as plankton, worms, or cysts. Verify that the finished water algal cell count does not exceed 500 organisms/mL or 10 percent of the total cells found in the raw water, whichever is greater. Verify that systems measure algal cells using Method 10200F.
WQ.60.2.IA. Transient non-community water systems must meet MCL requirements for nitrate, nitrite, and total nitrate and nitrite (IAC 567-41.3(1)(a) and (b)(1)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)

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NONCOMMUNITY WATER SYSTEMS **WQ.65. Monitoring/Sampling**	
WQ.65.1.IA. Noncommunity water systems serving schools, including preschools and day care centers, must meet routine total coliform monitoring requirements (IAC 567-41.2(1)(c)(1)(3) and (1)(7)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: The U.S. TEAM Guide specifies the monitoring frequency for population sizes served above 3,960,001 and the IAC has adopted those frequencies only through population size 970,000. The frequency specified for systems serving 25 to 1000 persons also applies to systems which have at least 15 service connections, but serve fewer than 25 persons.) Verify that systems serving fewer than 4101 persons collect a minimum of five routine samples per month, unless the Department specifies another monitoring frequency. Verify that special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, are not be used to determine compliance with the MCL for total coliforms.
WQ.65.2.IA. Noncommunity water systems must meet routine total coliform monitoring requirements (IAC 567-41.2(1)(c)(1)(5) and (1)(7)).	(NOTE: The monitoring frequency regulations, until 29 June 1999, are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) Verify that systems which do not collect five or more routine total coliform samples each month undergo an initial sanitary survey by 29 June 1999. Verify that, after 29 June 1999, systems collect a minimum of five routine samples per month, unless otherwise indicated by the Department. Verify that special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, are not be used to determine compliance with the MCL for total coliforms.
WQ.65.3.IA. Noncommunity water systems must meet nitrate and nitrite compliance calculation requirements (IAC 567-41.3(1)(b)(2)(3) and (4)).	Verify that, if the MCL for nitrates and nitrites is exceeded, systems collect a confirmation sample and determine compliance based on the average of the initial and confirmation samples. (NOTE: The Department may allow systems which have a distribution system

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567-41.3(1)(b)(2)(3) and (4)).	separable from other parts of the distribution system with no interconnections to give public notice to only the area served by that portion of the system which is out of compliance.)
WQ.65.4.IA. Transient non-community water systems must meet monitoring requirements for nitrate, nitrite, and total nitrate and nitrite (IAC 567-41.3(1)(c)(2), (c)(5)(4), and (6)(1) through (4)).	(NOTE: The regulations for sampling points, composite sampling, and nitrate/nitrite detection limits are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) Verify that systems monitor for nitrates annually beginning 1 January 1993. Verify that systems take one initial nitrite sample at each sampling point in the compliance period beginning 1 January 1993 and ending 31 December 1995. Verify that, where an analytical result for nitrite is less than 0.5 mg/L (as nitrogen), systems monitor at the frequency specified by the Department. Verify that systems conduct repeat nitrite monitoring on a quarterly basis for at least 1 yr following any one sample in which the concentration is greater than or equal to 0.5 mg/L, as nitrogen. (NOTE: The Department may allow systems to reduce the nitrite sampling frequency to annually.) Verify that systems which are monitoring nitrites annually take each subsequent sample during the quarter(s) which previously resulted in the highest analytical result.
WQ.65.5.IA. Transient non-community and noncommunity water systems which exceed nitrate and nitrite MCL s must meet confirmation sampling requirements (IAC 567-41.3(1)(c)(7)(2)).	Verify that systems which exceed the MCL for nitrates or nitrites collect a confirmation sample within 24 h of notification of the results of the first sample. Verify that systems which do not meet the 24 h sampling requirement immediately notify the consumers served by the system and complete an analysis of a confirmation sample within 2 wk. of notification of the results of the first sample.

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NONTRANSIENT NONCOMMUNITY WATER SYSTEMS **WQ.76 Standards**	
WQ.76.1.IA. NTNC water systems must meet microbiological MCL requirements (IAC 567-41.2(1)(b)(1)(1), (b)(1)(2), (b)(2), and (b)(3)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) Verify that systems base compliance with the MCL for total coliforms on each month they are required to monitor for total coliforms.
WQ.76.2.IA. NTNC water systems must meet IOC MCL requirements (IAC 567-41.3(1)(a) and (b)(1)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: The MCL for fluoride specified in the U.S. TEAM Guide applies to community water systems only.)
WQ.76.3.IA. NTNC water systems must meet SOC, VOC MCL requirements (IAC 567-41.5(1)(a) and (b)(1) through (3)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)

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NONTRANSIENT NONCOMMUNITY WATER SYSTEM **WQ.77 Monitoring/Sampling**	
WQ.77.1.IA. NTNC water systems must meet total coliform monitoring requirements (IAC 567-41.2 (c)(1)(7)).	Verify that special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, are not be used to determine compliance with the MCL for total coliforms.
WQ.77.2.IA. NTNC water systems must meet IOC compliance calculation requirements (IAC 567-41.3(1)(b)(2)(1) through (4)).	Verify that systems monitoring more often than annually determine compliance with MCLs for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, mercury, nickel, selenium, and thallium by running an annual average at any sampling point. Verify that samples below the MDL are calculated at zero for the purpose of determining the annual average. Verify that, if confirmation samples are required by the Department, systems base compliance on the average of the two samples. Verify that, if the MCL for nitrates and nitrites is exceeded, systems collect a confirmation sample and determine compliance based on the average of the initial and confirmation samples. (NOTE: The Department may allow systems which have a distribution system separable from other parts of the distribution system with no interconnections to give public notice to only the area served by that portion of the system which is out of compliance.)
WQ.77.3.IA. NTNC water systems must meet routine IOC monitoring requirements (IAC 567-41.3(1)(c)(2) and (9)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: The regulations for IOC detection limits are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: For the initial analysis of any IOC, data for surface waters acquired within 1 yr prior to 1 January 1993 and data for groundwaters acquired within 3 yr

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	prior to 1 January 1993 may be substituted at the discretion of the Department.)
WQ.77.4.IA. NTNC water systems must meet asbestos monitoring requirements (IAC 567-41.3(1)(c)(3)(1) through (10)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) Verify that systems vulnerable to asbestos contamination due solely to source water monitor as specified for surface and groundwater in WQ.77.3.IA. (NOTE: If monitoring data collected after 1 January 1990 are generally consistent with asbestos monitoring requirements in the U.S. TEAM Guide, then the system may be allowed to use that data to satisfy the monitoring requirement for the initial compliance period beginning 1 January 1993.)
WQ.77.5.IA. NTNC water systems must meet monitoring frequency requirements for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, mercury, nickel, selenium, and thallium (IAC 567-41.3(1)(c)(4)(1) through (8)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: The Department may decrease the quarterly monitoring requirement.)
WQ.77.6.IA. NTNC water systems must meet monitoring requirements for nitrates and nitrites (IAC 567-41.3(1)(c)(5) and (6)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)
WQ.77.7.IA. NTNC water systems which exceed IOC MCLs must meet confirmation sampling requirements (IAC 567-41.3(1)(c)(7)(1) through (3)).	(NOTE: Systems which exceed the MCL for asbestos, barium, cadmium, chromium, mercury, or selenium may be required by the Department to collect one additional sample as soon as possible after the initial sample was taken, but not exceeding 2 wk, at the same sampling point. Results of confirmation samples collected within this time frame must be averaged with the results of the initial sample and this average used to determine MCL compliance.) Verify that systems which exceed the MCL for nitrates or nitrites collect a confirmation sample within 24 h of notification of the results of the first sample. Verify that systems which do not meet the 24 h sampling requirement immediately notify the consumers served by the system and complete an analysis of a

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	confirmation sample within 2 wk of notification of the results of the first sample.
WQ.77.8.IA. NTNC water systems must meet IOC analytical methodology requirements (IAC 567-41.3(1)(e)(1), (2), (4), and (1)(f)).	Verify that systems use USEPA, ASTM, SM, and USGS analytical methods for IOC monitoring (see Definitions for ASTM, SM, and USGS.). Verify that systems meet sample preservation, container, and maximum holding time procedure requirements for collection of samples for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, mercury, nickel, nitrate, nitrite, selenium, and thallium. Verify that USEPA analytical methods are used for unregulated IOC monitoring.
WQ.77.9.IA. NTNC water systems must meet organic chemical compliance calculation requirements (IAC 567-41.5(1)(b)(4)).	Verify that systems monitoring more often than annually determine compliance with MCLs for organic chemicals by running an annual average at any sampling point. Verify that samples below the MDL are calculated at zero for the purpose of determining the annual average. Verify that, if confirmation samples are required by the Department, systems base compliance on the average of the two samples. (NOTE: The Department may allow systems which have a distribution system separable from other parts of the distribution system with no interconnections to give public notice to only the area served by that portion of the system which is out of compliance.)
WQ.77.10.IA. NTNC water systems must meet treatment technique requirements for acrylamide and epichlorohydrin (IAC 567-41.5(1)(b)(5)).	Verify that systems annually provide written certification to the Department, using third party or manufacturer's certification, that when acrylamide and epichlorohydrin are used in drinking water systems, the combination, or product, of dose and monomer level does not exceed the following levels: - acrylamide = 0.05 percent dosed at 1 ppm (or equivalent) - epichlorohydrin = 0.01 percent dosed at 20 ppm (or equivalent).
WQ.77.11.IA. NTNC water systems must meet VOC monitoring requirements (IAC 567-41.5(1)(c)(1)(2)(1) through (2)(6), (2)(8) through (2)(11), and (1)(4)).	Verify that systems began monitoring VOCs on 1 January 1993. (NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: Groundwater systems which do not detect a VOC contaminant may apply

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(2)(11), and (1)(4)).	to the Department for a waiver from initial monitoring frequency. Groundwater systems with waivers must take one sample at each sampling point during the time the waiver is effective and update its vulnerability assessment.) (NOTE: Small systems may have a waiver for the initial round of monitoring for 1,2,4-trichlorobenzene. Detection is defined as greater than or equal to 0.0005 mg/L.) (NOTE: Surface water systems which do not detect a VOC contaminant may apply to the Department for a waiver after initial monitoring.) (NOTE: The Department may decrease quarterly monitoring requirement to annually. Systems monitoring annually must monitor during the quarter(s) which previously yielded the highest analytical result. Systems which have three consecutive annual samples with no detection of a contaminant may apply for a waiver.) (NOTE: If the results of the first required analyses do not detect vinyl chloride, the Department may reduce quarterly monitoring to one sample required during each compliance period.) Verify that surface water systems monitor for vinyl chloride as specified by the Department. Verify that, if a confirmation sample is required, systems average the result with the first sampling result and use the average for determination of compliance.
WQ.77.12.IA. NTNC water systems must meet SOC monitoring requirements (IAC 567-41.5(1)(c)(1)(3)(1) through (3)(5), (3)(7), (3)(8), and (1)(4))	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: Systems may apply to the Department for a waiver from specific SOC monitoring requirements.) Verify that, if a confirmation sample is required, systems average the result with the first sampling result and use the average for determination of compliance.
WQ.77.13.IA. NTNC water systems must meet composite sampling requirements (IAC 567-41.5(1)(c)(1)(5)(1) through (5)(3), and (5)(6)).	(NOTE: The Department may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed, provided the detection limit of the method used for analysis is less than one-fifth of the MCL.) Verify that compositing of samples is done in the laboratory and analyzed within 14 days of sample collection. Verify that, if the concentration in the composite sample is greater than or equal to 0.0005 mg/L for any VOC or SOC contaminant, systems collect a follow-up

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	sample from each sampling point included in the composite and analyze it within 14 days. (NOTE: If duplicates of the original sample taken from each sampling point used in the composite are available, the system may use these instead of resampling. The duplicate must be analyzed and the results reported to the Department within 14 days of collection.) (NOTE: Compositing may only be permitted by the Department at sampling points within a single system, unless the population served by the system is less than 3300 persons. In systems serving less than or equal to 3300 persons the Department may permit compositing among different systems provided the five sample limit is maintained.) (NOTE: The Department may allow the use of monitoring data collected after 1 January 1988, for VOCs, and 1 January 1990, for SOCs, for purposes of initial monitoring compliance. If the data meet other requirements, the Department may use the data to meet the initial monitoring requirement for the initial compliance period beginning 1 January 1993. Systems which use grandfathered samples for VOCs and which did not detect any VOC contaminants must have begun monitoring annually beginning 1 January 1993.)
WQ.77.14.IA. NTNC water systems must meet analytical methodology requirements for endrin, VOCs, and SOCs (IAC 567-41.5(1)(f)(1) through (3)).	Verify that systems monitor for VOCs and SOCs using USEPA methods. Verify that systems monitor for endrin using USEPA Methods 505 and 508.
WQ.77.15.IA. NTNC water systems must meet monitoring requirements for unregulated organic chemicals (IAC 567-41.11(1)(b) through (d)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: Systems may be required to monitor for the following additional unregulated organic chemicals: - ethylene dibromide and 1,2-dibromo-3-chloropropane - 1,2,4-trimethylbenzene - 1,2,3-trichlorobenzene - n-propylbenzene - n-butylbenzene - naphthalene - hexachlorobutadiene - 1,3,5-trimethylbenzene - p-isopropyltoluene - isopropylbenzene - tert-butylbenzene

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	- sec-butylbenzene - fluorotrichlormethane - dichlorodifluoromethane - bromochloromethane.) (NOTE: The Department may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed.) Verify that compositing of samples is done in the laboratory and analyzed within 14 days of sample collection. (NOTE: Compositing may only be permitted by the Department at sampling points within a single system, unless the population served by the system is less than 3300 persons. In systems serving less than or equal to 3300 persons the Department may permit compositing among different systems provided the five sample limit is maintained.) Verify that analyses are performed by laboratories certified by the Department.
WQ.77.16.IA. NTNC water systems must meet special monitoring requirements for IOCs and VOCs (IAC 567-41.11(2)(a) through (c)(4), and (c)(6) through (c)(8)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: The U.S. TEAM Guide includes aldicarb, aldicarb sulfone, and aldicarb sulfoxide but the state regulations do not.) Verify that systems use USEPA methods to conduct special monitoring requirements for IOCs and VOCs. (NOTE: The Department may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed. The Department may waiver monitoring requirements.) Verify that compositing of samples is done in the laboratory and analyzed within 14 days of sample collection. (NOTE: Compositing may only be permitted by the Department at sampling points within a single system, unless the population served by the system is less than 3300 persons. In systems serving less than or equal to 3300 persons the Department may permit compositing among different systems provided the five sample limit i maintained.) (NOTE: Systems serving fewer than 150 service connections may send a letter by 1 January 1994 which states that it is available for sampling, instead of performing the required monitoring for this section.)

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NONTRANSIENT NONCOMMUNITY WATER SYSTEM **WQ.78** **Lead and Copper**	
WQ.78.1.IA. NTNC water systems must meet lead and copper action levels (IAC 567-41.4(1)(b)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)
WQ.78.2.IA. NTNC water systems must meet tap sample site selection requirements (IAC 567-41.4(1)(c)(1)(1), (2), (6), and (7)).	(NOTE: These regulations are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) Verify that systems use the information on lead, copper, and galvanized steel when conducting a materials evaluation. (NOTE: Systems are required to collect this information as part of their responsibility for the special monitoring for corrosivity characteristics.) Verify that, when an evaluation of the information collected is insufficient to locate the requisite number of lead and copper sampling sites that meet targeting criteria, systems review the following: - all plumbing codes, permits, and records in the files of the building department(s) which indicate the plumbing materials that are installed within publicly and privately owned structures connected to the distribution system - all inspections and records of the distribution system which indicate the material composition of the service connections that connect a structure to the distribution system - all existing water quality information which includes the results of all prior analyses of the system or individual structures connected to the system and which indicates locations that may be particularly susceptible to high lead or copper concentrations. Verify that systems also seek to collect this information where possible in the course of its normal operations (e.g., checking service line materials when reading water meters or performing maintenance activities).
WQ.78.3.IA. NTNC water systems must meet tap sample	Verify that systems whose sampling pool does not consist exclusively of tier 1 sites submit a letter to the Department which demonstrates why a review of the

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site selection reporting requirements (IAC 567-41.4(1)(c)(1)(8)).	information listed in WQ.50.3.IA was inadequate to locate a sufficient number of tier 1 sites. Verify that systems whose distribution system contains lead service lines draws 50 percent of the samples it collects during each monitoring period from sites that contain lead pipes or copper pipes with lead solder and the other 50 percent from sites served by a lead service line. Verify that a system which cannot identify a sufficient number of sampling sites served by a lead service line submits a letter to the Department which demonstrates why it was unable to locate a sufficient number of sites and collects first-draw samples from all of the sites identified as being served by lead service lines.
WQ.78.4.IA. NTNC water systems must meet tap sample collection requirements (IAC 567-41.4(1)(c)(2)(1) through (4)).	Verify that tap samples for lead and copper, with the exception of lead service line samples, are first-draw samples. Verify that first-draw tap samples for lead and copper are 1 L and stood motionless in the plumbing system of each sampling site for at least 6 h. Verify that first-draw samples from residential housing are collected from the cold-water kitchen tap or bathroom sink tap and first-draw samples from nonresidential buildings are collected at an interior tap from which water is typically drawn for consumption. (NOTE: First-draw samples may be collected by the system or the system may allow residents to collect them after instructing the residents of the sampling procedures. To avoid problems of residents handling nitric acid, acidification of first-draw samples may be done up to 14 days after the sample is collected. If the sample is not acidified immediately after collection, then the sample must stand in the original container for at least 28 h after acidification. If a system allows residents to perform sampling it may not challenge the accuracy of sampling results, based on alleged errors in sample collection.) Verify that service line samples collected to determine if the service line is directly contributing lead are 1 L and have stood motionless in the lead service line for at least 6 h and are collected at the tap after flushing the volume of water between the tap and the lead service line. (NOTE: The volume of water must be calculated based on the interior diameter and length of the pipe between the tap and the lead service line; tapping directly into the lead service line; or, if the sampling site is a building constructed as a single-family residence, allowing the water to run until there is a significant change in temperature which would be indicative of water that has been standing in the lead service line.) Verify that systems collect each first-draw tap sample from the same sampling site

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	from which it collected a previous sample. (NOTE: If the system cannot gain entry to a sampling site in order to collect a follow-up tap sample, the system may collect the follow-up sample from another sampling site in its sampling pool as long as the new site meets the same targeting criteria and is within reasonable proximity of the original site.)
WQ.78.5.IA. NTNC water systems must meet specific monitoring requirements (IAC 567-41.4(1)(c)(3), (4), and (1)(d)).	(NOTE: The regulations for number of tap samples, timing of tap monitoring, monitoring after installation of corrosion control and source water treatment, reduced monitoring, and water quality parameter monitoring requirements are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.)
WQ.78.6.IA. NTNC water systems which exceed the lead or copper action level must meet source water monitoring requirements (IAC 567-41.4(1)(e)(1) through (5) and (1)(f)(1) through (5)).	Verify that water systems which fail to meet the lead or copper action level on the basis of tap samples collect lead and copper source water samples in accordance with the requirements regarding sample location, number of samples, and collection methods specified for IOC sampling. (NOTE: Where the results of sampling indicate an exceedance of maximum permissible source water levels specified by the Department, the Department may require that one additional sample be collected as soon as possible after the initial sample was taken, but not to exceed 2 wk, at the same sampling point. If a confirmation sample is taken for lead or copper, the results of the initial and confirmation samples must be averaged and the average used in determining compliance with the maximum permissible levels.) Verify that lead and copper analytical results below the detection limit is considered to be zero. Verify that analytical results above the detection limit but below the PQL are either considered as the measured value or one-half the PQL. (NOTE: The regulations for monitoring after an exceedance of the tap water action level, after installation of source water treatment, after the Department specifies maximum permissible source water levels, reduced monitoring frequency, and corrosivity monitoring are essentially the same as the Federal regulations. See the U.S. TEAM Guide for specific requirements.) (NOTE: Corrosivity monitoring requirements are under the Monitoring/Sampling heading of the U.S. TEAM Guide, not under the Lead and Copper heading.) Verify that systems identify whether or not the following construction materials are present in their distribution system and report the information to the Department:

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	- lead from piping, solder, caulking, interior lining of distribution mains, alloys, and home plumbing - copper from piping and alloys, service lines, and home plumbing - galvanized piping, service lines, and home plumbing - ferrous piping materials, such as cast iron and steel - asbestos cement pipe - vinyl lined asbestos cement pipe - coal tar lined pipes and tanks.
WQ.78.7.IA. NTNC water systems must meet analytical methodology and reporting requirements for lead and copper (IAC 567-41.4(1)(g)(1) through (4)).	Verify that systems use USEPA, ASTM, SM, and USGS analytical methods for IOC monitoring (see Definitions for ASTM, SM, and USGS.) Verify that analyses are conducted by laboratories certified by the Department. Verify that all lead levels measured between the PQL and the MDL are either reported as measured or reported as one-half the PQL. Verify that all lead levels below the lead MDL are reported as zero. Verify that all copper levels measured between the PQL and the MDL are either reported as measured or reported as one-half the PQL. Verify that all copper levels below the copper MDL are reported as zero.

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STATE SPECIFIC CATEGORIES OF WATER SYSTEMS **WQ.85.** **Private/Other**	
WQ.85.1.IA. Regional water systems must meet routine total coliform monitoring requirements (IAC 567-41.2(1)(c)(1)(4) and (c)(1)(7)).	Verify that systems sample for coliform bacteria at the frequencies specified in Appendix 13-1. (NOTE: At no time may the sampling frequency be less than that specified for community water systems, which is based on population sizes served.) Verify that systems with less than 82 mi of pipe collect a minimum of five routine total coliform samples per month, unless the Department specifies another monitoring frequency. Verify that special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, are not be used to determine compliance with the MCL for total coliforms.

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DRINKING WATER WELL **WQ.90. General**	
WQ.90.1.IA. Certified well contractors must meet specific requirements (IAC 567-82.12(1)(a) and (b)).	Verify that certified well contractors submit drilling records and drill cutting samples to the Geological Survey Bureau of the Department of Natural Resources as follows: - within 30 days of completion of any water well used as part of a public water supply, well used for withdrawal of water for which a permit is required by rule IAC 567-50.1, or wells used to monitor groundwater quantity or quality - within 30 days of completion of any water well used as part of a nonpublic water supply or other water wells used to access groundwater.
Nonpublic Water Wells	
WQ.90.2.IA. Nonpublic water wells must meet location requirements (IAC 567-49.5(1), (3), and (4)).	Verify that nonpublic water wells meet the minimum lateral distance requirements specified in Appendix 13-2. Verify that nonpublic water wells are located, in relation to buildings, so that they are reasonably accessible for cleaning, treatment, repair, test, inspection, and other maintenance. Verify that nonpublic water wells are not located in basements. Verify that a nonpublic water well is not located in areas subject to flooding unless the casing is grouted and extends at least 1 ft above the level of the highest known flood and is equipped with a well cap, or is protected as specified by the Administrative Authority. Verify that the ground surface immediately adjacent to a nonpublic water well, located in an area subject to flooding, is compacted and graded so that surface water is diverted away from the casing. (NOTE: Well platforms are not recommended.)
WQ.90.3.IA. Nonpublic water wells must meet specific	Verify that water used during construction is obtained from a source that will not result in contamination of the well and that the water utilized is chlorinated with an

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well construction standards (IAC 567-49.6(1) through (3)(a), (6), (8), and (11)).	initial dosage of 50 mg/L (50 ppm). Verify that nonpublic well water is not derived from a depth of less than 20 ft unless a variance has been granted. Verify that nonpublic water wells are not located within frost pits. (NOTE: Nonpublic water wells are permitted within frost pits of augured or bored wells which do not penetrate consolidated formations.) Verify that the uppermost terminal of all nonpublic water wells extends at least 12 in. above the established grade and is equipped with an appropriate well cap or sanitary seal. Verify that vents meet the following requirements: - vents are constructed to exclude dust, birds, animals, and insects - vents terminate in an inverted U construction - the opening of the vent is at least 12 in. above the ground surface and is covered with a brass, bronze, or copper 16-mesh screen. Verify that new nonpublic wells and wells which have undergone major rehabilitation or reconstruction are equipped with an access port which meets the following: - has a minimum diameter of 3/4 in. - is fitted with a threaded cap or plug - is located to allow insertion of a steel tape or electric probe into the well for measurement of water levels. (NOTE: When a spool type of pitless adapter is used which obstructs the casing from having a clear opening to the water, a 3/4 in. pipe must be attached to the spool and brought to the surface below the well cap to facilitate a water level probe.)
WQ.90.4.IA. Nonpublic water wells must meet pump installation requirements (IAC 567-49.9(1) through (3)).	Verify that pump houses are above the established grade and permit access to the well and pump for maintenance and repair. Verify that the pump room is provided with an independent floor drain that discharges to the ground surface and that the outside opening of this drain line is fitted with a brass, bronze, or copper 16-mesh screen. Verify that the top of the well casing terminates at least 12 in. above the pump house floor and that the floor is sloped away from the casing, which has a watertight seal of asphalt or similar material between it and the pump house floor. Verify that all pumps are designed, installed, and maintained so that priming is not

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	required for ordinary use and that pumps which have unprotected openings into the interior of the pump or casing are not used.
WQ.90.5.IA. Nonpublic water wells must meet disinfection, water analysis, and abandonment requirements (IAC 567-49.10, 49.11, and 49.13).	Verify that all new, repaired or reconditioned nonpublic water wells or pump installations are thoroughly pumped to waste until all dirt and foreign materials are removed and the water is reasonably clear and that superchlorination is accomplished simultaneously throughout the water well distribution system by the contractor. (NOTE: Superchlorination is accomplished with calcium or sodium hypochlorite compounds with a concentration of at least 100 ppm.) Verify that the contractor or owner of a new, repaired or reconditioned nonpublic water well or pump installation submit a water specimen too the university hygienic laboratory at Iowa City or to another approved laboratory for bacterial and nitrate analysis. Verify that abandoned wells are not used for the disposal of garbage, septic tank sludge or effluents, as a receptacle for field tile drainage, or for any other type of unauthorized disposal of waste materials.
WQ.90.6.IA. Abandoned wells must meet plugging requirements (IAC 567-39.2, 39.5(1), (2), and (4), and 39.6(2)).	(NOTE: Some examples of types of wells covered by this section are those accessing groundwater (withdrawing water from or injecting water into the groundwater) and include, but are not limited to, the following: - public and nonpublic water wells - test wells - observation wells - monitoring wells - agricultural drainage wells - heat pump recirculation wells - cooling water wells.) Some examples of wells not covered by this section include, but are not limited to, the following: - small diameter (2 in. or less) test holes - observation or monitoring wells installed for a limited time which can be sealed by withdrawal of the casing and allowing the hole to collapse - soil borings - septic tanks - underground storage tanks - cisterns, if not used for accessing groundwater.) Verify that Class 1 wells abandoned prior to 25 April 1990 are properly plugged. Verify that Class 2 and 3 wells abandoned prior to 25 April 1990 are properly

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	plugged by 1 July 2000. Verify that all classes of wells abandoned on or after 25 April 1990 are properly plugged within 90 days of the date of abandonment. Verify that an Abandoned Water Well Plugging Record is submitted within 30 days of the date of plugging completion.
WQ.90.7.IA. Standby wells must meet specific standards (IAC 567-39.10(1)).	Verify that standby wells are disinfected according to *American Water Works Association Standard A100* prior to being taken out of use for a long period of time and are disinfected and checked for bacteria and nitrates when placed back in service. Verify that standby wells are not subject to contaminations by surface drainage or from other causes. Verify that standby well casings are provided with an airtight cover when the well is not in use. Verify that wells are repaired so that there is no degradation of groundwater and it is suitable for use prior to being classified as a standby well.
WQ.90.8.IA. Private water wells must meet permitting requirements (IAC 567-38.3(1), 38.6, and 38.8(2)).	Verify that landowner's or their agents have a valid construction permit prior to drilling or constructing a new private water well. (NOTE: Examples of private water wells requiring well construction permits include, but are not limited to, the following: - domestic wells - livestock wells - irrigation wells - recreational-use wells - monitoring wells - heat pump wells - industrial wells - dewatering wells, except that dewatering wells are exempt from the construction standards for nonpublic water wells.) Verify that a private well construction permit is obtained for all replacement wells. (NOTE: A private well construction permit is not required for the repair, maintenance, rehabilitation, or reconstruction of an existing well. This includes deepening the well and changing the diameter or length of the casing or the screen. A private well construction permit is not a water withdrawal permit.) Verify that a water withdrawal permit is obtained prior to withdrawal of more than

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WQ.90.9.IA. Hazardous waste must not be disposed of in wells (IAC 567-141.7).	25,000 gpd of water from any source or combination of sources. Verify that hazardous waste is not disposed of in wells.

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WQ.120. WATER USE PERMITS **WQ.120.1.IA.** [Deleted, May 1998].	
WQ.120.2.IA. Use, diversion, or storage of water must be reported to the Department (IAC 567-52.6) [Revised, May 1998].	Verify that reports of water used, diverted, or stored are submitted to the Department by the permittee.
WQ.120.3.IA. Withdrawal, diversion, or storage of water requires a water permit or registration (IAC 567-51.2, 567-51.3, and 567-51.6) [Revised May 1998].	Verify that a permit is obtained for any of the following: - storage of 18 acre-ft or more of water in permanent storage - diversion of water or any other material from the surface directly into any aquifer, including diversion by means of an agricultural drainage well - withdrawal of groundwater for use solely as a coolant in a closed system without returning such ground water to the aquifer - use of more than 25,000 gal of water per day. (NOTE: Water storage permits are not required for the following: - waste stabilization lagoons - waste storage basins - other similar structures used solely for waste water treatment or disposal.) (NOTE: A permit is not required for the following uses of more than 25,000 gal/day: - withdrawals of water to lower the water table as necessary at a construction site are exempt except when such withdrawals can reasonably be expected to cause material damage to public or private interest - use of water which is minor, nonrecurring use, including but not limited to highway construction and maintenance, charging lagoons, drilling wells, and hydrostatic testing of pipelines (may need to be registered with the Department however) - groups who have a research contract with the Geological Survey Bureau of the Department - operators of a hydraulic dredge that returns all water used as a transport medium directly back into the pit from which it is withdrawn by the dredge (excavation of rock and gravel products) - withdrawal of water from a gravel pit or rock quarry sump pit for material washing if the wash water is discharged directly back into the pit from which

COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Iowa Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:** **April 2000**
WQ.120.4.IA. [Moved to and combined with WQ.120.3.IA., May 1998]. **WQ.120.5.IA.** [Moved to WQ.120.3.IA., May 1998].	it was withdrawn.)

Appendix 13-1

Total Coliform Monitoring Frequency for Regional Water Systems
(Source: IAC 567-41.2(1)(c)(1)(4))

Miles of Pipe	Samples/Month - Minimum
0 - 9	1
10 - 25	2
26 - 49	3
50 - 81	4
82 - 121	5
122 - 169	6
170 - 225	7
226 - 289	8
290 - 361	9
362 - 441	10
442 - 529	11
530 - 625	12
626 - 729	13
730 - 841	14
842 - 961	15
962 - 1089	16
1090 - 1225	17
1226 - 1364	18
1365 - 1521	19
1522 - 1681	20
1682 - 1849	21
1850 - 2025	22
2026 - 2209	23
2010 - 2401	24
2402 - 2601	25
2602 - 3249	28
3250 - 3721	30
3722 - 4489	33
greater than 4489	35

Appendix 13-2

Minimum Lateral Distance Requirements for Nonpublic Water Wells
(Source: IAC 567-49.5(2))

Sources of Contamination	Minimum Lateral Distance (ft)
Lagoons or waste treatment facilities and sanitary landfills	1000
Cesspools	150
Preparation or storage area for spray materials, commercial fertilizers, or chemicals that may result in groundwater contamination	150
Drainage or improperly abandoned wells	100
Soil absorption field, pit privy or similar disposal unit	100
Confined feeding operations	100
Septic tank, concrete vault privy, sewer or tightly joint tile or equivalent material, sewer-connected foundation drain, or sewers under pressure	50
Ditches, streams, or lakes	25
Sewer of cast iron with leaded or mechanical joints, independent clear water drains, or cisterns	10
Pump house floor drain draining to ground surface (drains must not be connected to any sewer or drainage system)	5