

Agenda

Environmental Protection Commission

Wednesday, May 20, 2026

Teleconference: 614-686-0310 PIN: 564 757 480#

Video Conference: meet.google.com/wps-igfq-dsb

Residence Inn by Marriott Coralville

2681 James St Coralville, IA, 52241

Hotel Conference Room

Tuesday, May 19, 2026

Commissioners will be touring Cedar Rapids on Tuesday, May 19th. Members of the public that wish to attend the tour should email Alicia.Plathe@dnr.iowa.gov for tour details no later than Friday, May 15th.

Wednesday, May 20, 2026

9:30 AM – EPC Business Meeting

If you are unable to attend the business meeting, comments may be submitted for public record to Alicia Plathe at Alicia.Plathe@dnr.iowa.gov or 6200 Park Ave, Des Moines IA 50321 up to 24 hours prior to the business meeting.

1	Approval of Agenda	
2	EPC Officer Election	
3	Approval of the Minutes	
4	Monthly Reports	Amie Davidson (Information)
5	Director’s Remarks	Kayla Lyon (Information)
6	Contract Amendment with the State Hygienic Laboratory at the University of Iowa- Drinking Water Sample Analysis, PFAS Regulation	Kathy Lee (Decision)
7	Air Quality – Fiscal Year 2027 Fee Schedule	Wendy Walker (Decision)
8	Derelict Building Grant Program – Grant Recommendations	Reid Bermel (Decision)
9	Contract with EcoSource, LLC-Assessment, Free Product Recovery, and Corrective Action at Leaking Underground Storage Tank (LUST) Sites	Tammy Vander Bloemen (Decision)
10	Contract Amendment with Iowa State University GIS Facility-GIS Services	Monica Thelen (Decision)
11	Contract with Grant Tech, Inc.- Technical Consulting and Training Services to Optimize Mechanical Wastewater Treatment Facilities	Adam Schnieders (Decision)
12	Contract with Iowa Department of Agriculture and Land Stewardship (IDALS)-Big Hollow Lake Project	Miranda Haes (Decision)
13	Contract with Resource Conservation and Development for Northeast Iowa, Inc.- Turkey River Watershed Management Authority Watershed Management Plan Update	Steve Konrady (Decision)
14	Contract Amendment with Iowa State University, Conservation Learning Group- Watershed Innovation Farm	Steve Konrady (Decision)
15	Contract with the State Hygienic Laboratory (SHL) at the University of Iowa- Sampling and Analytical Services for the Ambient Biological Monitoring and Assessment Program	Ken Krier (Decision)
16	Amended Notice of Intended Action- Chapter 101 “Sanitary Disposal Projects”, Chapter 106 “Citizen Convenience Centers and Transfer Stations”, Chapter 113 “Sanitary Landfills for Municipal Solid Waste: Groundwater Protection Systems for	Brian Rath (Decision)

the Disposal of Nonhazardous Wastes”, Chapter 114 “Sanitary Landfills: Construction and Demolition Wastes”, and Chapter 115 “Sanitary Landfills: Industrial Monofills”

- | | | |
|----|--|------------------------------|
| 17 | Amended Notice of Intended Action-Chapters 102 “Permits and Rules of Practice”; 108, Beneficial Use Determinations: Solid By-Products as Resources and Alternative Cover Material”; 116 “Registration of Waste Tire Haulers”, 117 “Waste Tire Management”, 118 “Discarded Appliance Demanufacturing”, 120 “Landfarming of Petroleum Contaminated Soil”, 121 “Land Application of Wastes”, and 122 “Cathode Ray Tube Recycling” | Theresa Stiner
(Decision) |
| 18 | Amended Notice of Intended Action-Chapter 135 “Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks” | Keith Wilken
(Decision) |
| 19 | Upcoming Meetings <ul style="list-style-type: none">• Tuesday, June 16, Des Moines• Tuesday, July 21, Des Moines | |

For details on the EPC meeting schedule, visit <http://www.iowadnr.gov/About-DNR/Boards-Commissions>

The Iowa Department of Natural Resources (DNR) does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender identity, national origin, English-language proficiency, disability, or age in the administration of its programs or activities in accordance with applicable laws and regulations. DNR will not tolerate discrimination, intimidation, threats, coercion, or retaliation against any individual or group because they have exercised their rights protected by federal or state law.

¹Comments during the public participation period regarding proposed rules or notices of intended action are not included in the official comments for that rule package unless they are submitted as required in the Notice of Intended Action.

Any person with special requirements such as those related to mobility or hearing impairments who wishes to participate in the public meeting should promptly contact the DNR or ADA Coordinator at 515-725-8200, Relay Iowa TTY Service 800-735-7942, or Webmaster@dnr.iowa.gov to advise of specific needs.

**MINUTES OF THE
ENVIRONMENTAL PROTECTION COMMISSION
MEETING**

March 24, 2026

**6200 Park Ave, Des Moines, Iowa, 50321 and
Video Teleconference**

Approved by the Commission **TBD**

RECORD COPY

File Name Admin 01-05

Sender's Initials ap

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Meeting Minutes

CALL TO ORDER

The meeting of the Environmental Protection Commission (Commission or EPC) was called to order by Chair Stutsman at 10:30 am on March 24, 2026 via video/teleconference attendees.

COMMISSIONERS PRESENT

- Patricia Foley
- Jason Ballard
- Dawn Refsell
- Kyle Tobiason
- Mark Stutsman
- Rebecca Dostal
- Roger Zylstra

COMMISSIONERS ABSENT

- Amy Echard
- Jim Christensen

APPROVAL OF AGENDA

Motion was made by Rebecca Dostal to approve the agenda as presented. Seconded by Patricia Foley.

Chairperson Mark Stutsman asked for a voice vote. There were no nay votes. Motion passes.

APPROVED AS PRESENTED

APPROVAL OF MINUTES

Motion was made by Roger Zylstra to approve the item as presented. Seconded by Dawn Refsell.

Chairperson Mark Stutsman asked for a voice vote. There were no nay votes. Motion passes.

APPROVED AS PRESENTED

MONTHLY REPORTS

- Division Administrator Ed Tormey announced that after 36 years practicing environmental law and serving as an environmental administrator, he will be retiring on March 26th. Mr. Tormey spoke briefly of his career as well as his future endeavors post-retirement. Several Commissioners expressed their gratitude for his service and wished Mr. Tormey well in his retirement.
- Mr. Tormey and General Counsel McIntosh provided a brief update regarding the legislative 2nd funnel.

INFORMATION

AIR QUALITY-FISCAL YEAR 2027 DRAFT BUDGET REVIEW

Wendy Walker and Sarah Piziali presented the draft Air Quality FY27 draft budget. Ms. Walker provided an overview of the budget, including proposed fee increases. The Air Quality budget will be presented at the May EPC meeting as a decision item. Ms. Walker and Ms. Piziali responded to questions regarding the sustainability of the budget.

INFORMATION

CLEAN WATER AND DRINKING WATER STATE REVOLVING LOAN FUND (CWDRSRF)-FY 2026 INTENDED USE PLANS-FOURTH QUARTER UPDATE

Theresa Enright requested Commission approval of the CWDRSRF FY 2026 Intended Use Plans. Ms. Enright noted there have not been any delinquencies by a program applicant in the program’s history, giving credit to the flexibility of the program. At the conclusion of her presentation, Ms. Enright provided a year-end review of the program’s projects and funding.

Public Comments: None

Written Comments: None

*Motion was made by Patricia Foley to approve the item as presented. Seconded by Rebecca Dostal.
Chairperson Mark Stutsman asked for a roll call vote. Dawn Refsell-aye, Amy Echard-absent, Jim Christensen-absent, Jason Ballard-aye, Rebecca Dostal-aye, Kyle Tobiason-aye, Patricia Foley-aye, Roger Zylstra-aye, Mark Stutsman-aye.
Motion passes.*

APPROVED AS PRESENTED

CONTRACT WITH IOWA STATE UNIVERSITY-CLEAN WATERSHEDS NEEDS SURVEY

Satya Chennupati requested Commission approval for a contract with Iowa State University for the Clean Watersheds Needs Survey.

Public Comments: None

Written Comments: None

*Motion was made by Rebecca Dostal to approve the item as presented. Seconded by Patricia Foley.
Chairperson Mark Stutsman asked for a roll call vote. Dawn Refsell-aye, Amy Echard-nay, Jim Christensen-nay, Jason Ballard-aye, Rebecca Dostal-aye, Kyle Tobiason-aye, Patricia Foley-aye, Roger Zylstra-nay, Mark Stutsman-aye.
Motion passes.*

APPROVED AS PRESENTED

CONTRACT WITH IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP (IDALS)- YELLOW RIVER HEADWATERS WATER QUALITY PROJECT

Miranda Haes requested Commission approval for a contract with IDALS for the continuation of the Yellow River Headwaters Water Quality Project. Ms. Haes noted that the current watershed management plan for the Yellow River watershed is written for 20 years, starting in 2015.

Public Comments: None

Written Comments: None

*Motion was made by Patricia Foley to approve the item as presented. Seconded by Jason Marcel.
Chairperson Mark Stutsman asked for a roll call vote. Dawn Refsell-aye, Amy Echard-nay, Jim Christensen-nay, Jason Ballard-aye, Rebecca Dostal-aye, Kyle Tobiason-aye, Patricia Foley-aye, Roger Zylstra-nay, Mark Stutsman-aye.
Motion passes.*

APPROVED AS PRESENTED

The EPC took a brief recess from 11:01am to 11:05am to verify that neither the Counsel for Troy Sedore, nor Mr. Troy Sedore, was in attendance or en route to the meeting before the Department proceeded with their presentation requesting referral of Troy Sedore to the Attorney General.

REFERRAL OF TROY SEDORE TO THE ATTORNEY GENERAL

Noah Poppelreiter requested the referral of Troy Sedore to the Attorney General for violations to Iowa’s solid waste laws, air quality laws, water quality laws, and waste tire laws. Mr. Poppelreiter stated for the record the communications shared with Troy Sedore and his Counsel regarding the hearing prior to today’s meeting date.

Public Comments: None

Written Comments: None

Motion was made by Dawn Refsell to approve the item as presented. Seconded by Rebecca Dostal.

Chairperson Mark Stutsman asked for a roll call vote. Dawn Refsell-aye, Amy Echard-nay, Jim Christensen-nay, Jason Ballard-aye, Rebecca Dostal-aye, Kyle Tobiason-aye, Patricia Foley-aye, Roger Zylstra-nay, Mark Stutsman-aye.

Motion passes.

APPROVED AS PRESENTED

GENERAL DISCUSSION

- Alicia Plathe provided a brief overview of the May EPC tour itinerary.

ADJOURN

Chairperson Mark Stutsman adjourned the Environmental Protection Commission meeting at 11:28 am on March 24, 2026.

ADJOURNED

**Monthly Waiver Report
March 2026**

Item #	DNR Reviewer	Facility/City	Program	Subject	Decision	Date	Agency
1	Mitchell VanderVee	Lansing Water Supply	WC - Water Supply Construction	Waiver requested to allow costs for service line work to be deemed eligible for the City of Lansing drinking water state revolving fund (DWSRF) project (WSE project W2023-0625).	Approved	2.04.26	26wcw027
2	Nate Tatar	Loparex, Inc.	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	2.11.26	26aqw028
3	Tara Naber, PE	City of Wellman	WC - Water Supply Construction	Waiver requested to allow costs for service line work to be deemed eligible	Approved	2.12.26	26wcw029
4	Karen Kuhn	Heidelberg Materials US Cement	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	2.13.26	26aqw030
5	Jasmine Bootman	Two Rivers Cooperative - Monroe (SBGP)	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	2.17.26	26aqw031
6	Danjin Zulic	MasterBrand Cabinets	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	2.24.26	26aqw032
7	Julie Ritter	Cambrex Charles City	AQ	Request to operate a temporary diesel engine (1,500 kW) for 8 months to power an air handling unit. The air handling unit provides heated air to a chemical-handling work center (Pharma 1).	Approved	1.27.26	26aqw033
8	Tara Naber, PE	Council Bluffs Water Works	WC - Water Supply Construction	Waiver from confined space ventilation, compound pressure gauge on suction side of pumps, and pump intake isolation valve requirements from 2012 Recommended Standards for Water Works parts 6.2.5, 6.6.1, and 6.6.3.b for WSE project W2024-0127.	Approved	2.26.26	26wcw034
9	Nate Tatar	Clow Valve Company - Foundry	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	2.26.26	26aqw035
10	Brandon Polzin	Josephson Manufacturing Company	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	2.26.26	26aqw036
11	Danjin Zulic	Van Diest Supply Company	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	2.27.26	26aqw037
12	Julie Ritter	Van Diest Supply Company	Air Quality Construction Permits	to allow shared material use between Buildings 55 and Building 41 liquids, a	Approved	3.03.26	26aqw038
13	Nate Tatar	Clarios, LLC	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	3.04.26	26aqw039
14	Lucas Tenborg	IPL - Ottumwa Generating Station	Air Quality Construction Permits	IPL – Ottumwa Generating Station wants a variance to bring two temporary engines onsite during a scheduled outage to perform maintenance on the Spray Dryer Absorber tower.	Approved	3.10.26	26aqw040
15	Brandon Polzin	Story City Wastewater Treatment Plant	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	3.10.26	26aqw041
16	Rachel Quill	GROWMARK, Inc.	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	3.10.26	26aqw042
17	Nate Tatar	IPL - Burlington Generating Station	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	3.12.26	26aqw043
18	Kelli Book	Linn County Planning & Development	AFO	Linn Co. Bd of Supvs passed a resolution adopting a Construction Evaluation Resolution for the 2026 master matrix scoring period during its 12-23-25 mtg. The resolution wasn't submitted to DNR within the required time frame due to staffing changes.	Approved	3.13.26	26cpw044
19	Kelli Book	Hancock County	AFO	Hancock Co. Bd of Supvs passed a resolution adopting a Construction Evaluation Resolution for the 2026 master matrix scoring period during its 1-2-26 meeting. The resolution was not submitted to DNR within the required time frame.	Approved	3.13.26	26cpw045
20	Mark Fields	Homeland Energy	AQ	Request to adjust Fermentation scrubber rates and chiller water temps from	Approved	3.13.26	26aqw046
21	Danjin Zulic	Van Diest Supply Company	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	3.13.26	26aqw047
22	Jasmine Bootman	Ames Laboratory DOE	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	3.16.26	26aqw048
23	Jasmine Bootman	White River, Creston	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	3.18.26	26aqw049
24	Danjin Zulic	City of Tiffin - Water Treatment Plant	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	3.23.26	26aqw050
25	Julie Ritter	Pine Lake Corn Processors	Air Quality Construction Permits	Request to install Structural steel/beams/building supports/concrete, Mezzanines/concrete, Air compressors/fans, Pumps, Conveyors, fermenters and to set the dryers in the building.	Approved	3.13.26	26aqw051
26	Ryan Olive	Denison Municipal Utilities	Wastewater	Denison Municipal Utilities STP requests that proposed permit monitoring frequencies be reduced to current permit levels in order to keep laboratory staff and operational costs down.	Approved	3.24.26	26cpw052
27	Danjin Zulic	Big River United Energy, LLC - Dyersville	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	3.27.26	26aqw053
28	Karen Kuhn	Midwest Mfg Co	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	3.27.26	26aqw054

Monthly Waiver Report

April 2026

Item #	DNR Reviewer	Facility/City	Program	Subject	Decision	Date	Agency Reference
1	Jasmine Bootman	Golden Grain Energy, LLC - Mason City	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	3.30.26	26aqw055
2	Rachel Quill	Tyson Fresh Meats, Inc. - Storm Lake	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	3.31.26	26aqw056
3	Karen Kuhn	IPL - Iowa Falls Ops Center	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	3.30.26	26aqw057
4	Jasmine Bootman	Louis Dreyfus Commodities Grand Junction,	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	4.01.26	26aqw058
5	John Curtin	Grain Processing Corporation	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement for 32,000 gallon storage tank.	Approved	4.07.26	26aqw059
6	Jasmine Bootman	Midwestern Equipment LC	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	4.07.26	26aqw060
7	Nate Tatar	Amsted Rail Company, Inc	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	4.09.26	26aqw061
8	Nate Tatar	Procter & Gamble Hair Care LLC - LM	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	4.09.26	26aqw062
9	Nate Tatar	Amsted Rail Company, Inc	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	4.10.26	26aqw063
10	Anna Seeger	City of Ankeny	WC - Water Supply Construction	The City of Ankeny (project W2026-0157) requested to place a watermain 12 inches	Approved	4.10.26	26aqw064
11	Rachel Quill	Winnebago Industries, Inc	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	4.13.26	26aqw065
12	Jasmine Bootman	Rockwell Collins, Inc - Coralville	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	4.16.26	26aqw066
13	Jasmine Bootman	Cargill, Inc - Iowa Falls	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	4.16.26	26aqw067
14	John Curtin	Devenish Nutrition LLC	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement for a pellet cooler and a mixer used to make animal feed.	Approved	4.17.26	26aqw068
15	Brandon Polzin	Michels Road & Stone, Inc.	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	4.17.26	26aqw069
16	Nate Tatar	Kaiser-Corson Funeral Home	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	4.21.26	26aqw070
17	Jasmine Bootman	Animal Nutrition and Health	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	4.22.26	26aqw071
18	Danjin Zulic	Afinitas - Mediapolis	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	4.23.26	26aqw072
19	Brandon Polzin	NEW Cooperative, Inc. - Creston #2	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	4.24.26	26aqw073

**IOWA DEPARTMENT OF NATURAL RESOURCES
LEGAL SERVICES BUREAU**

DATE: April 2026
TO: Environmental Protection Commission
FROM: Tamara McIntosh
SUBJECT: Attorney General Referrals (January 2026 – March 2026)

Name, Location and Region Number	Program	Alleged Violation	DNR Action	Status	Date
City of Sioux City	Wastewater	Inadequate wastewater treatment	Referred to Attorney General	Referred Petition Filed Answer Filed by City Discovery Served Trial set for May 2023 continued; Trial set for April 23, 2024, continued Motion to Compel filed for discovery; resolved 12/14/23 Trial set for April 29, 2025 continued; Trial Scheduled for 4/21/26 Settlement approved by City Council Consent Decree filed (\$300,000 civil penalty, environmental audit, wastewater treatment plant upgrades)	6/27/16 1/07/22 2/21/22 4/8/22 3/8/23 3/29/23 11/21/23 3/15/24 5/23/25 12/15/25 1/6/26
Global Fiberglass Solutions, LLC	Solid Waste	Illegal Stockpile	Referred to Attorney General	Referred Petition Filed Answer Filed by 2 Defendants Motion to Dismiss filed by 5 Defendants Hearing scheduled on Motion to Dismiss for 1/7/25 Order on Motion to Dismiss denying in part and granting in part Trial set for April 4, 2026 Application for Interlocutory Appeal on Responsible Corporate Officer Doctrine Order Staying Case Pending Interlocutory Appeal Iowa Supreme Court Granted Application for Interlocutory Appeal Briefing Schedule issued Appellant Brief Appellee Brief Appellant Reply Brief Iowa Supreme Court oral arguments	7/7/21 9/25/24 12/3/24 12/4/24 2/12/25 3/6/25 3/14/25 3/18/25 4/14/25 5/13/25 8/28/25 9/29/25 10/20/25 3/24/26

Montipark LLC, and Shadbolt	Water Supply	Inadequate treatment and notice	Referred to Attorney General	Referred Petition Filed EQCV007808 Answer Filed Amended Petition Filed Amended Answer Discovery Served Trial Scheduled for 5/19/2026	10/15/24 1/28/25 5/23/25 7/6/25 7/29/25 8/20/25
Ames Business Group, LLC Burlington (6)	Solid Waste	Stockpiling wood pallets and other solid waste	Referred to Attorney General	Referred Petition Filed Answer Filed Trial Set for 12/16/26	8/19/25 11/17/25 12/22/25 2/9/26
Southwest Iowa Renewable Energy	Water Quality	Discharging backwash wastewater not permitted in NPDES	Referred to Attorney General	Referred	2/17/26
Troy Sedore and Sedore Inc. Stockport (6)	Solid Waste	Operating solid waste transfer station without a permit	Referred to Attorney General	Referred	3/24/26

**IOWA DEPARTMENT OF NATURAL RESOURCES
LEGAL SERVICES BUREAU**

DATE: April 2026
TO: Environmental Protection Commission
FROM: Tamara McIntosh
SUBJECT: Contested Cases (January 2026 – March 2026)

Date Received	Name Of Case	Action Appealed	Program	Assigned Attorney	Status
6/10/13	Mike Jahnke	Dam Application	FP	Schoenebaum	<p>Hearing held 7/30/14. ALJ upheld the permit issued by the Department. Mr. Jahnke appealed but on 11/3/14 he asked that his appeal be put on hold until April 2015. For various reasons has asked that the appeal be postponed.</p> <p>Sept. 2017 – Mr. Jahnke called and asked that his appeal be put on hold until Spring 2018. September 2018 Mr. Jahnke called and asked that the matter be postponed to Spring '19.</p> <p>Jan. 2019 no changes, matter was postponed to Spring 2019.</p> <p>April 2019 – no change; matter postponed to Spring 2019.</p> <p>July 2019 – No changes.</p> <p>10/25/19 – Mr Jahnke has called many times to discuss his ongoing medical problems and his families' each time he asks for the matter not to be placed on the agenda and asks for a delay. He again asked for a delay until Spring.</p> <p>1/24/20 – Mr. Jahnke called again and explain ongoing medical problems and that he cannot be present for a winter meeting and asked that the matter continue to be delayed.</p> <p>5/25/20 to the 2/21/23 – no changes</p> <p>3/22.2023 – sent letter asking if he would like to withdraw his appeal or set it to go before the commission. A response was requested no later than April 12, 2023.</p> <p>April 2023 - Mr. Jahnke requested this not be set for argument before the EPC until October 2023 because of on-going health reasons.</p> <p>September 18, 2023, letter sent to Mr. Jahnke asking for a response NLT September 28, 2023 indicating if he</p>

					would like to move forward with appeal or withdraw the appeal. Mr. Jahnke called Ms. Schoenebaum on September 28, 2023, and asked not to place this on the agenda because of serious health issues. 6/21/24 to present – No change
11/9/17	IA Regional Utilities Association	Permit Issuance	WW	Schoenebaum (Poppelreiter)	10/25/18 –Negotiating before setting a hearing date. A final meeting with facility’s new director is expected before the end of 2018. 01/24/19 –Negotiating before setting a hearing date. Meeting with permittee 1/24/19. Permittee must discuss options with Board. Decision from Permittee on whether to withdraw appeal or move forward with hearing is expected in Spring 2019. April 2019 – Waiting on permittee to decide whether to set a hearing or withdraw appeal. 10/25/19 – Permittee and DNR still in negotiations re: engineering proposals at the facility. No change in the appeal status. 1/24/20 – Finalizing the report on the progress they have made and will meet with DNR’s Wastewater staff in February to discuss settlement options. 5/25/20 – No Changes 11/18/2020 - Ongoing negotiations with IRUA. No hearing set as yet. Looking into alternative solutions. 3/25/2021 - Continuing discussions with IRUA. Both parties are interested in non-litigation solutions. No hearing set. 5/27/21 to the present – No Changes
9/19/25	Terri Mozzone et al. vs. DNR (Full Bohr Dairy)	Issuance of water use permit	WS	Adams	Dismissed – no appeal filed yet.

9/19/25	Terri Mozzone et al. vs. DNR (KG4 Dairy)	Issuance of water use permit	WS	Adams	Dismissed – no appeal filed yet
3/18/26	DNR v. Jesse Eister	Certification revocation	WS	Adams	Filed – judge not yet assigned, no hearing date set.
2/19/26	Cemstone Concrete Materials, LLC v. DNR	Determination of well interference	WS	Adams	Filed – judge not yet assigned, no hearing date set.
2/25/26	David Hilgemann v. DNR	Issuance of water use permit to rock quarry	WS	Adams	Filed – judge not yet assigned, no hearing date set.
2/25/2026	Steve Veysey v. DNR	Issuance of water use permit to rock quarry (same permit as the above referenced case).	WS	Adams	Mr. Veysey wanted to engage in informal negotiation. WQ Bureau leadership and Mr. Adams are scheduled to meet with him in person on April 1 st .
1/23/2026	Oak Creek MHP, LLC v. DNR	Permit issued to Oak Creek MHP, designating it as a public water supply	WS	Adams	Hearing set for June 3 rd . No petition filed by appellant yet.

**IOWA DEPARTMENT OF NATURAL RESOURCES
LEGAL SERVICES BUREAU**

DATE: April 2026
TO: Environmental Protection Commission
FROM: Tamara McIntosh
SUBJECT: Enforcement Report Update (January 2026 - March 2026)

The following new enforcement actions were taken during this reporting period:

Individual/Entity	Program	Alleged Violation	Type of Order/Action	Penalty Amount Due	Date
Jeff Ulrich	AFO	Manure Management Plan	Consent	3,000.00	12/17/25
J.W. Construction Company, LLC	AQ/SW	Open Burning and Improper Solid Waste Disposal	Consent	5,000.00	12/19/25
City of Burlington	WW	Construction Dates	Amendment	0	12/19/25
The Grand Opera House	WW	Reporting	Consent	0	12/26/25
Foresight Farms, L.C.	AFO	Manure Management Plan	Consent	3,000.00	1/7/26
Rodney Claude	AQ/SW	Open Burning and Improper Solid Waste Disposal	Consent	10,000.00	1/9/26
City of Lytton	WW	NPDES Permit	Consent	2,000.00	1/9/26
Jeff Habhab Construction, Incorporated	AQ/SW	Open Burning and Improper Solid Waste Disposal	Consent	10,000.00	1/21/26
AMPC, LLC	WW	Stormwater	Consent	8,000.00	1/23/26
Koch Fertilizer Wever LLC	AQ	Construction Dates	Amendment	0	2/27/26
Dale Humpal	AFO	Manure Release	Consent	5,000.00	1/30/26
Carl Thrasher	AQ/SW	Open Burning and Improper Solid Waste	Consent	0	1/30/26
Boogerd Dairy	AFO	Construction Permit	Consent	5,000.00	2/4/26
Sunnybrooke LE, LLC	WW	Notification Dates	Amendment	0	2/17/26
Tim and Josh Flaherty	AFO	Manure Applicator	Consent	5,000.00	2/27/26

Shell Rock Soy Processing, LLC	AQ	Construction Permit and PSD	Consent	10,000.00	2/27/26
Valero Renewable Fuels Company	AQ	Construction Permit, Excess Emissions, Monitoring, and Title V	Consent	10,000.00	3/2/26
B&J Pumping LLC	AFO	Manure Release	Consent	2,000.00	3/4/26
Goldfinch Estates II, LLC	WW	Stormwater	Consent	4,500.00	3/6/26
Dustin Tromblay	WW	Time of Transfer	Unilateral	5,000.00	3/17/26
Grand Total				\$87,500.00	

**IOWA DEPARTMENT OF NATURAL RESOURCES
LEGAL SERVICES BUREAU**

DATE: April 2026
TO: Environmental Protection Commission
FROM: Tamara McIntosh
SUBJECT: Summary of Administrative Penalties (January 2026 - March 2026)

The following administrative penalties are being collected by DRF:

NAME	PROGRAM	AMOUNT (remaining)
Jon Knabel	AQ/SW	\$1,037.33
Randy Wise; Wise Construction	AQ/SW	\$2,081.32
Gary Eggers	SW/WW	\$10,000.00
Dennis R. Phillips; Marty's Convenience Mart	UT	\$9,954.53
Frank Robak	UT	\$10,000.00
Randy Cates	AQ/SW	\$10,000.00
Jeff Gray dba Grayz Metal Recycling	AQ/SW	\$918.53
Jayson Schlafke	AFO	\$3,000.00
Strickler Farms, LTD	AFO	\$2,592.78
Steve Seelye	AQ	750.00
Brandon Stewart	AQ/SW	\$2,100.00
North Iowa Custom Finishing	AFO	\$2,250.00
North Iowa Custom Finishing	AFO	\$4,100.00
Jason Larabee	AFO	\$7,500.00
Larrell DeJong	AFO	\$4,476.74
Scott Ellsworth	AFO	\$5,000.00
Jacob Wagoner	AQ	\$4,000.00
James Ziebell	AQ	\$10,000.00
Chanchai Sooksawan	AQ	\$10,000.00
Kunkel Enterprises, LLC and Mike Kunkel	AQ	\$8,000.00
Newt's Café	WS	\$1,500.00
Blue Hyll Dairy LLC	AFO	\$6,500.00
Michael Matthews	AQ	\$4,630.00
Amritdeep Kaur - Pari	UT	\$5,774.00
Amritdeep Kaur - Cissy's	UT	\$7,000.00
Ronald, Dennis, and Nathan Stratton	FP	\$5,000.00
Alexander Buck	AQ/SW	\$1,530.00
Brookstone Specialty Services	WW	\$10,000.00
CJ Construction	WW	\$5,000.00
Mississippi Valley Meat	AFO	\$3,000.00
Nolan Junker	AFO	\$3,000.00
Nolan Junker	AFO	\$7,000.00
Randy Less	FP	\$2,500.00
Randy Reich	AQ	\$3,100.00
Brad Smith	AFO	\$9,000.00
Porkin2Bacon (PMI)	AFO	\$3,000.00
Jason Larabee	AFO	\$5,200.00
Chuck Hansen	AFO	\$4,000.00
Total		\$194,495.23

The following administrative penalties are DUE:

NAME	PROGRAM	AMOUNT (remaining)
Recycling Services	WW/HC/SW	\$7,000.00
Lu-Jen Farms	AFO	\$5,000.00
Jaymaharaj, L.L.C. and Monaj Desai	HC	\$7,000.00
Chad Roche	SW	\$10,000.00
Brian Young	AQ	\$7,000.00
Ames Business Group/Wesley Ames	SW	\$10,000.00
William Shadbolt/Montipark LLC	WS	\$10,000.00
Waspy's Truck Wash, LLC	WW	\$8,000.00
Colo Country Living LLC	AQ/SW/WW	\$10,000.00
City of Randalia	WW	\$1,000.00
Dean Sweeney	AQ	\$3,500.00
Travis Dagel	AFO	\$3,000.00
Troy Sedore	AQ/SW/WW	\$10,000.00
Justin Nichols	AQ/SW	\$5,000.00
Brice Aukes	AFO	\$3,000.00
Chad Kauffman	AFO	\$3,000.00
Walter, LLC	AFO	\$3,000.00
Knapp Properties	WW	\$5,500.00
Total		\$111,000.00

The following administrative penalties have been COLLECTED:

NAME	PROGRAM	AMOUNT (Collected)
Strief Farms	AFO	\$5,000.00
2612 REC LLC	WW	\$2,500.00
Thomas Gronbach	AQ-Attorney General	\$1,000.00
Larrell DeJong	AFO- Revenue	\$1,400.00
Tyson Means	AQ/SW	\$1,250.00
Darrell Schipansky	AQ/SW	\$1,250.00
Shawn Gohlinghorst	AQ/SW	\$1,250.00
Rodney Claude	AQ/SW	\$1,250.00
Michael Schroeder	AFO	\$5,000.00
Foresight Farms, LC	AFO	\$5,000.00
Jeff Habhab Construction, Inc.	AQ/SW	\$10,000.00
City of Lytton	WW	\$2,000.00
Brad Zieser	AFO	\$5,000.00
City of Riceville	WW	\$5,000.00
Jon Wood	AQ/SW	\$750.00
City of Sioux City	WW-Attorney General	\$300,000.00
Central Iowa Recovery, Inc.	AQ	\$562.50
Zane Hanson	AFO	\$2,000.00
Tim and Josh Flaherty	AFO	\$5,000.00
AMPC, LLC	WW	\$8,000.00
B&B Custom Pumping	AFO	\$2,000.00
Shell Rock Soy Processing LLC	AQ	\$10,000.00
Total		\$375,212.50

**IOWA DEPARTMENT OF NATURAL RESOURCES
LEGAL SERVICES BUREAU**

DATE: April 2026 (January 2026 – March 2026)
 TO: Environmental Protection Commission
 FROM: Tamara McIntosh
 SUBJECT: Rulemaking Status Report

Rule Proposal	Notice to EPC	Notice Published	ARRC #	ARRC Mtg	Hearing(s)	Comment Period ends	Final to EPC	Rules Published	ARRC #	ARRC Mtg	Rules Effective
2	12/9/25	1/21/26	9987C	2/9/26	2/12/26 and 2/13/26	2/13/26					
4	12/9/25	1/21/26	9985C	2/9/26	2/12/26 and 2/13/26	2/13/26					
5	12/9/25	1/21/26	9986C	2/9/26	2/12/26 and 2/13/26	2/13/26					
6	12/9/25	1/21/26	9982C	2/9/26	2/12/26 and 2/13/26	2/13/26					
7, 8, 13	9/16/25	10/15/25	9604C	11/10/25	11/4/25	11/4/25	12/9/25	1/7/26	9932	2/9/26	12/16/25
100	12/9/25	1/7/26	9911C	2/9/26	1/27/26 and 1/29/26	1/29/26					
101	12/9/25	1/7/26	9931C	2/9/26	1/27/26 and 1/29/26	1/29/26					
102	12/9/25	1/7/26	9926C	2/9/26	1/27/26 and 1/29/26	1/29/26					
103	12/9/25	1/7/26	9912C	2/9/26	1/28/26 and 1/30/26	1/30/26					
104	12/9/25	1/7/26	9929C	2/9/26	1/28/26 and 1/30/26	1/30/26					
105	12/9/25	1/7/26	9927C	2/9/26	1/27/26 and 1/29/26	1/29/26					
107	12/9/25	1/7/26	9930C	2/9/26	1/27/26 and 1/29/26	1/29/26					
109	12/9/25	1/7/26	9928C	2/9/26	1/28/26 and 1/30/26	1/30/26					
119, 145, 213	12/9/25	1/7/26	9935C	2/9/26	1/28/26 and 1/30/26	1/30/26					
134	12/9/25	1/7/26	9938C	2/9/26	1/27/26 and 1/28/26 and 1/29/26	1/29/26					

135	12/9/25	1/7/26	9933C	2/9/26	1/27/26 and 1/28/26 and 1/29/26	1/29/26					
136	12/9/25	1/7/26	9937C	2/9/26	1/27/26 and 1/28/26 and 1/29/26	1/29/26					
149	12/9/25	1/7/26	9936C	2/9/26	1/27/26 and 1/29/26	1/29/26					
152	12/9/25	1/7/26	9934C	2/9/26	1/27/26 and 1/29/26	1/29/26					

First Quarter 2026 Chemical Spill, Manure Release and Wastewater By-Pass Report

(Quarterly report to the Environmental Protection Commission)

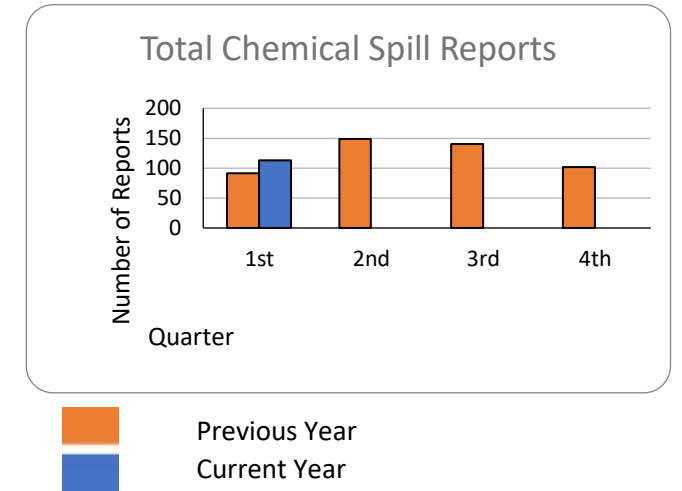
Chemical Spills

During the period January 1, 2026, through March 31, 2026, 113 hazardous conditions were reported to the department (567 IAC 131.2 (455B.386)). This does not include releases from underground storage tanks, which are reported separately.

		Total Chemical Spills Incidents		Substance						Mode			
				Agricultural		Petroleum		Other Chemicals*		Transportation**		Fixed Facility	
Quarter	Year	Previous Year	Current Year	Previous Year	Current Year	Previous Year	Current Year	Previous Year	Current Year	Previous Year	Current Year	Previous Year	Current Year
1st	2026	91	113	0	5	57	65	36	48	30	24	61	89
2nd	2026	149		17		67		72		36		113	
3rd	2026	140		3		72		70		33		107	
4th	2026	102		11		56		44		29		73	
Calendar Year to Date		482	113	31	5	252	65	222	48	128	24	354	89

* Other includes: non-agricultural and non-petroleum based chemicals including but not limited to chlorine, acids/bases, inorganic and organic chemicals

** Transportation includes: water transportation, vehicle transportation, rail transportation and pipeline transportation. All other types of incidents are considered fixed facility.

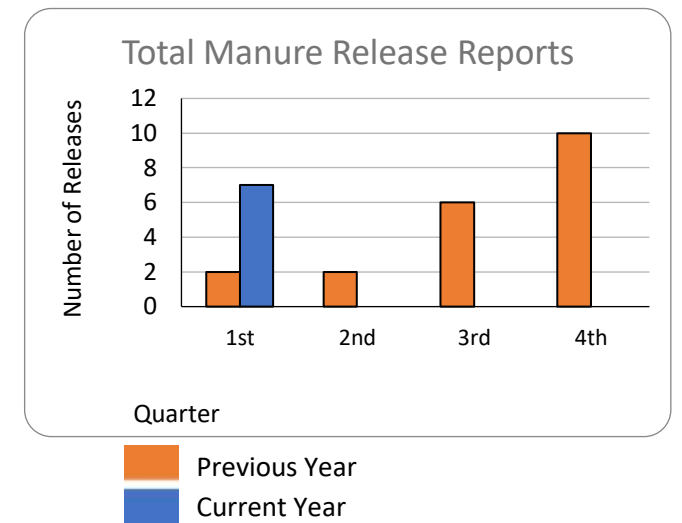


Manure Releases

During the period January 1, 2026, through March 31, 2026, 7 manure releases were reported to the department. 567 IAC 65.2 (455B, 459, 459A, 459B)

		Total Reported Manure Releases		Releases Impacting a Water of the State		At an Animal Feeding Operation (on-site)		Not at an Animal Feeding Operation (off-site)*	
						Previous Year	Current Year	Previous Year	Current Year
Quarter	Year	Previous Year	Current Year	Previous Year	Current Year	Previous Year	Current Year	Previous Year	Current Year
1st	2026	2	7	0	1	1	2	1	5
2nd	2026	2		0		1		1	
3rd	2026	6		0		3		3	
4th	2026	10		4		2		8	
Calendar Year to Date		20	7	4	1	7	2	13	5

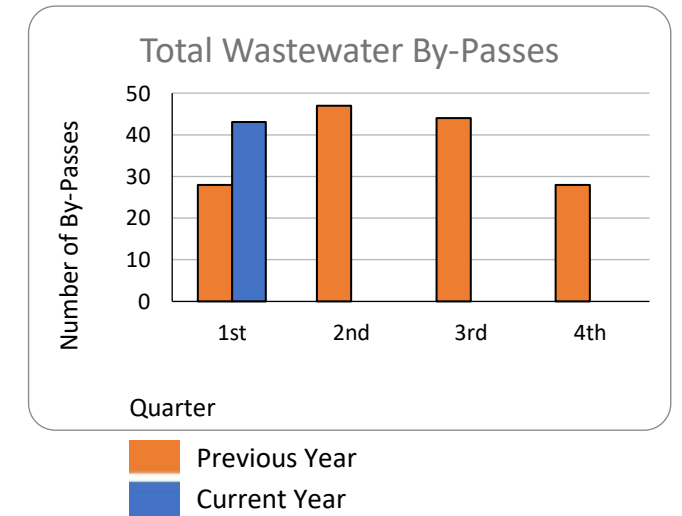
* Off Site includes: transportation and land application related incidents.



Wastewater By-Passes

During the period January 1, 2026 through March 31, 2026, 43 wastewater by-passes were reported to the department (567 IAC 63.6(3) (455B.186)). This does not include by-passes resulting from precipitation events (including flood water infiltration) or bypasses resulting in basement backups.

		Total Wastewater By-passes		Average Length (days)		Average Volume (Million Gallons/Day)		Reported Fish Kills	
						Previous Year	Current Year		
Quarter	Year	Previous Year	Current Year	Previous Year	Current Year	Previous Year	Current Year	Previous Year	Current Year
1st	2026	28	43	0.472	0.265	0.034	0.470	0	0
2nd	2026	47		0.325		0.171		0	
3rd	2026	44		0.906		0.014		0	
4th	2026	28		4.685		0.061		0	
Calendar Year to Date		147	43					0	0



**Iowa Department of Natural Resources
Environmental Protection Commission**

ITEM #6

DECISION

Decision Item

Contract Amendment #1 to Original Contract No. 25ESDWQBKLEE-0001 with THE UNIVERSITY OF IOWA on behalf of the STATE HYGIENIC LABORATORY

Recommendation:

Commission approval is requested for an amendment to Service Contract 25ESDWQBKLEE-0001; Amendment 01 with the State Hygienic Laboratory at the University of Iowa.

Contract Amendment Terms:

Original Contract Amount: Not to exceed \$ 1,030,053.24

Contract Amendment Amount: Not to exceed \$395,928.00

Total: Not to exceed \$1,425,981.24

Dates: May 19, 2026 to June 30, 2027

Funding Source(s): U.S. Environmental Protection Agency EC-S/DC- Grant Award # 48- 96719301-0

Statutory Authority: Iowa Code section 455B.103(3)

Contract Background: The EPA finalized its PFAS drinking water regulation on June 25, 2024, which requires systems to conduct initial monitoring for PFAS compounds. The DNR is funding a voluntary program for monitoring and shipping costs for small systems serving less than or equal to a population of 10,000 people.

Contract Purpose: The parties propose to enter into this Contract Amendment to add additional money to the Original Contract to provide analysis of drinking water samples required for the PFAS regulation.

Contractor Selection Process: DNR is allowed to contract with the University of Iowa pursuant to Iowa Code section 455B.103(3).

Contract History: The Contractor has analyzed PFAS samples in prior contracts. The Contractor will be sending collection kits and analyzing samples from DNR selected water supplies.

Contract	Amount	Date
22ESDWQBRBRUN-0005 (Eurofins)	\$93,000	September 1, 2021 to September 1, 2023
23ESDWQBKLEE-0001	\$149,040	June 1, 2022 to May 31, 2024
23ESDWQBKLEE-0001 A01	\$108,000	February 21, 2023 to May 31, 2024
24ESDWQBKLEE-0002	\$179,863.20	February 20, 2024 to June 30, 2027 (contract terminated effective 9/4/2024)
25ESDWQBKLEE-0001	\$1,030,053.24	September 17, 2024 to June 30, 2027
25ESDWQBKLEE-0001; Amendment 01	\$395,928.00	May 19, 2026 to June 30, 2027
Total	\$1,955,884	

Statement of Work: Amendment 01

Task	Compensation
Task 1: Sampling Kits	\$48,000.00
Task 2: Receipt and inspection of submitted samples	No Charge
Task 3: Analysis of samples	\$318,600.00
Task 4: Data transmission to SDWIS	No Charge
Sub-total	\$366,600.00

Task	Compensation
Facilities and administrative costs @ 8%	\$29,328.00
Total of amendment	\$395,928.00
Prior contract amount	1,030,053.24
Contract not to exceed	\$1,425,981.24

Kathleen Lee, ESS, Water Quality Bureau
Environmental Services Division
May 20, 2026

**Iowa Department of Natural Resources
Environmental Protection Commission**

ITEM	#7	DECISION
TOPIC	Air Quality – Fiscal Year 2027 Fee Schedule	

The Commission is asked to approve the attached Air Quality Bureau Fee Schedule.

Background

Following the culmination of a multi-year stakeholder engagement process, the Commission approved a rulemaking in November 2025 to increase the maximum fees that could be assessed for Air Quality Bureau services. These rules became effective January 14, 2026. During our annual fee payers meeting on January 29, 2026, the proposed fiscal year 2027 fee schedule and draft budget documents were shared with stakeholders. All comments received supported the proposal. The draft budget and proposed fee schedule were then presented to the Commission for review on March 24, 2026. No additional comments have been received regarding the draft budget or fee schedule.

FY 2027 Draft Budget

Status quo amounts are used for most budgetary items. Personnel expenses include an estimated increase of 5%, to cover merit increases and cost of living adjustments, and a Department indirect rate of 13%, up slightly from last year's 12.24%, to reflect increases in health insurance and other administrative costs. The final budget submitted for entry in the state accounting system will be updated based on any refinements to the final expenses and revenues received prior to submission.

The Air Quality Bureau is implementing another year of no increases to the State Hygienic Laboratory and Iowa Waste Reduction Center agreements. The Local Program (Polk and Linn County) agreements reflect a 25% reduction in federal funds to align with Bureau priorities and available federal funding. All contracts will go before the Commission for final approval at the June meeting.

The proposed fee schedule, if approved, will be posted on our website for 30 days and go into effect on July 1, 2026.

Wendy Walker, Environmental Specialist Senior
Program Development & Support Section, Air Quality Bureau
Environment Services Division

Memo date: April 27, 2026

PROPOSED FY 2027 FEES SCHEDULE

Effective Beginning July 1, 2026

<u>Asbestos Notification Fees (567 IAC 30.3)</u>	<u>Fee</u>
a. Each initial and annual asbestos notification	\$175
b. Each revised asbestos notification	\$100
<u>Minor Source Construction Permit Application Fees (567 IAC 30.2)</u>	<u>Fee</u>
a. Each application for a construction permit	\$1,100
b. Each application for a registration permit	\$500
c. Each application for a permit by rule	\$500
d. Each application for a permit template	\$500
<u>Major Source Construction Permit, Prevention of Significant Deterioration Application, and Air Quality Modeling Fees (567 IAC 30.2)</u>	<u>Fee</u>
<i>Applicants will be billed for the actual hours worked to complete the review.</i>	
a. Review of each new source review permit application	\$145/hour
b. Review of each Prevention of Significant Deterioration (PSD) permit application	\$145/hour
c. Review of each plant-wide applicability limit (PAL) request, renewal, or reopening	\$145/hour
d. Review of each regulatory applicability determination	\$145/hour
e. Review of air quality modeling	\$145/hour
<u>Title V Fees (567 IAC 30.4)</u>	<u>Fee</u>
<i>Applicants will be billed for the actual hours worked to complete the review.</i>	
a. Review of each initial or renewal permit application	\$130/hour
b. Title V emissions per ton*	\$72/ton
c. Title V annual base fee**	\$5,000

* Any person required to obtain a Title V permit shall pay an annual fee based on the first 4,000 tons of each regulated air pollutant and shall be paid on or before July 1 of each year.

** Any person required to obtain a Title V permit shall pay an annual base fee. The following sources will be required to pay only one Title V annual base fee: municipalities, universities, and Title V facilities that have requested that their Title V permit be split into more than one permit for administrative purposes. The fee shall be paid on or before July 1 of each year.

Iowa Department of Natural Resources Environmental Protection Commission

ITEM

#8

DECISION

TOPIC

Derelict Building Grant Program – Grant Recommendations

The Derelict Building Grant Program is a program established by 2011 Legislation for purposes of providing funding assistance to eligible communities to address abandoned buildings by promoting public and environmental health through asbestos abatement and landfill diversion with deconstruction of building components for reuse and recycling. Funding for this program shall not exceed \$400,000.00 per Iowa Code section 455E.11(2)(a)(1)(d).

Eligible communities include a city with a population of 5,000 or fewer. Eligible costs for program assistance include but are not limited to asbestos and other hazardous material abatement and removal, the recovery of recyclable or reusable material through the selective deconstruction of abandoned buildings, and reimbursement for purchased recycled content materials used in the renovation of buildings.

The Department received fifteen applications, requesting \$523,584.00 in financial assistance, for consideration during the February 2026 round of funding. Twelve projects were selected for funding with a total recommended award amount not to exceed \$400,000.00, based on all deconstruction achieving maximum landfill diversion. Two of the twelve projects award recommendations exceed \$50,000.00 and are presented to the Commission for approval.

The review committee is comprised of five people representing: DNR Land Quality Bureau, Iowa Economic Development Authority, Iowa Society of Solid Waste Operations, Iowa Recycling Association, and Keep Iowa Beautiful.

A description of the recommended projects, and the amount and type of funding assistance is attached.

At this time, the Department is requesting Commission approval to enter into agreements with selected applicants whose recommended awards are in excess of \$50,000.00.

Reid Bermel, Environmental Specialist Senior, Land Quality Bureau
Environmental Services Division
May 19, 2026

Attachment

a) Recommended Project Descriptions

DERELICT BUILDING GRANT PROGRAM

PROPOSAL RECOMMENDATIONS

The following provides a description of each project for which Commission approval is requested.

<p>City of Anita</p> <p>Contact: Jean Jessen cityofanita@midlands.net 712-762-3746</p> <p>Description:</p>	<p>Award: \$65,250.00</p> <p>Cash Match: \$25,200.00</p> <p>Total Project Cost: \$90,450.00</p> <p>The City of Anita has targeted the use of these grant funds for the following:</p> <ul style="list-style-type: none"> • Deconstruction of the existing structure with concrete, brick, and metal separated for reuse and recycling with a 94% goal of diversion of total weight of the structure. <p>The city plans to have the lot for sale and redeveloped for a business.</p>
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<p>City of Hartley</p> <p>Contact: Roxann Swanson cityclerkadmin@hartleyiowa.gov 712-928-2240</p> <p>Description:</p>	<p>Award: \$75,000.00</p> <p>Cash Match: \$30,860.00</p> <p>Total Project Cost: \$105,860.00</p> <p>The City of Hartley has targeted the use of these grant funds toward the following:</p> <ul style="list-style-type: none"> • Deconstruction of the existing structure with concrete, brick, and metal separated for reuse and recycling with a 95% goal of diversion of total weight of the structure. <p>The city intends to use the lot as a corner courtyard park.</p>
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**Iowa Department of Natural Resources
Environmental Protection Commission**

Decision Item

9. Contract with EcoSource, LLC for assessment, free product recovery, and corrective action at Leaking Underground Storage Tank (LUST) sites.

Commission approval is requested for a contract with EcoSource LLC, of Des Moines, Iowa.

Contract Terms

Amount: Not to exceed \$333,333

Dates: May 21, 2026 to March 31, 2027

DNR shall have the option to extend this Contract for up to six years from the beginning date of the original contract by executing a signed amendment prior to the expiration of this Contract.

Funding Source(s): Federal LUST Trust Grant

Contract Purpose: This Contract will secure professional environmental services for the DNR necessary to achieve objectives of the Leaking Underground Storage Tank (LUST) Trust Fund Project. The contractor will conduct site visits, collect soil, groundwater, or soil vapor samples at LUST sites and complete either a Tier 1 Report, Tier 2 Site Cleanup Report, or Site Monitoring Report or conduct free product recovery and reporting or corrective action in accordance with Iowa Administrative Code 567-135.6(455B) to 567-135.12(455B). The contractor will be required to submit a scope of work and budget for each site assigned by DNR; work will not commence at a site until DNR gives approval to the contractor.

Selection Process Summary: The Department solicited proposals from targeted small businesses and also published a request of proposals (RFP) on the Department of Administrative Services website.

Criteria Reviewed: Criteria reviewed for this work included the respondent's professional experience, performance record, and letter(s) of reference, the compliance and thoroughness of the Respondent's response to the RFP technical proposal, the capacity of the Respondent and Project Team to complete responsibilities described in the Statement of Work, the Respondent's work plan to complete responsibilities described in the Statement of Work, the Respondent's proposed implementation timeline to complete responsibilities described in the State of Work, and the Respondent's actual examples provided to the DNR with Proposal of Respondents previous or current work from customers or clients similar to the goods and services sought in the Statement of Work, and cost.

Proposal Due Date: March 11, 2026

of Proposals Received: 2

Recommendation: EcoSource, LLC

Vendor	Vendor Location (city, state)	Score (100 pts total)	Rank	Cost
EcoSource, LLC	Des Moines, Iowa	85	1	*\$24,497.28
Seneca Companies, Inc.	Des Moines and Davenport, Iowa	81	2	*\$30,670.47

* The Cost Proposals were submitted as an all-inclusive itemized list of tasks including all travel, expenses, and etc. in prices provided. The review committee determined the cost by using four (4) project examples from the previous LUST Trust Fund project and each companies itemized list. The costs provided in this chart includes the total amount for all four of those projects combined.

Tammy Vander Bloemen, Land Quality Bureau, Environmental Specialist Senior
Environmental Services Division
EPC Meeting Date: May 20, 2026

**Iowa Department of Natural Resources
Environmental Protection Commission**

#10

Decision Item

Contract Amendment #3 to 22ESDLQBAClar-0002 with Iowa State University GIS Facility

Commission approval is requested for a contract amendment with Iowa State University GIS Facility, of Ames, Iowa.

Amendment #3 Terms:

Amendment Amount: \$ 200,000

Amendment Dates: May 20, 2026 to June 30, 2028

Funding Source(s): Projects will be funded through GIS infrastructure funds or federal grant dollars. Funding will vary by Task Order.

Amendment Purpose: The purpose of the Contract Amendment is to add dollars to the contracted amount. There is no change to the types of tasks funded.

Original Contract Purpose: The purpose of this contract is to acquire entry-level GIS services from the ISU GIS Facility. This contract will allow us to pursue short-term, time intensive projects that would be difficult to accomplish without contract labor. Examples of typical projects include data entry, digitizing, photo scanning and rectification, and field data collection.

Original Selection Process Summary: The ISU GIS Facility has been selected for this contract because of its demonstrated ability to provide services when needed and to complete projects according to specifications of each Task Order. This was a non-competitive contract.

Contract History:

	Amount	Timeframe	Purpose
Original Contract Terms	\$300,000	7/1/2022 to 6/30/2025	Provide basic GIS services
Amendment #1	\$0	6/30/2025 to 6/30/2028	Extend contract for three years
Amendment #2	\$50,000	3/17/2026 to 6/30/2022	Add dollars
Amendment #3	\$200,000	5/30/2026 to 6/30/2022	Add dollars
Total	\$550,000		

Monica Thelen, Environmental Program Supervisor, Land Quality Bureau
Environmental Services Division
May 20, 2026

Iowa Department of Natural Resources
Environmental Protection Commission

#11

Decision Item

Commission approval is requested for a contract with Grant Tech, Inc., of New London, CT.

Contract Terms:

Amount: Not to exceed \$200,000.

Dates: June 1, 2026 to June 30, 2028.

DNR shall have the option to extend this Contract for up to six years from the beginning date of the original contract by executing a signed amendment prior to the expiration of this Contract.

Funding Source(s): 100% US EPA Cooperative Agreement via the Gulf Hypoxia Program

Contract Purpose: The contractor will provide specialized technical consulting and training services to optimize mechanical wastewater treatment facilities in order to reduce point source nutrient output (nitrogen and phosphorus) to Iowa's rivers and streams and lower energy consumption through low-cost operational changes using existing equipment, rather than requiring capital infrastructure upgrades.

The wastewater treatment plant optimization program has been running in a pilot mode for the last three years in partnership with 27 facilities. For example, the City of Atlantic achieved improved nutrient removal and realized \$8,000 in energy cost savings by implementing recommended operational changes. This procurement utilizes EPA Gulf Hypoxia Program (GHP) funding to expand the program, allowing for in-depth visits, coaching, and potential expansion to industrial wastewater treatment plants. The project directly supports the implementation efforts of the Iowa Nutrient Reduction Strategy and the Gulf Hypoxia Action Plan.

Selection Process Summary: A formal competitive process (\$50,000 or more) was used, as the contract is valued at up to \$200,000. The competitive process was to acquire Professional Services.

Contract History: Grant Tech, Inc. does not have a direct contract history with the Iowa DNR over the previous three years. However, Grant Tech, Inc. performed nutrient optimization work for the University of Iowa during the years 2022, 2023, and 2024. The DNR previously partnered with and funded this pilot program through the University of Iowa's Iowa Wastewater and Waste to Energy Research Program (IWWERP).

Adam Schnieders, Water Quality Resource Coordinator, Water Quality Bureau
Environmental Services Division
May 20, 2026

Attachment A

Statement of Work. Contractor must perform the following Tasks by the Task Milestone Dates set out in the following table:

Deliverable	Task Milestone Date	
Task 1: Engage and Visit Facilities	Description: Engage with up to 6 facilities curated by DNR. Coordinate pre-visit data collection, compilation, and analysis. Conduct pre-visit training webinars and perform an in-depth on-site assessment of process control at each plant. Provide facilities and the DNR with documented operational strategies via reports and developed reference documents.	May 31, 2027
Task 2: Facilitate Monthly Communication	Description: Maintain regular communication with all facilities via webinars, phone calls, and emails to help jump-start a "treatment excellence" operator community. Facilitate group-oriented communications as well as individual facility meetings. Document progress and provide updates to facility representatives and the DNR.	Ongoing throughout the duration of the contract
Task 3: Complete Final Summary Report	Description: Provide a final summary report containing an overview of each facility, the strategies implemented (or planned) as a result of the engagement, and the progress achieved. Ensure water quality data is collected consistently with each facility's Quality Assurance Project Plan (QAPP) and submitted to the Water Quality Exchange (WQX).	No later than June 30, 2028

Attachment B

The total proposed costs **shall not exceed** the budgeted \$200,000 provided by the EPA Gulf Hypoxia Program

Task	Time Frame	Costs	Total Costs
Task 1: Engage and Visit Facilities	Completed no later than May 31, 2027 or propose completion date	Lump sum	\$50,000
Task 2: Facilitate Monthly Communication / Operator Coaching	Ongoing throughout the duration of the contract	Lump sum	\$125,000 (paid in timed 2-month increments beginning at four months after contract)
Task 3: Complete Final Summary Report & Data Submission	Completed no later than June 30, 2028 or propose completion date	Lump sum	\$25,000

**Iowa Department of Natural Resources
Environmental Protection Commission**

ITEM #12

DECISION

Contract with Iowa Department of Agriculture and Land Stewardship (IDALS) (Big Hollow Lake Project)

Recommendation:

Commission approval is requested for a service contract with IDALS of Des Moines, IA.

Contract Terms:

Amount: Not to exceed \$112,038

Dates: June 1, 2026 – May 31, 2029.

DNR shall have the option to extend this Contract for up to six years from the beginning date of the original contract by executing a signed amendment prior to the expiration of this Contract.

Funding Source(s): U. S. Environmental Protection Agency (EPA) Clean Water Act (CWA) Section 319 funds.

Statutory Authority: EPA Section 319 and Iowa Code section 455B.103.

Contract Background: The Big Hollow Lake Watershed consists of 4,600 acres that outlet into Big Hollow Lake, a 178-acre lake that is owned and operated by the Des Moines County Conservation Board. The lake is surrounded by a 798-acre recreation area that offers a wide variety of recreation opportunities for the outdoor enthusiast. The park is the most-visited recreation area in the county and one of the most popular county parks in the region, hosting between 40,000 and 50,000 visitors per year on average. In 2016, the lake was added to the Iowa 303(d) impaired waters list due to algal blooms and violation of state pH standards. With the watershed management plan (WMP) completed and approved by EPA in February of 2022, a project coordinator was hired and began implementing best management plans (BMP's) within the project area. This will be the second year of the project being active and the project coordinator will focus on landowner/farmer outreach and interest, educational opportunities regarding the project, and assisting landowners with applications and funding for BMP's.

Contract Purpose: The purpose of this Contract is to designate Section 319 funding to support the Big Hollow Lake Watershed Project. This Contract will work to carry out the goals of the Big Hollow Lake WMP for the stated Contract term.

Statement of Contract Work/Task:

Task 1: Submit to DNR the Annual Work Plan and Budget

Task 2: Carry Out Project Activities in the Project Workplan

Task 3: Provide Quarterly Financial Report

Task 4: Provide Quarterly Progress Report

Task 5: Submit Annual Report

Task 6: Submit Final Project Report

Selection Process Summary:

Statute or federal grant contracting with IDALS is authorized by 11 IAC 117.5(5) and 118.7, which allows for agreements with entities without competition when the law or federal grant requires them. In addition, intergovernmental contracting with IDALS is authorized under 11 IAC 118.4. Contracts with public agencies for laboratory work, scientific field measurement and environmental quality evaluation services necessary to implement Iowa Code Chapter 455B is authorized under Iowa Code section 455B.103(3).

Contract History:

The DNR has contracted with IDALS to administer Section 319-funded watershed projects since the early 1990s. The purpose of the contracts with IDALS is to provide funds and project management support to IDALS, which then enters into subsequent agreements with soil and water conservation districts to implement the specific watershed implementation project activities.

Contract #1: Big Hollow Lake Watershed Project (2023)-23ESDWQBMHAES-0013: 2/1/2023 – 1/31/2026, \$97,250. Amendment 1 9/11/23 – 1/31/26, \$80,250

Contract #2: Big Hollow Lake Watershed Project (2024)-25ESDWQBMHAES-0002: 9/23/2024 – 9/22/2027, \$102,309.

Partnerships Summary:

The DNR's primary partnerships for this Contract include:

- IDALS Division of Soil Conservation and Water Quality
- Des Moines County Soil and Water Conservation District
- Des Moines County Conservation
- US Department of Agriculture Farm Service Agency and Natural Resources Conservation Service
- EPA
- Participating landowners of the Big Hollow Lake Watershed

Miranda Haes, Northeast Iowa Basin Coordinator, Watershed Improvement Section
Environmental Services Division
May 20, 2026

Big Hollow Lake Project Proposed Budget (2-year budget)	Contract Amount (DNR 319 Costs)	Match Funding Share (State/Local)	Leveraged Funds (Non-Match)
Staffing/Admin Support (Top Line Costs)	\$91,037.50		
Watershed Practice Support* (Bottom Line Costs)	\$21,000	\$71,016.50	\$4,126.50
Totals	\$112,037.50	\$71,016.50	\$4,126.50
Overall Proposed Project Total	\$187,180.50		

*Practices targeted by the project include, but are not limited to: cover crops, no-till, terraces, and grade stabilization structures.

**Iowa Department of Natural Resources
Environmental Protection Commission**

#13

Decision Item

Commission approval is requested for a contract with Resource Conservation and Development for Northeast Iowa, Inc. (Northeast Iowa RC&D) (on behalf of Turkey River Watershed Management Authority), of Postville, Iowa.

Contract Terms:

Amount: Not to exceed \$85,000.

Dates: June 1, 2026 to June 30, 2028.

DNR shall have the option to extend this Contract for up to six years from the beginning date of the original contract by executing a signed amendment prior to the expiration of this Contract.

Funding Source(s): US Environmental Protection Agency Clean Water Act Section 604(b) Grant to Iowa.

Contract Purpose: This Contract will provide the local RC&D entity with resources to update the watershed management plan (WMP) for the Turkey River Watershed Management Authority (WMA) and provide for additional updates to the Frog Hollow Lake and Volga River Headwaters nine-element watershed management plans, which are sub-watersheds with additional project focuses within the Turkey River watershed.

The Turkey River Watershed Plan was developed between 2012-2015 as part of the Housing and Urban Development 2010 grant for disaster resiliency building and planning in response to the 2008 floods in the state. The Turkey River was one of the original demonstration projects for the Iowa Watershed Approach which brought over \$100,000,000 to the state for flood resilience research, planning, and implementation. The Turkey River Plan will be updated with improved modeling offered by tools like the Agricultural Conservation Planning Framework (ACPF), new LiDAR and water monitoring data, and newly updated Iowa Nutrient Reduction Strategy practice effectiveness information.

Selection Process Summary: Northeast Iowa RC&D (Contractor) was selected by formal competitive selection process via 26ESDWQBCLULL-0017 titled "Comprehensive Water Quality Management Planning Grant Application Solicitation." The competitive process was conducted to acquire professional services for developing plan creation or updates for represented WMAs. This Contractor is representing the Turkey River WMA as Fiscal Agent and planning technical assistance provider.

Contract History:**24ESDWQBSKONR-0009: Spillville Source Water Protection Project**

- Timeframe: 9/20/23 to 6/30/27
- Amount \$ 231,000
- Amendment(s): None

24ESDWQBSKONR-0010: Winneshiek County Regenerating Soil and Community Implementation Project

- Timeframe: 9/20/23 to 6/30/27
- Amount \$ 221,650
- Amendment(s): None

25ESDWQBMHAES-0011: Dry Run Greenbelt Water Quality Improvement Project

- Timeframe: 5/1/25 to 6/30/27
- Amount \$ 175,000
- Amendment(s): None

Steve Konrady, Nonpoint Source Coordinator, Water Quality Bureau
Environmental Services Division
April 21, 2026

Attachment A: Statement of Work from Contract

Statement of Work. Contractor shall perform the following Tasks by the Task Milestone Dates set out in the following table:

Deliverables	Task Milestone Date
<p>Task 1: Data Analysis, Modeling Setup, Stakeholder Engagement Kickoff Description: During the first year, the Contractor shall gather and analyze relevant data including but not limited to:</p> <ul style="list-style-type: none"> ● Updated Cropland Data Layer ● Soils and slope data ● Hydrologic connectivity analysis ● Agricultural drainage information ● Urban stormwater characteristics ● Updated LiDAR information <p>These data sources shall inform modeling updates through tools including but not limited to the Agricultural Conservation Planning Framework (ACPF).</p> <p>Additionally, the Contractor shall develop an initial stakeholder engagement plan and begin developing the first engagement meetings. This stakeholder engagement plan shall include, but is not limited to: stakeholder targeting strategies, outreach methodologies, public meeting schedules, and stakeholder input surveys. Targeting shall include relevant Soil and Water Conservation District commissioners, members of relevant county boards, as well as agricultural and urban residents of the watershed area.</p>	<p>No later than June 30, 2027</p>
<p>Task 2: Public Meetings, Scenario Modeling, Surveys, Targeted Outreach to Advise Plan Development Description: The Contractor shall conduct at least two stakeholder engagement meetings, geographically distributed in the watershed for reach. The stakeholder engagement plan developed in Task 1 shall inform additional surveys and targeted outreach efforts for this Task.</p> <p>Modeling efforts shall include, but are not limited to: sediment load estimation for nutrients and sediment, hydrologic and flood analysis, and scenario modeling.</p>	<p>No later than September 30, 2027</p>
<p>Task 3: Draft Plan Development and Conversation to Digital Platform Description: The updated WMP shall include:</p> <ul style="list-style-type: none"> ● Comprehensive Watershed Characterization ● Modeling Results ● Updated Flood Profiles ● Inventory of Priority Practices ● Inventory of Targeted Subwatersheds ● Short- and Long-Term Implementation Strategies ● Public-Friendly Summaries ● Story Maps on www.turkeyriver.org ● Detailed Overview of Potential Funding Pathways <p>The Volga River Headwaters and Frog Hollow Lake plans shall follow, where relevant, additional elements of watershed planning outlined in Environmental Protection Agency guidance available: https://www.epa.gov/nps/resources-watershed-planning</p>	<p>No later than March 31, 2028</p>
<p>Task 4: Final Plans, Public Review, WMA Adoption Description: The final plans shall be presented for public review and subsequently for WMA adoption via majority vote of WMA member representatives. A copy of the final plans shall be presented to DNR as both online resource links (Story Map or alternative as decided) and cohesive, downloadable documents in an industry-</p>	<p>Plan Final Draft: No later than 45 days before the Contract End Date of June 30, 2028</p>

<p>standard format such as Portable Document Format (PDF). The following plans are included in this item:</p> <ul style="list-style-type: none"> ● Turkey River WMA Plan ● Frog Hollow Lake Nine-Element WMP ● Volga River Headwaters Nine-Element WMP <p>Note: the two Nine-Element WMPs may be merged into a single plan and renamed appropriately if considered appropriate by the Contractor based on development progress.</p>	<p>Public Review and WMA Adoption: No later than June 30, 2028</p>
<p>Task 5: Regular Status Updates Description: Status updates shall include but are not limited to:</p> <ul style="list-style-type: none"> ● Funds expended ● Plan update progress relative to the milestones and timeline in Exhibit A ● Descriptions of both: <ul style="list-style-type: none"> Challenges, barriers, or opportunities encountered; And deviations, additions, or modifications to address them. <p>Status updates shall accompany quarterly invoice submissions per Section 7.4 unless the invoicing schedule is otherwise modified and agreed upon by both parties.</p>	<p>January 15, April 15, July 15, and October 15 of each year of the Contract*.</p> <p>*Excluding July 15, 2028 (superseded by Task 6)</p>
<p>Task 6: Final Narrative Report Description: A final report shall be produced by the Contractor and shall include but is not limited to the following required information:</p> <ul style="list-style-type: none"> ● Narrative describing the plan update process including successes and obstacles ● Final financial statement ● Federal Section 604(b) Grant requirements: <ul style="list-style-type: none"> Funds expended (DNR/604(b) and other funds) Summary and comparison of accomplishments and objectives established Explanation of not meeting objectives, if applicable 	<p>No later than 45 days before the Contract End Date of June 30, 2028</p>

Attachment B: Budget from Contract

Budget Category (for Tasks 1-6)	DNR Amount
Salary and Benefits	Not to exceed \$74,200
Indirect Costs	Not to exceed \$8,300
Travel Training	Not to exceed \$2,000
Supplies	Not to exceed \$500
Total	Not to exceed \$85,000

**Iowa Department of Natural Resources
Environmental Protection Commission**

ITEM #14

DECISION

Contract Amendment with IOWA STATE UNIVERSITY**Recommendation:**

Commission approval is requested for a service contract amendment with Iowa State University, Conservation Learning Group (ISU CLG) and Contract # 26ESDWQBSKONR-0002.

Contract Terms:

Amount: Amendment not to exceed \$196,606; Amended Contract total not to exceed \$642,861

Dates: May 26, 2026 to June 30, 2028.

Funding Source(s): EPA Farmer to Farmer Grant to Iowa (2022) and Clean Water Act Section 319 Grant to Iowa (for activities after June 30, 2027).

Statutory Authority: Funds are administered by DNR under statutory authority granted by Iowa Code 455B.103 and an EPA approved workplan.

Contract Amendment Purpose: The parties propose to enter into this Contract Amendment to retain the Contractor to provide: Development and outreach support at the new "Watershed Innovation Farm" which is a collection of innovative BMPs implemented at ISU Teaching Farms south of Ames and in close proximity to the Ag Innovation Lab and Story County/City of Ames Tedesco Environmental Learning Corridor.

Contract Amendment Background: Previously, the DNR had retained ISU CLGs services for implementing education and outreach aligned with the Iowa Nonpoint Source Management Plan and Iowa Nutrient Reduction Strategy goals via 26ESDWQBSKONR-0002. CLG and its research affiliates across the university recently engaged with ISU Research and Demonstration Farms to develop increased on-farm conservation activities to provide more outdoor conservation classroom opportunities. The ISU Dairy Farm south of Ames is directly adjacent to the City of Ames and Story County co-managed Tedesco Environmental Learning Corridor (TELC) which is used by City, County, University, public and private schools, and other youth and adult education outlets as an environmental classroom. High bacteria, nutrients, and turbidity in the stream within the TELC are often cited by users as concerns and the ISU Farms properties are a key component of the nonpoint sources of pollution contributing to the issue due to land use, scale, and proximity. Development of BMPs at the site will have convenient education, outreach, and research benefits for CLG and others, and also water quality co-benefits for downstream partners at the TELC.

Currently, the following practices are proposed for implementation at the site with several under construction using matching or other leveraged funds: 6 bioreactors, 2 saturated buffers (1 riparian saturated buffer), 2 grassed waterways, 1 wetland, and 1 on-farm woodland practice demonstration site. Each of these will offer some level of water quality improvement to the downstream areas and the co-benefit of being utilized for outreach and teaching events. Utilization will include ISU Researchers, CLG educators, and also be frequently opened to public events in partnership with the TELC users among other event types. The development of the Watershed Innovation Farm via this Contract Amendment will bolster the portfolio of outreach and education opportunities offered by the Original Contract with easy access to in-person learning near to ISU Campus.

Amendment Statement of Work and Budget:

- Amendment Task 1: Establish Watershed Innovation Farm Practices and Demonstration Units
 - Combining Contract and Leveraged funds to develop 6 bioreactors, 2 saturated buffers (1 riparian saturated buffer), 2 grassed waterways, 1 wetland, and 1 on-farm woodland practice demonstration site
 - Automated Drainage Structures will be utilized to track water data in real time where appropriate and in conjunction with the bioreactors
- Amendment Task 2: Install Educational Signage and Site Accessibility Enhancements

- A total of 10-12 large, permanent signs are proposed to describe watershed interconnectivity, links of land use to water quality, and the role of edge of field practices, with agency funding acknowledgement
- Trails, heavy traffic area protection, and other accessibility enhancements around BMP sites
- Amendment Task 3: Develop Educational Programming for Watershed Innovation Farm
 - Outreach materials, training, and demonstrations for four primary target groups: Communities, Conservation Professionals including Farmers and Landowners, Students and Teachers, and Industry Partners
- Amendment Task 4: Deliver Outreach Events and Launch Event
 - Ribbon cutting field day shall be conducted in Year 2
 - Regular events throughout both years of the amendment

Amendment Budget:

Category	Amendment Year 1	Amendment Year 2	TOTAL By Category
Personnel, Travel*	\$59,527	\$61,272	\$120,799
BMP Establishment**	\$11,500	\$0	\$11,500
Supplies, Services, Rentals	\$37,000	\$4,320	\$41,320
Indirect Costs (@ 13.24%***)	\$14,303	\$8,684	\$22,987
Amend TOTAL By Year	\$122,330	\$74,276	Amend Tot: \$196,606

*Personnel support in the form of salary support, fringe benefits, and travel for parts of 5 full-time staff and 1 student intern during duration of contract

**Supports development of remaining BMP implementation including automated drainage structure

***The 13.24% indirect rate was the DNR-negotiated rate with EPA for this grant's cycle and was agreed upon between ISU and DNR to facilitate enhanced support for this subaward program at ISU but within the bounds of EPA acceptability.

Amendment Contractor Selection Process:

- Intergovernmental contracting is authorized by 11 IAC 118.4. Iowa State University was chosen for this project because they possess ownership of the property being utilized for the project, and the Contract being amended was awarded to them for programmatic support vital to this project.

Contract History:

Contract 1 is the Original Contract this Amendment is adding funds and scope to. Contracts 2-3 are Water Rocks! support only, Contract 5 represents Iowa Learning Farms support only. Additional match and leveraged funds for Contract 1 now include Iowa Department of Ag and Land Stewardship, Iowa Nutrient Research Center, and other Environmental Protection Agency funds.

Contract #1: *Timeframe: 3/27/2026 to 6/30/2028; Amount \$446,255; Current Contract being Amended – Approved by EPC February 17, 2026 and executed on March 27, 2026.*

Contract #2: *Timeframe: 2/1/2024 to 6/30/2026; Amount \$300,000; Amendments: Amended for additional time at no additional cost (original end date 12/31/2025); Overlap with the timeline of the Contract #1 above allowed for uninterrupted services during the 2025-2026 school year in Iowa.*

Contract #3: *Timeframe: 1/1/2022 to 12/31/2025; Amount \$324,127; Amendments: Amended for additional time once and additional costs twice (Original Contract Value: \$150,336; Original Contract End Date: 12/31/2024) along with scope changes to support additional work items including development of a new outreach trailer and support for additional educational webinars. Note: Overlapping timeframe of this contract and Contracts #2 and 4 is due to differing purposes (Iowa Learning Farms vs Water Rocks! support). The currently proposed contract now combines purposes of these previous contracts for efficiency and is paired better with IDALS matching funds.*

Contract #4: Timeframe: 11/19/2019 to 3/31/2024; Amount \$275,000; Amendments: Amended for additional time at no additional cost (original end date 12/31/2022); No modifications to scope outside of activities over additional time. Water Rocks! was able to operate at lower cost during this timeframe which was impacted by the strict limits on in-person events at schools.

Contract #5: Timeframe: 1/1/2015 to 6/15/2019; Amount \$607,883; Amendments: Amended for additional time at no additional cost (original end date 3/31/2018); also expanded scope of work to allow for additional school year of assemblies and programming.

Steve Konrady, Nonpoint Source Coordinator
Environmental Services Division
May 19, 2026

**Iowa Department of Natural Resources
Environmental Protection Commission**

ITEM #15

DECISION

Contract with THE UNIVERSITY OF IOWA**Recommendation:**

Commission approval is requested for a service contract with the State Hygienic Laboratory (SHL) at the University of Iowa.

Contract Terms:

Amount: Not to exceed \$575,391.60

Dates: July 1, 2026 to June 30, 2027

Funding Source(s): HB8A Environment First Funding

Statutory Authority: Iowa Code section 455B.103(3)

Contract Background: The Clean Water Act requires states to monitor and report on the condition of the waters of the state. This Contract is a continuation of DNR's long-standing partnership with SHL to collect and analyze samples from Iowa's streams and rivers. Since 1994, the DNR has conducted biological assessments of Iowa streams to determine the ecological status and health of these waterbodies. The protocol primarily consists of sampling water quality, fish, benthic macroinvertebrates, and physical habitat during the summer low-flow index period (July through October).

Contract Purpose: The parties propose to enter into this Contract to retain the Contractor to provide sampling and analytical services for the ambient biological monitoring and assessment program.

Contractor Selection Process:

SHL was chosen for this project because of its ability to provide the necessary services. The authority to enter into this Contract is found in Iowa Code section 455B.103(3).

Contract History:

The FY26 Ambient Biological Monitoring and Laboratory Services (AMBIO) Contract was \$577,215.18

The FY25 AMBIO Contract was \$576,630.90.

The FY24 AMBIO Contract was \$633,121.38.

The FY23 AMBIO Contract was \$612,908.64.

The FY22 AMBIO Contract was \$701,732.16.

Ken Krier, Environmental Specialist Senior, Water Quality Monitoring and Assessment Section
Water Quality Bureau
Environmental Services Division
May 20, 2026

Table 1: FY27 Ambient Biological Monitoring and Laboratory Services Contract Cost Breakdown by Task.

Task Description	Number of sites	Sample Collection Cost Total	Biological Analysis Cost	Water Quality Analysis Cost	Continuous Monitoring Equipment Maintenance	Total Cost
Task 1: Wadeable Stream Reference Sites	24	\$104,880.00	\$26,964.00	\$11,916.00		\$143,760.00
Task 2: Coldwater Stream Reference Sites	4	\$17,480.00	\$4,494.00	\$1,986.00		\$23,960.00
Task 3: Biological Trend Sites	9	\$39,330.00	\$10,111.50	\$4,468.50	\$26,100.00	\$80,010.00
Task 4: Ambient WQ Sites	15	\$16,500.00	\$26,040.00			\$42,540.00
Task 5: Follow-up Biological Sites	15	\$65,550.00	\$16,852.50	\$7,447.50		\$89,850.00
Task 6: Aquatic Life Use Attainability Assessment Sites	40		\$2,250.00			\$90,000.00
Task 7: Identification of DNR Benthic Macroinvertebrate Samples	25	\$0.00	\$26,150.00	\$0.00		\$26,150.00
Task 8: Supplemental Monitoring						\$5,000.00
Task 9: Site Reconnaissance and Landowner Contacts						\$10,000.00
Task 10: Equipment Purchase/Replacement/Repair						\$20,000.00
Task 11: Shipping Samples						\$1,500.00
Task 12: Data Transfer						\$0.00
Sub-total						\$532,770.00
Indirect Costs (8%)						\$42,621.60
					Total	\$575,391.60

Table 2: FY27 Ambient Biological Monitoring and Laboratory Services Contract Water Quality Fee Breakdown.

Parameter	Analytical Method	Reporting Limit ¹	Holding Time	Test Fee	# of Samples	Total Fee
BOD, Carbonaceous 5 Day	SM 5210 B	2 mg/L	48 Hours	\$45.00	52	\$2,340.00
Total Dissolved Solids	SM 2540 C	1 mg/L	7 days	\$18.00	52	\$936.00
Total Suspended Solids	USGS I-3765-85 or SM 2540 D	1 mg/L	7 days	\$18.00	52	\$936.00
Total Volatile Suspended Solids	EPA 160.4 TVSS	1 mg/L	7 days	\$18.00	52	\$936.00
Total Phosphorus as P	EPA 365.1	0.02 mg/L	28 days	\$18.00	52	\$936.00
	EPA 365.4	0.5 mg/L				
Ammonia Nitrogen as N	EPA 350.1	0.05 mg/L	28 days	\$18.00	52	\$936.00
Nitrite + Nitrate as N	EPA 353.2	0.1 mg/L (Lakeside, Coralville) 0.25 mg/L (Ankeny)	28 days	\$18.00	52	\$936.00
Total Kjeldahl Nitrogen	EPA 351.2	0.5 mg/L	28 days	\$45.00	52	\$2,340.00
Orthophosphate as P	EPA 365.1	0.02 mg/L	48 hours	\$23.50	52	\$1,222.00
Chloride	EPA 300.0 or SM 4500 Cl E	0.2 mg/L or 2.5 mg/L	28 days	\$18.00	52	\$936.00
Sulfate	EPA 300.0 or ASTM D516-11	0.2 mg/L or 5 mg/L	28 days	\$18.00	52	\$936.00
Total Hardness as CaCO ₃	SM 2340 C	1 mg/L	28 days	\$18.00	52	\$936.00
Turbidity	SM 2130 B	1 NTU	48 hours	\$17.00	52	\$884.00

Attachments

Chlorophyll <i>a</i> Analysis of Water	EPA 445.0 Rev 1.2 or SM 10200 H	1 µg/L	24 hours to filter, 21 days frozen filter	\$52.00	52	\$2,704.00
Chlorophyll <i>a</i> Analysis in Fine Substrate	EPA 445.0 Rev 1.2 or SM 10200 H	1 µg/L	24 hours to filter, 21 days frozen filter	\$52.00	52	\$2,704.00
Chlorophyll <i>a</i> Analysis in Coarse Substrate	EPA 445.0 Rev 1.2	1 µg/L	24 hours to filter, 21 days frozen filter	\$52.00	52	\$2,704.00
Field Dissolved Oxygen	ASTM D888 Test Method C	0.1 mg/L	n/a	\$9.00	52	\$468.00
Field pH	SM 4500 H ⁺ B	0.1	n/a	\$9.00	52	\$468.00
Field Temperature	SM 2550 B	0.1 °C	n/a	\$9.00	52	\$468.00
Field Stream Flow	Flow-stream manual	0.1 cfs	n/a	\$21.00	52	\$1,092.00

¹DNR requires that the analytical method with the lowest reporting limit be used if the parameter is non-detect.

Iowa Department of Natural Resources
Environmental Protection Commission

Decision Item

16. Chapter 101 “Sanitary Disposal Projects”, Chapter 106 “Citizen Convenience Centers and Transfer Stations”, Chapter 113 “Sanitary Landfills for Municipal Solid Waste: Groundwater Protection Systems for the Disposal of Nonhazardous Wastes”, Chapter 114 “Sanitary Landfills: Construction and Demolition Wastes”, and Chapter 115 “Sanitary Landfills: Industrial Monofils” – Amended Notice of Intended Action

The Commission is requested to approve the Amended Notice of Intended Action for Chapters 101, 106, and 113 through 115. It proposes to rescind chapters 106 and 113 through 115, and to rescind and replace Chapter 101 with a new consolidated chapter titled “Sanitary Disposal Projects.”

The original Notice of Intended Action for this proposed rulemaking was published on January 7, 2026, as a result of the Land Quality Bureau’s Executive Order 10 rule review, and as approved by the Commission. On internal review of applicable law after public comments were received, the DNR has determined it is not appropriate to have regulations related to the disposal of dead animals in these rules. As such, the DNR is proposing to remove the provisions related to dead animal disposal. The DNR, therefore, requests the Commission amend the Notice of Intended Action to ensure all interested parties have the opportunity to comment on the proposed rules.

Amie Davidson, Division Administrator
Environmental Services Division
Meeting Date: May 20, 2026

Attached: Chapters 101 and 106, 113-115 – Amended NOIA

ENVIRONMENTAL PROTECTION COMMISSION[567]

Amended Notice of Intended Action

The Environmental Protection Commission (Commission) hereby proposes to rescind Chapter 101, “Solid Waste Comprehensive Planning Requirements”; to adopt a new Chapter 101, “Sanitary Disposal Projects”; and to rescind Chapter 106, “Citizen Convenience Centers and Transfer Stations,” Chapter 113, “Sanitary Landfills for Municipal Solid Waste: Groundwater Protection Systems for the Disposal of Nonhazardous Wastes,” Chapter 114, “Sanitary Landfills: Construction and Demolition Wastes,” and Chapter 115, “Sanitary Landfills: Industrial Monofills,” Iowa Administrative Code.

Legal Authority for Rulemaking

This rulemaking is proposed under the authority provided in Iowa Code sections 455B.304, 455B.304(12), 455B.304(8) and 455B.306(9).

State or Federal Law Implemented

This rulemaking implements, in whole or in part, Iowa Code chapter 455B, Executive Order 10, and 40 CFR Part 258.

Purpose and Summary

Notice of Intended Action was published in the Iowa Administrative Bulletin on Chapters 103, 106, 113, 114, and 115, which were reviewed consistent with Executive Order 10 (2023). Proposed Chapter 101 is a consolidation of these six chapters related to sanitary disposal projects. No new programs are being proposed. The chapter will contain the following eight divisions, including one reserved division, with a summary and purpose as follows: Chapters 103, 106, 113, 114, and 115 were reviewed consistent with Executive Order 10 (2023). Proposed Chapter 101 is a consolidation of these six chapters related to

sanitary disposal projects. No new programs are being proposed. The proposed chapter will contain eight divisions, with summaries and purposes as follows:

Division I—Landfill-Specific Requirements: Provides general landfill-specific requirements for sanitary disposal projects regulated in Divisions II, III, and IV of Chapter 101.

Division II—Municipal Solid Waste Landfills: Implements Iowa Code chapter 455B, subchapter IV (Solid Waste Disposal) and protects human health and the environment through the implementation of minimum national standards pursuant to the Resource Conservation and Recovery Act for municipal solid waste landfills. Notably, these rules have been promulgated in the Federal Register as part of Environmental Protection Agency's approval of Iowa's program.

Division III—Industrial Landfills: Establishes rules for the siting, designing, and operating of sanitary landfills accepting only industrial solid waste or only construction and demolition debris. As part of this rulemaking, the permit period for industrial landfills was extended to five years, up from three years.

Division IV—Coal Combustion Residuals Landfills: Establishes rules for the siting, designing, and operating of a sanitary landfill accepting only coal combustion residuals.

Division V—Solid Waste Transfer Stations: Establishes rules for the collection, temporary storage, and transfer of solid waste prior to final disposition. This includes the siting, designing, and operating of transfer stations. As part of this rulemaking, the permit period for solid waste transfer stations was extended to five years, up from three years.

Division VI—Solid Waste Incinerator Operator Certification: Provides the criteria for establishing the certification of operators of solid waste incinerators to help ensure the safe and proper management for disposal of waste.

Division VII—Infectious Waste Treatment and Disposal: Reserved.

Division VIII—Financial Assurance: Provides criteria for establishing financial assurance for closure, post-closure care, and corrective action at sanitary disposal projects.

Reason for Amendment of Notice of Intended Action

Notice of Intended Action was published in the Iowa Administrative Bulletin on January 7, 2026, as **ARC 9931C**. During the public comment period, the Department, on behalf of the Commission received comments questioning the stringency of the new rules as they related to the composting of dead animals. These comments prompted a review of the Commission's statutory jurisdiction over the disposal of dead animals. The Commission has determined the legislature did not intend for the Department to regulate the disposal of dead animals as solid waste. See IOWA CODE §§ 159.6(4) and Iowa Code Chapter 167; see also *Pet Memories vs. DNR*, CVCV035362 (Cedar, 2015). Therefore, the Commission is proposing to remove the provisions of this rule related to the disposal of dead animals. The Commission also determined this change is substantial enough from the original proposed rule to amend the Notice and provide additional opportunity for public comment on this proposed amendment.

Fiscal Impact

This rulemaking has no fiscal impact to the State of Iowa.

Jobs Impact

After analysis and review of this rulemaking, no impact on jobs has been found.

Waivers

Any person who believes that the application of the discretionary provisions of this rulemaking would result in hardship or injustice to that person may petition the Commission for a waiver of the discretionary provisions, if any, pursuant to 567—Chapter 13. Some provisions are minimum standards required by federal law (40 CFR Part 258, Subpart G), and waivers to such provisions shall not be granted unless they are as protective as the applicable minimum federal standard.

Public Comment

Any interested person may submit written comments concerning this proposed rulemaking. Written comments in response to this rulemaking must be received by the Department of Natural Resources (Department) no later than 4:30 p.m. on July 1, 2026. Comments should be directed to:

Mike Sullivan, Supervisor

Department of Natural Resources

6200 Park Avenue, Suite 200

Des Moines, Iowa 50321

Email: michael.sullivan@dnr.iowa.gov

Free language access: If you speak a non-English language, the Department offers language assistance services free of charge. Contact the Department at EO10_solidwaste@dnr.iowa.gov.

Asistencia lingüística gratuita: Si habla un idioma que no sea el inglés, los servicios de asistencia lingüística están disponibles de forma gratuita, comuníquese con el Departamento al EO10_solidwaste@dnr.iowa.gov.

Public Hearing

A public hearing at which persons may present their views orally or in writing will be held as follows:

June 30, 2026	Virtual Meeting (via Zoom)
1 p.m.	https://us02web.zoom.us/j/84398912479
	Meeting ID: 843 9891 2479
July 1, 2026	Virtual Meeting (via Zoom)
9 a.m.	https://us02web.zoom.us/j/85445302938

Meeting ID: 854 4530 2938

Additionally, persons who wish to make a public comment may be asked to state their names for the record and to confine their remarks to the subject of this proposed rulemaking.

Any persons who intend to attend a hearing and have special requirements, such as those related to hearing or mobility impairments, should contact the Department and advise of specific needs.

Free Language Assistance: If you need assistance in a language other than English, contact the Department at EO10_solidwaste@dnr.iowa.gov or civilrights@dnr.iowa.gov or by telephone at 515.360.1671 at least seven days before the event.

Asistencia lingüística gratuita: Si necesita ayuda en un idioma que no sea inglés, comuníquese con el Departamento al EO10_solidwaste@dnr.iowa.gov o civilrights@dnr.iowa.gov o por teléfono a 515.360.1671 al menos siete días antes del evento.

Review by Administrative Rules Review Committee

The Administrative Rules Review Committee, a bipartisan legislative committee which oversees rulemaking by executive branch agencies, may, on its own motion or on written request by any individual or group, review this rulemaking at its regular monthly meeting or at a special meeting. The Committee's meetings are open to the public, and interested persons may be heard as provided in Iowa Code section 17A.8(6).

The following rulemaking action is proposed:

ITEM 1. Rescind 567—Chapter 101 and adopt the following **new** chapter in lieu thereof:

CHAPTER 101

SANITARY DISPOSAL PROJECTS

DIVISION I

LANDFILL-SPECIFIC REQUIREMENTS

567—101.1(455B) Purpose, applicability, and compliance. The purpose of this division is to provide sanitary landfill-specific requirements for sanitary disposal projects regulated in Divisions II, III, and IV of this chapter. All sanitary landfills regulated in Divisions II, III, and IV of this chapter must comply with the provisions of this division and with 567—Chapter 100, except as noted below and in those respective divisions.

101.1(1) Municipal solid waste landfills that did not receive waste after October 9, 1994, shall be governed by the closure permit issued or the rules in place at the time for post-closure activities.

101.1(2) All rules, standards, technical guidance, and other similar legal or technical documents referenced in this division shall be the version of those documents in effect on August 1, 2025, unless otherwise noted in these rules, and except for references to the Iowa Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

567—101.2(455B) Farm exceptions. This chapter does not apply to farm waste and farm buildings that are disposed of in compliance with the following requirements.

101.2(1) *Definitions.* For the purpose of this rule:

“*Farm buildings*” means barns, machine sheds, storage cribs, animal confinement buildings, and homes located on the premises and used in conjunction with crop production or with livestock or poultry raising and feeding operations; and

“*Farm waste*” means machinery, vehicles and equipment used in conjunction with crop production or with livestock or poultry raising and feeding operations, trees, brush and grubbed stumps generated on the same property, or ashes from the burning thereof, but specifically does not include agricultural chemicals, fertilizers or manures, or domestic household wastes.

101.2(2) A private agency may dispose of farm waste and farm buildings without first having obtained a sanitary disposal project permit, provided that the disposal is in accordance

with 101.2(3), the rules of the department of agriculture and land stewardship, and the following:

a. The farm waste was owned by the private agency and was used on the premises where disposal occurs.

b. Prior to disposal of vehicles, machinery, and equipment, all fluids are drained, including motor oils, motor fuels, lubricating fluids, coolants and solvents, and agricultural chemicals; and all batteries and rubber tires are removed.

c. Prior to disposal of storage or feeding equipment, the equipment is emptied of all contents not otherwise authorized for burial pursuant to these rules.

d. Farm buildings have been emptied of contents not otherwise authorized for burial pursuant to these rules and have been buried on the premises where they were located.

e. All materials drained or removed from farm waste or farm buildings prior to disposal are recycled, reused, or disposed of in accordance with Iowa Code chapter 455B and 459 and the rules implementing that chapter.

f. The farm waste and farm buildings are buried in soils listed in tables contained in the county soil surveys and soil interpretation records (published by the U.S. Soil Conservation Service) as being moderately well drained, well drained, somewhat excessively drained, or excessively drained soils. Other soils may be used if artificial drainage is installed to obtain water-level depth more than two feet below the burial depth of the waste.

g. The lowest elevation of the burial pit is six feet or less below the surface.

h. The farm waste and farm buildings are immediately covered with a minimum of 6 inches of soil and finally covered with a total minimum of 24 inches of soil.

101.2(3) Farm waste and farm buildings must be disposed of in accordance with the following separation distances:

- a. At least 100 feet from any private and 200 feet from any public well that is being used or would be used without major renovation for domestic purposes.
- b. At least 50 feet from any adjacent property line.
- c. At least 500 feet from an existing neighboring residence.
- d. More than 100 feet from any body of surface water such as a stream, lake, pond, or intermittent stream, except as provided in 101.2(3) “f.”
- e. Outside the boundaries of a floodplain, wetland, or shoreline area, except as provided in 101.2(3) “f.”
- f. Trees, brush and grubbed stumps generated as a result of clearing, snagging, or maintenance or repair of drainage ditches or outlets may be buried within 100 feet of a surface water and within a floodplain or shoreline area.

567—101.3(455B) Definitions. For the purposes of this division, the definitions in Iowa Code section 455B.301 and 567—Chapter 100 shall be incorporated by reference.

567—101.4(455B) Permits. In addition to the permit requirements in 567—Chapter 100 and as otherwise required by law, the following permit requirements shall apply to all sanitary landfills.

101.4(1) *Operating permits.* An MSWLF, construction and demolition debris, or industrial landfill operating permit shall be issued and may be renewed for a period no longer than five years. A coal combustion residuals landfill operating permit shall be issued and may be renewed for a period no longer than ten years. If an MSWLF adopts research, development, and demonstration (RD&D) provisions pursuant to 101.104(2), an MSWLF operating permit with RD&D provisions shall be issued and may be renewed for a period no longer than three years.

101.4(2) *Closure permits.* An MSWLF or industrial landfill closure permit shall be issued for a period of 30 years. A coal combustion residuals landfill closure permit shall be issued

for a period of ten years. A sanitary landfill requires a closure permit until the department determines that post-closure operations are no longer necessary. A request for a closure permit renewal or termination shall be filed at least 180 days before the expiration of the current permit. If the department finds that a sanitary landfill has completed all required post-closure activities and no longer presents a significant risk to human health or the environment, then the department shall issue written notification that a closure permit is no longer required for the facility. If the department extends the post-closure period, then the duration of the subsequent closure permit will be determined on a site-specific basis.

567—101.5(455B) Applications and construction requirements. Unless otherwise authorized by the department, a permit applicant shall submit on a form prescribed by the department, and shall provide evidence demonstrating how the landfill will comply with the requirements in 567—Chapter 100, the following general requirements, and any requirements specified in the applicable division of this chapter.

101.5(1) *Local siting approval.* Documentation that local siting approval pursuant to Iowa Code section 455B.305A, if applicable, has been obtained.

101.5(2) *Separation from groundwater.* The base of a sanitary landfill unit shall be situated so that the base of the waste within the proposed unit is at least five feet above the high water table unless a greater separation is required to ensure that there will be no significant adverse effect on groundwater or surface waters or a lesser separation is unlikely to have a significant adverse effect on groundwater or surface waters. Artificial means of lowering the high water table are acceptable. The separation of the base of a sanitary landfill unit from the high water table shall be measured and maintained in a manner acceptable to the department.

101.5(3) *Wells.* A sanitary landfill unit shall not be within 1,000 feet of any water well in existence at the time of receipt of the original permit application or application to laterally

expand the permitted sanitary landfill unit for the facility. Groundwater monitoring wells are exempt from this requirement. The department may also exempt extraction wells utilized as part of a remediation system from this requirement.

101.5(4) *Floodplains.* New sanitary landfill units or lateral expansions shall not be located in a 100-year floodplain. Existing sanitary landfills located in 100-year floodplains must demonstrate to the department that the unit will not restrict the flow of a 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment. The owner or operator must place the demonstration in the operating record and submit a copy of the demonstration to the department. For purposes of this subrule, the definitions for floodplain, 100-year flood, and washout are the same as defined in 40 CFR 258.11.

567—101.6(455B) General operating requirements. In addition to the general operating requirements in 567—Chapter 100, the following shall apply to all sanitary landfills unless otherwise noted.

101.6(1) *Controlled access.* Sanitary landfills will control public access and prevent unauthorized vehicular traffic and illegal dumping of wastes by using artificial barriers, natural barriers, or both, as appropriate to protect human health and the environment.

101.6(2) *Scales and weights.* A scale certified by the Iowa department of agriculture and land stewardship shall weigh all solid waste collection vehicles and solid waste transport vehicles. The owner or operator shall maintain a record of the weight of waste disposed.

101.6(3) *All-weather access to disposal.* A disposal area shall be accessible during all weather conditions when the landfill is open.

101.6(4) *Salvaged and processed materials.* Salvaged and processed materials (e.g., scrap metal, compost, mulch, aggregate, tire chips) from a sanitary landfill shall be managed

and stored in an orderly manner that does not create a nuisance or encourage the attraction or harborage of vectors.

101.6(5) *Vector control.* Sanitary landfills shall prevent or control the on-site populations of vectors using techniques appropriate for the protection of human health and the environment.

101.6(6) *Litter control.* Sanitary landfills shall take steps to minimize the production of litter and the release of windblown litter off site of the facility. All windblown litter off site of the facility shall be collected daily unless prevented by unsafe working conditions. On-site litter shall be collected daily unless prevented by working conditions. A dated record of unsafe conditions that prevented litter collection activities shall be maintained by the facility.

101.6(7) *Dust control.* Sanitary landfills shall take steps to minimize the production of dust so that unsafe or nuisance conditions are prevented.

101.6(8) *Mud control.* Sanitary landfills shall take steps to minimize the tracking of mud by vehicles exiting the facility so that slick or unsafe conditions are prevented.

101.6(9) *Leachate and wastewater treatment.* The leachate management system shall be managed and maintained pursuant to the requirements of Divisions II, III, and IV of this chapter. Leachate collection pipes shall be cleaned and inspected as necessary but not less than once every three years. Leachate and wastewater shall be treated as necessary to meet the pretreatment limits, if any, imposed by a publicly owned wastewater treatment works (POTW) or by the effluent discharge limits established by a National Pollutant Discharge Elimination System (NPDES) permit. Documentation of the pretreatment permit or pretreatment agreement with the POTW or NPDES permit must be submitted to the department. All leachate and wastewater treatment systems shall conform to the department's wastewater design standards.

101.6(10) *Signage.* Facilities open to the public shall have signs or pavement markings indicating on-site traffic patterns.

101.6(11) *Traffic control.* Adequate queuing distance shall be provided for vehicles entering and exiting the property.

567—101.7(455B) Sanitary landfill operator certification. Sanitary landfill operators shall be trained, tested, and certified by a department-approved certification program.

101.7(1) A sanitary landfill operator shall be on duty during all hours of operation of all sanitary landfills, except coal combustion residuals sanitary landfills, consistent with the respective certification.

101.7(2) To become a certified operator, an individual shall complete a basic operator training course that has been approved by the department or an alternative, equivalent training approved by the department and shall pass a departmental examination as specified by this subrule. An operator certified by another state may have reciprocity subject to prior approval by the department.

101.7(3) A sanitary landfill operator certification is valid until June 30 of the following even-numbered year.

101.7(4) The required basic operator training course for a certified sanitary landfill operator shall have at least 20 contact hours and shall address the following areas at a minimum:

- a. Description of types of wastes.
- b. Interpreting and using engineering plans.
- c. Construction surveying techniques.
- d. Waste decomposition processes.
- e. Geology and hydrology.
- f. Landfill design.

- g.* Landfill operation.
- h.* Environmental monitoring.
- i.* Applicable laws and regulations.
- j.* Permitting processes.
- k.* Leachate control and treatment.

101.7(5) Alternate basic operator training must be approved by the department. The applicant shall be responsible for submitting any documentation the department may require to evaluate the equivalency of alternate training.

101.7(6) Fees.

- a.* The fee for each examination is \$20.
- b.* The initial certification fee is \$8 for each one-half year of a two-year period from the date of issuance to June 30 of the next even-numbered year.
- c.* The certification renewal is \$24.
- d.* The penalty fee is \$12.

101.7(7) Examinations.

- a.* The operator certification examinations shall be based on the basic operator training course curriculum.
- b.* All individuals wishing to take the examination required to become a certified operator of a sanitary incinerator shall complete an operator certification examination application on a form prescribed by the department. A listing of dates and locations of examinations is available from the department upon request. The application form requires the applicant to indicate the basic operator training course taken. Evidence of training course completion must be submitted with the application for certification. The completed application and the application fee shall be sent to the Iowa Department of Natural Resources, 6200 Park Avenue,

Des Moines, Iowa 50321. Application for examination must be received by the department prior to the date of examination.

c. A properly completed application for examination shall be valid for one year from the date the application is approved by the department.

d. Upon failure of the first examination, the applicant may be reexamined at the next scheduled examination. Upon failure of the second examination, the applicant shall be required to wait a period of 180 days between each subsequent examination.

e. Upon each reexamination when a valid application is on file, the applicant shall submit to the department the examination fee at least ten days prior to the date of examination.

f. Failure to successfully complete the examination within one year from the date of approval of the application shall invalidate the application.

g. Completed examinations will be retained by the department for a period of one year, after which they will be destroyed.

h. Oral examinations may be given at the discretion of the department.

101.7(8) Certification.

a. All operators who passed the operator certification examination by July 1, 1991, are exempt from taking the required operator training course. Beginning July 1, 1991, all operators are required to take the basic operator training course and pass the examination in order to become certified.

b. Application for certification must be received by the department within 30 days of the date the applicant receives notification of successful completion of the examination. All applications for certification shall be made on a form prescribed by the department and shall be accompanied by the certification fee.

c. Applications for certification by examination that are received more than 30 days but less than 60 days after notification of successful completion of the examination shall be

accompanied by the certification fee and the penalty fee. Applicants who do not apply for certification within 60 days of notice of successful completion of the examination will not be certified on the basis of that examination.

d. For applicants who have been certified under other state mandatory certification programs, the equivalency of which has been previously reviewed and accepted by the department, certification without examination will be approved.

e. For applicants who have been certified under voluntary certification programs in other states, the department shall consider certification by reciprocity if the applicant has successfully completed a basic operator training course and an examination generally equivalent to the Iowa examination. The department may require the applicant to successfully complete the Iowa examination.

f. Applicants who seek Iowa certification pursuant to 101.7(8) “*d*” and “*e*” shall submit an application for examination accompanied by a letter requesting certification pursuant to this subrule. Application for certification pursuant to this subrule shall be received by the department in accordance with 101.7(8) “*b*” and “*c*.”

101.7(9) Duration and renewal of certification. All certificates shall expire every two years, on even-numbered years, and must be renewed every two years to maintain certification. Application and fee are due prior to expiration of certification.

a. Late application for renewal of a certificate may be made, provided that such late application shall be received by the department within 30 days of the expiration of the certificate. Such late application shall be on forms prescribed by the department and accompanied by the penalty fee and the certification renewal fee.

b. If a certificate holder fails to apply for renewal within 30 days following expiration of the certificate, the right to renew the certificate automatically terminates. Certification may be allowed at any time following such termination, provided that the applicant successfully

completes an examination. The applicant must then apply for certification in accordance with 101.7(8).

c. An operator shall not continue to operate a sanitary landfill after expiration of a certificate without renewal thereof.

d. Continuing education must be earned during the two-year certification period. All certified operators must earn eight contact hours per certificate during each two-year period. The two-year period will begin upon issuance of certification.

e. Only those operators fulfilling the continuing education requirements before the end of each two-year period will be allowed to renew their certificates. The certificates of operators not fulfilling the continuing education requirements shall be void upon expiration unless an extension is granted by the department.

f. All activities for which continuing education credit will be granted must be related to the subject matter of the particular certificate to which the credit is being applied.

g. The department may, in individual cases involving hardship or extenuating circumstances, grant an extension of time of up to three months within which the applicant may fulfill the minimum continuing education requirements. Hardship or extenuating circumstances include documented health-related confinement or other circumstances beyond the control of the certified operator that prevent attendance at the required activities. All requests for extensions must be made 60 days prior to expiration of certification.

h. The certified operator is responsible for notifying the department of the continuing education credits earned during the period. The continuing education credits earned during the period shall be shown on the application for renewal.

i. A certified operator shall be deemed to have complied with the continuing education requirements of this subrule during periods that the operator serves honorably on active duty in the military service, for periods that the operator is a resident of another state or district

having a continuing education requirement for operators and meets all the requirements of that state or district for practice there, for periods that the person is a government employee working as an operator and is assigned to duty outside the United States, or for other periods of active practice and absence from the state approved by the department.

101.7(10) Discipline of certified operators.

a. Disciplinary action may be taken on any of the following grounds:

(1) Failure to use reasonable care or judgment or to apply knowledge or ability in performing the duties of a certified operator. Duties of certified operators include compliance with rules and permit conditions applicable to sanitary landfill operation.

(2) Failure to submit required records of operation or other reports required under applicable permits or rules of the department, including failure to submit complete records or reports.

(3) Knowingly making any false statement, representation, or certification on any application, record, report or document required to be maintained or submitted under any applicable permit or rule of the department.

b. Disciplinary sanctions allowable are:

(1) Revocation of a certificate.

(2) Probation under specified conditions relevant to the specific grounds for disciplinary action. Additional education or training or reexamination may be required as a condition of probation.

c. The procedure for discipline is as follows:

(1) The department shall initiate disciplinary action. The commission may direct that the department investigate any alleged factual situation that may be grounds for disciplinary action under 101.7(10)“*a*” and report the results of the investigation to the commission.

(2) A disciplinary action may be prosecuted by the department.

(3) Written notice shall be given to an operator against whom disciplinary action is being considered. The notice shall state the informal and formal procedures available for determining the matter. The operator shall be given 20 days to present any relevant facts and indicate the operator's position in the matter and to indicate whether informal resolution of the matter may be reached.

(4) An operator who receives notice shall communicate verbally, in writing, or in person with the department, and efforts shall be made to clarify the respective positions of the operator and department.

(5) The applicant's failure to communicate facts and positions relevant to the matter by the required date may be considered when determining appropriate disciplinary action.

(6) If agreement as to appropriate disciplinary sanction, if any, can be reached with the operator and the commission concurs, a written stipulation and settlement between the department and the operator shall be entered into. The stipulation and settlement shall recite the basic facts and violations alleged, any facts brought forth by the operator, and the reasons for the particular sanctions imposed.

(7) If an agreement as to appropriate disciplinary action, if any, cannot be reached, the department may initiate formal hearing procedures. Notice and formal hearing shall be in accordance with 567—Chapter 7 related to contested and certain other cases pertaining to license discipline.

101.7(11) Upon revocation of a certificate, application for certification may be allowed after two years from the date of revocation. Any such applicant must successfully complete an examination and be certified in the same manner as a new applicant.

101.7(12) Temporary certification. A temporary operator of a sanitary landfill may be designated for a period of six months when an existing certified operator is no longer available to the facility. The facility must make application to the department, explain why a temporary

certification is needed, identify the temporary operator, and identify the efforts that will be made to obtain a certified operator. A temporary operator designation shall not be approved for greater than a six-month period, except for extenuating circumstances. In any event, not more than one six-month extension to the temporary operator designation may be granted. Approval of a temporary operator designation may be rescinded for cause as set forth in 101.7(10). All sanitary landfills, with the exception of coal combustion residuals landfills, shall have at least one sanitary landfill operator trained, tested, and certified by a department-approved program.

567—101.8(455B) Groundwater monitoring and reporting.

101.8(1) The planning, monitoring, and reporting for groundwater monitoring at a sanitary landfill shall be performed by a qualified groundwater scientist.

101.8(2) Monitoring wells must be constructed and cased by a well contractor certified pursuant to 567—Chapter 82 in a manner that maintains the integrity of the monitoring well borehole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples. The annular space (i.e., the space between the borehole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater. Monitoring wells constructed in accordance with the rules in effect at the time of construction shall not be required to be abandoned and reconstructed as a result of subsequent amendments to these rules unless the department finds that the well is no longer providing representative groundwater samples. Figure 1 contains a general diagram of a properly constructed monitoring well.

a. The owner or operator must notify the department that the design, installation, development, and decommission of any monitoring wells; piezometers; and other measurement, sampling, and analytical devices documentation has been placed in the operating record.

b. The monitoring wells; piezometers; and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program.

c. Each groundwater monitoring point must have a unique and permanent number, and that number must never change or be used again at the sanitary landfill. The types of groundwater monitoring points shall be identified as follows:

(1) Monitoring wells by “MW# (insert unique and permanent number)”.

(2) Piezometers by “PZ# (insert unique and permanent number)”.

(3) Groundwater underdrain systems by “GU# (insert unique and permanent number)”.

d. Monitoring well construction shall comply with the following requirements:

(1) In all phases of drilling, well installation, and completion, the methods and materials used shall not introduce substances or contaminants that may alter the results of water quality analyses.

(2) Drilling equipment that comes into contact with contaminants in the borehole or aboveground shall be thoroughly cleaned to avoid spreading contamination to other depths or locations. Contaminated materials or leachate from wells must not be discharged onto the ground surface or into waters of the state so as to cause harm in the process of drilling or well development.

(3) The owner or operator must ensure that, at a minimum, the well design and construction log information is maintained in the facility’s permanent record on a form prescribed by the department and that a copy is sent to the department.

e. Monitoring well casings shall comply with the following requirements:

(1) The diameter of the inner well casing (e.g., Figure 1) of a monitoring well shall be at least two inches.

(2) Plastic-cased wells shall be constructed of materials with threaded and non-glued joints that do not allow water infiltration under the local subsurface pressure conditions and when the well is evacuated for sampling.

(3) Well casing shall provide sufficient structural stability so that a borehole or well collapse does not occur. Flush joint casing is required for small diameter wells installed through hollow stem augers.

f. Monitoring well screens shall comply with the following requirements:

(1) Slot size shall be based on sieve analysis of the sand and gravel stratum or filter pack. The slot size must keep out at least 90 percent of the filter pack.

(2) Slot configuration and open area must permit effective development of the well.

(3) The screen shall be no longer than ten feet in length, except for water table wells, in which case the screen shall be of sufficient length to accommodate normal seasonal fluctuations of the water table. The screen shall be placed five feet above and below the observed water table unless local conditions are known to produce greater fluctuations. Screen length for piezometers shall be two feet or less. Multiple-screened, single-cased wells are prohibited.

g. Monitoring well filter packs shall comply with the following requirements:

(1) The filter pack shall extend at least 18 inches above and 12 inches below the well screen.

(2) The size of the filter pack material shall be based on sieve analysis when sand and gravel are screened. The filter pack material must be 2.5 to 3 times larger than the 50 percent grain size of the zone being monitored.

(3) In stratum that is neither sand nor gravel, the size of the filter pack material shall be selected based on the particle size of the zone being monitored.

h. Monitoring well annular space shall comply with the following requirements:

(1) Grouting materials must be installed from the top of the filter pack up in one continuous operation with a tremie tube.

(2) The annular space between the filter pack and the frostline must be backfilled with bentonite grout.

(3) The remaining annular space between the protective casing and the monitoring well casing must be sealed with bentonite grout from the frostline to the ground surface.

i. Monitoring well heads shall be protected as follows:

(1) Monitoring wells shall have a protective metal casing installed around the upper portion of the monitoring well casing as follows:

1. The inside diameter of the protective metal casing shall be at least 2 inches larger than the outer diameter of the monitoring well casing.

2. The protective metal casing shall extend from a minimum of 1 foot below the frostline to slightly above the well casing top; however, the protective casing shall be shortened if such a depth would cover a portion of the well screen.

3. The protective casing shall be sealed and immobilized with a concrete plug around the outside. The bottom of the concrete plug must extend at least 1 foot below the frostline; however, the concrete plug shall be shortened if such a depth would cover a portion of the well screen. The top of the concrete plug shall extend at least three inches above the ground surface and slope away from the well. Soil may be placed above the plug and shall be at least 6 inches below the cap to improve runoff.

4. The inside of the protective casing shall be sealed with bentonite grout from the frostline to the ground surface.

5. A vented cap shall be placed on the monitoring well casing.

6. A vented, locking cap shall be placed on the protective metal casing. The cap must be kept locked when the well is not being sampled.

(2) All monitoring wells shall have a ring of brightly colored protective posts or other protective barriers to help prevent accidental damage.

(3) All monitoring wells shall have a sign or permanent marking clearly identifying the permanent monitoring well number (MW#).

(4) Run-on shall be directed away from all monitoring wells.

j. Well development is required prior to the use of the monitoring well for water quality monitoring purposes. Well development must loosen and remove fines from the well screen and gravel pack. Any water utilized to stimulate well development must be of sufficient quality that future samples are not contaminated. Any gases utilized in well development must be inert gases that will not contaminate future samples. Following development, the well shall be pumped until the water does not contain significant amounts of suspended solids.

101.8(3) Groundwater monitoring points that are no longer functional must be sealed. Groundwater monitoring points that are to be sealed and are in a future waste disposal area shall be reviewed to determine if the method utilized to seal the monitoring point needs to be more protective than the following requirements. All abandoned groundwater-monitoring points (e.g., boreholes, monitoring wells, and piezometers) shall be sealed by a well contractor certified pursuant to 567—Chapter 82 and in accordance with the following requirements.

a. The following information shall be placed in the operating record on a form prescribed by the department and a copy sent to the department:

- (1) The unique, permanent monitoring point number.
- (2) The reasons for abandoning the monitoring point.
- (3) The date and time the monitoring point was sealed.
- (4) The method utilized to remove monitoring point materials.
- (5) The method utilized to seal the monitoring point.

b. The monitoring point materials (e.g., protective casing, casing, screen) shall be removed. If drilling is utilized to remove the materials, then the drilling shall be to the maximum depth of the previously drilled monitoring point. All drilling debris shall be cleaned from the interior of the borehole.

c. The cleared borehole shall be sealed with impermeable bentonite grout via a tremie tube. The end of the tremie tube shall be submerged in the grout while filling from the bottom of the borehole to the top of the ground surface. Uncontaminated water shall be added from the surface as needed to aid grout expansion.

d. After 24 hours, the bentonite grout shall be retopped if it has settled below the ground surface.

101.8(4) Groundwater samples shall not be field-filtered prior to laboratory analysis.

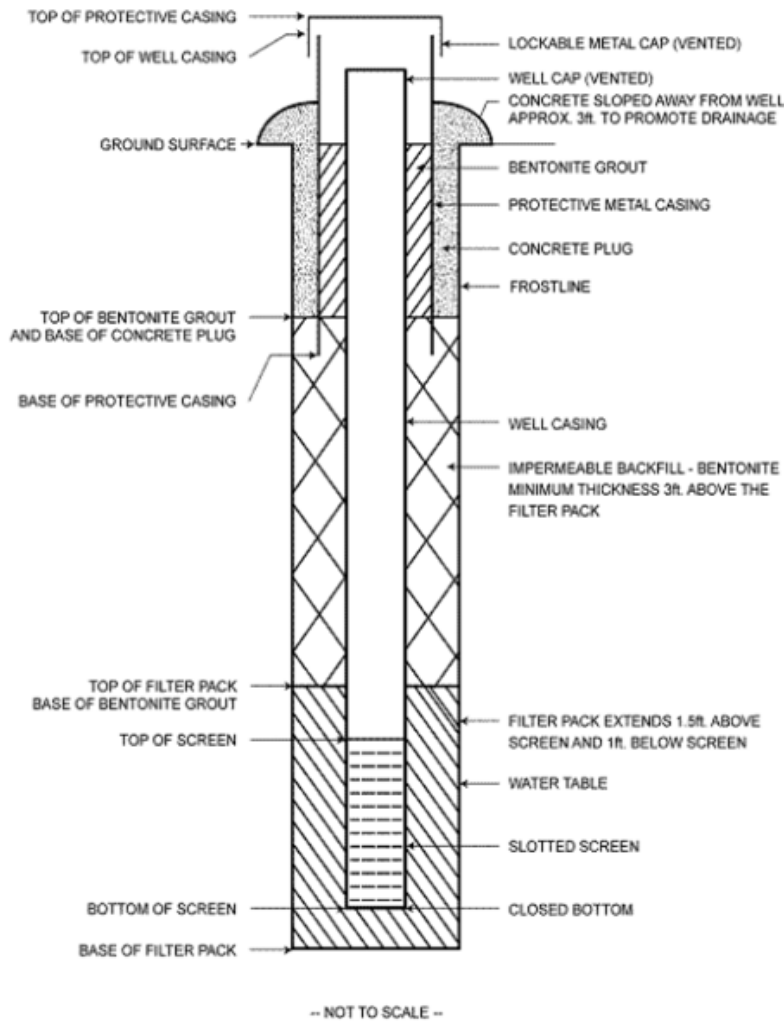


Figure 1 – Typical Monitoring Well Cross-Section

567—101.9(455B) Contingency planning. In addition to the emergency response and remedial action plan (ERRAP) requirements in 567—Chapter 100, all sanitary landfills shall include a contingency plan in their ERRAP detailing specific procedures to be followed in case of equipment breakdown, maintenance downtime, or fire in equipment or vehicles, including methods to be used to remove or dispose of accumulated waste.

567—101.10(455B) Disruption and excavation of sanitary landfills or closed dumps. No person shall excavate, disrupt, or remove any deposited material from any active or

discontinued sanitary landfill or closed dump without first having notified the department in writing.

101.10(1) Notification shall include an operational plan stating the area involved, lines and grades defining limits of excavation, estimated number of cubic yards of material to be excavated, sanitary disposal project where material is to be disposed, and estimated time required for excavation procedures.

101.10(2) An excavation shall be confined to an area consistent with the number of pieces of digging equipment and trucks used for haulage.

101.10(3) The disposal of all solid waste resulting from excavation shall be in conformity with Iowa Code chapter 455B and applicable solid or hazardous waste regulations.

567—101.11(455B) Transfer of title. If title of a closed sanitary disposal project is transferred, any future waste exhumation activities, excluding repairs or maintenance activities, are considered to be operation of the landfill due to the similar environmental effects possible from the two activities due to waste exposure.

These rules are intended to implement Iowa Code section 455B.304 and chapter 455D.

567—101.12 to 101.100Reserved.

DIVISION II

MUNICIPAL SOLID WASTE LANDFILLS

567—101.101(455B) Purpose. The purpose of this division is to implement Iowa Code chapter 455B, subchapter IV (solid waste disposal), and to protect human health and the environment through the implementation of minimum national standards pursuant to the Resource Conservation and Recovery Act (“RCRA” or “the Act”) for all municipal solid waste landfill (MSWLF) units and under the Clean Water Act for MSWLFs that are used to dispose of sewage sludge.

This division details the permitting, siting, design, operating, monitoring, corrective action, reporting, recordkeeping, closure, and post-closure requirements for sanitary landfills accepting municipal solid waste.

567—101.102(455B) Applicability and compliance.

101.102(1) This division shall apply to sanitary landfills that are constructed and operated exclusively for the final deposition of municipal solid waste.

101.102(2) Pursuant to Iowa Code section 455B.305(1), an MSWLF shall not be constructed or operated without first obtaining a permit from the department pursuant to this division, the requirements set forth in 567—Chapter 100, and Division I of this chapter.

101.102(3) The issuance of a permit to an MSWLF pursuant to this division in no way relieves the applicant of the responsibility of complying with all other local, state, or federal statutes; ordinances; and rules or other requirements applicable to the construction and operation of an MSWLF.

101.102(4) Sanitary landfills accepting municipal solid waste must comply with the provisions of this division.

101.102(5) These rules do not pertain to the management and disposal of special wastes. Division VI of this chapter contains rules pertaining to the management and disposal of special wastes.

101.102(6) These rules do not apply to MSWLF units that did not receive waste after October 9, 1994. The closure permit issued or the rules in effect at the time of closure shall govern post-closure activities for such MSWLF units.

101.102(7) This division does not apply to MSWLF units that ceased receiving waste before October 1, 2007, and are not contiguous with MSWLF units that continued to accept waste after October 1, 2007. For the purpose of this subrule, contiguous MSWLF units are those that adjoin, abut, or have a common boundary or edge with one another or that utilize

the same groundwater monitoring network system. The permit issued and the rules in effect at the time waste acceptance ceased shall govern post-permit activities for such MSWLF units, except as follows:

- a. Financial assurance in accordance with 567—101.114(455B) shall be required.
- b. Surface water sampling in accordance with 101.110(3) shall be required.
- c. MSWLF units shall perform groundwater sampling for the following parameters:

(1) Routine semiannual water sampling parameters:

1. Chloride.
2. Specific conductance (field measurement).
3. pH (field measurement).
4. Ammonia nitrogen.
5. Iron, dissolved.
6. Chemical oxygen demand.
7. Any additional parameters deemed necessary by the department.

(2) Routine annual water sampling parameters:

1. Total organic halogen.
2. Phenols.
3. Any additional parameters deemed necessary by the department.

d. If the analytical results for a downgradient groundwater monitoring point do not fall within the control limits of two standard deviations above (or below, for pH) the mean parameters, listed in 101.102(7)“d”(1) and “d”(2), in a corresponding upgradient groundwater monitoring point and it cannot be demonstrated that a source other than an MSWLF unit caused the control limit exceedance, then the owner or operator shall comply with the groundwater assessment monitoring program requirements in 101.110(6) and corrective action requirements in 101.110(7), 101.110(8), and 101.110(9), if necessary.

101.102(8) Compliance with amendments to these rules.

a. Owners or operators of existing MSWLF units that have an approved leachate collection system and a composite liner, or a leachate collection system and an alternative liner modeled at an approved point of compliance, shall not be required to redesign or reconstruct the MSWLF units due to amendments to these rules subsequent to such approval unless the department finds that such units are causing pollution or that continued use of such units will result in a vertical expansion on top of or against the side slopes of a previously filled noncompliant MSWLF unit. Prior to waste placement in the vertical expansion area, revised design plans shall be submitted to include construction of a separatory liner and leachate collection system that comply with all the requirements of 101.107(5) to be placed between the area of vertical expansion and the underlying noncompliant MSWLF unit.

b. Except as authorized by 101.102(8) “*a*,” if any new regulation conflicts with a provision of or an operating procedure prescribed in the engineering plans or the MSWLF permit, the facility shall conform to the new regulation.

101.102(9) Equivalency review procedure.

a. In approving a permit application under this division, the department may authorize, in writing, alternatives to the design requirements in this division only if, and only to the extent that, specific rules in this division expressly state that alternatives may be authorized under this division.

b. An owner or operator requesting an alternative design under this division shall submit a request to the department prepared by an Iowa-licensed professional engineer. The request shall:

- (1) Identify the specific rule for which an equivalency alternative is being sought.
- (2) Demonstrate through supporting technical documentation, justification and quality control procedures that the requested alternative to the design requirements in the rules of this

division will, for the life of operations at the facility, achieve the performance standards in that rule.

c. No equivalency alternative will be approved unless the application affirmatively demonstrates that the following conditions are met:

(1) The request is complete and accurate and the requirements of this subrule have been met.

(2) The proposed alternative will provide protection equivalent to the design requirements in this division for the air, water, or other natural resources of the state of Iowa and will not harm or endanger the public health, safety, or welfare.

101.102(10) All rules, standards, technical guidance, and other similar legal or technical documents referenced in this division shall be the version of those documents in effect on August 1, 2025, unless otherwise noted in these rules, and except for references to the Iowa Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

567—101.103(455B) Definitions. The definitions in Iowa Code section 455B.301 and 567—Chapter 100 shall apply to this division.

567—101.104(455B) Permits.

101.104(1) *Applicability.* For purposes of this division, the permit requirements in 567—Chapter 100; Division I of this chapter, and this rule apply.

101.104(2) *Research, development, and demonstration (RD&D) permits.* The director or the director's designee may issue an RD&D permit that overrides the applicable portions of this division pursuant to 40 CFR 258.4 without issuing a waiver pursuant to 561—Chapter 10. A permit amendment from the department for leachate recirculation only does not require an RD&D permit.

101.104(3) *Notice and public participation in the MSWLF permit issuance and post-permit actions.*

a. For the purposes of this subrule, “post-permit actions” includes permit renewals and requests for the following facility modifications:

(1) Change in an MSWLF facility boundary or an MSWLF unit.

(2) Application for an RD&D permit pursuant to 101.104(2).

(3) Installation of a landfill gas collection system.

(4) Application for a closure permit for an MSWLF unit.

(5) Transfer of an MSWLF permit to a new owner.

(6) Waiver from this division under 567—101.115(455B).

(7) Change in the post-permit land use of the property.

(8) Other significant permit actions that are determined by the department to require public notice and participation. Such actions may include requests to change any of the requirements set forth as special provisions in the permit.

b. Prior to the issuance of approval or denial for an MSWLF permit or post-permit action, public notice shall be circulated in a manner designed to inform interested and potentially interested persons of the permit or post-permit action request. Procedures for the circulation of public notice shall include at least the following:

(1) Upon receipt of the permit application or post-permit action request, the department shall determine whether public notice is required in accordance with this subrule. If public notice is required, then the department shall prepare the public notice that shall be circulated by the owner or operator within the service area of the MSWLF by posting the public notice near the entrance to the MSWLF; and by publishing the public notice in periodicals or, if appropriate, in a newspaper(s) of general circulation.

(2) The public notice shall be posted on the department’s webpage.

c. The department shall provide a period of not less than 30 days following the date of the public notice during which time interested persons may submit their written views with respect to the MWSLF permit application or post-permit action request. All written comments submitted during the 30-day comment period shall be retained by the department and considered by the department in the formulation of the department's final determinations. The period for comment may be extended at the sole discretion of the department.

d. The contents of the public notice shall include at least the following:

- (1) The name, address, and telephone number of the department.
- (2) The name and address of each applicant.
- (3) A brief description of each applicant's activities or operations that result in the submittal of the permit application or post-permit action request.
- (4) A statement that any person may submit written and signed comments or may request a public hearing, or both, on the proposed permit or post-permit action request. A statement of procedures to request a public hearing pursuant to 101.104(3) "e" shall be included.
- (5) Locations where copies of the permit application or post-permit action request may be reviewed and the times at which the copies shall be available for public inspection.

e. The applicant or any interested agency, person, or group of persons may request or petition for a public hearing with respect to an MSWLF permit application or post-permit action request. Any such request shall clearly state issues and topics to be addressed at the hearing. Any such request or petition for public hearing must be filed with the department within the 30-day period prescribed in 101.104(3) "c" and shall indicate the interest of the party filing such request and the reasons why a hearing is warranted. The department shall hold an informal and noncontested case hearing if there is a significant public interest (including the filing of requests or petitions for such hearing) in holding such a hearing. Frivolous or insubstantial requests for hearing may be denied by the department. Instances of

doubt should be resolved in favor of holding the hearing. Any hearing requested pursuant to this subrule shall be held in the service area of the MSWLF or other appropriate area at the sole discretion of the department.

f. If the department determines that a public hearing is warranted, then the department shall prepare the public notice of the hearing. Public notice of any hearing held shall be circulated at least as widely as was the notice of the permit application or post-permit action request.

g. The contents of public notice of any hearing held pursuant to 101.104(3) “*e*” shall include at least the following:

- (1) The name, address, and telephone number of the department;
- (2) The name and address of each applicant whose application will be considered at the hearing;
- (3) A brief reference to the public notice issued for each permit application and post-permit action request;
- (4) Information regarding the time and location for the hearing;
- (5) The purpose of the hearing;
- (6) A concise statement of the issues raised by the person requesting the hearing;
- (7) Locations where copies of the permit application or post-permit action may be reviewed, including the closest department field office, and the times at which the copies shall be available for public inspection; and
- (8) A brief description of the nature of the hearing, including the rules and procedures to be followed.

h. The department shall keep a record of the commenters and of the issues raised during the public participation process and shall prepare written responses to all comments received. At the time a final decision is made, the record and copies of the department’s responses shall be made available to the public.

567—101.105(455B) Permit applications. Unless otherwise authorized by the department, a permit applicant shall submit on a form prescribed by the department compliance with the requirements in 567—Chapter 100 and Division I of this chapter and the following information:

1. A site exploration and characterization report for the facility that complies with the requirements of 101.106(3).
2. Plans and specifications for the facility, and quality control and assurance (QC&A) plans, that comply with the requirements of 101.107(4).
3. A development and operations (DOPs) plan for the facility.
4. An environmental monitoring plan that complies with the requirements of 567—101.109(455B) and 567—101.110(455B).
5. The project goals and timelines and other documentation as necessary to comply with 101.104(2) and other requirements of the department if an RD&D permit is being requested or renewed.
6. A closure and post-closure plan that complies with the requirements of 567—101.112(455B) and 567—101.113(455B).

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

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

- a. Airports.*

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

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

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

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

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

d. Seismic impact zones. New MSWLF units and lateral expansions shall not be located in seismic impact zones unless the owner or operator demonstrates to the department that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth

material for the site. The owner or operator must place the demonstration in the operating record and submit a copy of the demonstration to the department.

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

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

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

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

101.106(2) *Soil and hydrogeologic investigations.* An MSWLF shall have a qualified groundwater scientist, as defined in 567—101.3(455B), conduct a soil and hydrogeologic investigation in accordance with this subrule. The purpose of this investigation is to obtain data to determine potential routes of contaminant migration via groundwater. Such

information is vital for completion of the site exploration and characterization report and the hydrologic monitoring system plan and design. This subrule sets forth the minimum requirements for soil and hydrogeologic investigations. An MSWLF shall comply with this subrule unless the department issues written approval due to specific site conditions.

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

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

(1) All borings shall be a minimum of 25 feet deep and at least 10 feet below the water table.

(2) At a minimum, half of all borings shall extend 20 feet into the uppermost aquifer, 50 feet below the water table, or 10 feet into bedrock.

(3) At a minimum, one boring shall extend 10 feet into bedrock or 100 feet below the lowest ground surface elevation.

(4) All borings shall be of sufficient depth to correlate strata between borings.

c. Boring method and soil samples.

(1) Continuous samples shall be collected for all borings unless otherwise approved by the department in writing.

(2) Boring logs shall be as detailed as possible in describing each stratum.

(3) Samples shall be clearly marked, preserved, and transported in accordance with laboratory procedures.

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

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

d. Conversion of or plugging borings.

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

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

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

(1) The boring logs pursuant to 101.106(3) "c"(2).

(2) A description of the properties of each soil and bedrock stratum as appropriate, including:

1. Soil texture and classification.
2. Particle size distribution.
3. Mineral composition, cementation, and soil structure.
4. Permeability, including horizontal and vertical permeability, and porosity.
5. Geologic structure, including strike, dip, folding, faulting, and jointing.
6. Previous activities and infrastructure at the site that could affect geology and hydrogeology, such as but not limited to mining, quarry operations, borrow pits, waste disposal, storage tanks, pipelines, utilities, and tile lines.
7. Lenses and other discontinuous units, voids, solution openings, layering, fractures, other heterogeneity, and the scale or frequency of the heterogeneity.
8. Correlation and continuity of strata between borings.

(3) Descriptions of the hydrogeologic units within the saturated zone, including:

1. Thickness.
2. Hydraulic properties, including as appropriate conductivity, transmissivity, storativity, and effective porosity.
3. Concentrations of chemical constituents listed in 40 CFR Part 258, Appendix I, present in the groundwater of hydrogeologic units and the source of those constituents, if known.
4. Role and effect of each hydrogeologic unit as an aquifer, aquitard, or perched saturated zone.
5. The actual or potential use of the aquifers as water supplies.

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

1. The extent of soil and bedrock strata.
2. The position of the water table.
3. The position of the uppermost aquifer.
4. Measured values of hydraulic head.
5. Equipotential lines and inferred groundwater streamlines of the water table, and the uppermost aquifer if different from the water table.
6. Location of soil and bedrock borings.
7. Location of piezometers and monitoring points, if any.

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

1. Local, intermediate, and regional groundwater systems.

2. Groundwater recharge and discharge areas within and immediately surrounding the facility, including interactions with perennial and intermittent surface waters and how the facility affects recharge rates.

3. Existing and proposed groundwater and surface water withdrawals.

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

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

6. Seasonal or other temporal fluctuations in hydraulic head.

7. The effect of existing and proposed MSWLF units.

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

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

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

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

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

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

- a. A title page and index.
- b. A legal description of the site.
- c. Proof of the applicant's ownership of the site and legal entitlement to use the site as an MSWLF. If the applicant does not own the site, then proof of legal entitlement to the site must be submitted. Such legal entitlement must include the following:
 - (1) Provisions that allow continued disposal operations until closure of the facility.
 - (2) Provisions for the performance of facility closure operations.
 - (3) Provisions for post-closure care for at least a 30-year period after facility closure.
- d. Proof of the applicant's local siting approval pursuant to Iowa Code section 455B.305A, if applicable.
 - e. Scaled maps or aerial photographs locating the boundaries of the facility and identifying:
 - (1) North and other principal compass points.
 - (2) Section lines and other legal boundaries.
 - (3) Zoning and land use within one-half mile.
 - (4) Haul routes to and from the facility, including load limits or other restrictions on those routes.
 - (5) Topography within one-half mile.
 - (6) Applicable setback distances and location requirements pursuant to this rule, including:
 1. Airports within six miles of existing, new, and planned MSWLF units.
 2. Floodplains within or adjacent to the facility.
 3. Wetlands within or adjacent to the facility.
 4. Fault areas within 200 feet of existing, new, and planned MSWLF units.
 5. Seismic impact zones within or adjacent to the facility.
 6. Unstable areas within or adjacent to the facility.
 7. Water wells within 1,000 feet of upgradient existing, new, and planned MSWLF units.

8. Public water wells within one mile of upgradient existing, new, and planned MSWLF units.

9. Boundaries of the existing, new, and planned MSWLF units and the facility property line.

10. Housing and sensitive populations within 500 feet of existing, new, and planned MSWLF units.

f. The bird-aircraft hazard demonstration pursuant to 101.106(2) “*a*,” if applicable.

g. The floodplain demonstration pursuant to 101.106(2) “*b*,” if applicable.

h. The wetlands demonstration pursuant to 101.106(2) “*c*,” if applicable.

i. The fault area demonstration pursuant to 101.106(2) “*d*,” if applicable.

j. The seismic impact zone demonstration pursuant to 101.106(2) “*e*,” if applicable.

k. The unstable area demonstration pursuant to 101.106(2) “*f*,” if applicable.

l. Copies of written agreements with surrounding property owners pursuant to 101.106(2) “*l*,” if applicable.

m. The soil and hydrogeologic investigation description and analysis pursuant to 101.106(3) “*e*.”

567—101.107(455B) MSWLF unit design and construction standards. MSWLF units shall be designed and constructed in accordance with this rule.

101.107(1) *Plans and specifications.*

a. Unless otherwise requested by the department, one copy of plans, specifications, and supporting documents shall be provided to the department for review.

b. New MSWLF units shall be constructed in compliance with the rules and regulations in effect at the time of construction. Previous department approval of plans and specifications for MSWLF units not yet constructed shall be superseded by the promulgation of new rules

and regulations, after which plans and specifications shall be resubmitted to the department for approval prior to construction and operation.

101.107(2) *MSWLF unit subgrade.* The subgrade for a new MSWLF unit shall be constructed as follows:

a. All trees, stumps, roots, boulders, debris, and other material capable of deteriorating in situ material strength or of creating a preferential pathway for contaminants shall be completely removed or sealed off prior to construction of the MSWLF unit.

b. The material beneath the MSWLF unit shall have sufficient strength to support the weight of the unit during all phases of construction and operation. The loads and loading rate shall not cause or contribute to failure of the liner and leachate collection system.

c. The total settlement or swell of the MSWLF unit's subgrade shall not cause or contribute to failure of the liner and leachate collection system.

d. If the in situ material of the MSWLF unit's subgrade cannot meet the requirements of 101.107(4) "b" and "c," then such material shall be removed and replaced with material capable of compliance.

e. The subgrade of an MSWLF unit shall be constructed and graded to provide a smooth working surface on which to construct the liner.

f. The subgrade of an MSWLF unit shall not be constructed in or with frozen soil.

101.107(3) *MSWLF unit liners and leachate collection systems.* The liner and leachate collection system for a new MSWLF unit shall be constructed in accordance with the requirements of this subrule. All active portions must have a composite liner or an alternative liner approved by the department. An MSWLF unit must have a functioning leachate collection system during its active life.

a. Liner systems. An MSWLF unit shall have a liner system that complies with either the composite liner requirements of 101.107(5) "a"(1) or an alternative liner system that complies

with the requirements of 101.107(5) "a"(2). Liners utilizing compacted soil must place the compacted soil in lifts no thicker than eight inches after compaction.

(1) Composite liner systems.

1. A composite liner consists of two components, an upper flexible membrane liner and a lower compacted soil liner.

2. The upper component must consist of a minimum 30 mil flexible membrane liner. Flexible membrane liner components consisting of high-density polyethylene (HDPE) shall be at least 60 mil thick. The flexible membrane liner component must be installed in direct and uniform contact with the lower compacted soil component.

3. The lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} centimeters per second (cm/sec). The compacted soil must be placed in lifts no thicker than eight inches after compaction.

4. The composite liner must be adequately sloped toward the leachate collection pipes to provide drainage of leachate. Unless alternative design requirements to this performance standard are approved as part of the permit under 101.102(11) (relating to equivalency review procedure), the leachate collection system shall have a slope greater than or equal to 2 percent and not exceeding 33 percent.

(2) Alternative liner systems.

1. The design must ensure that the concentration values listed in Table I of 567—101.107(455B) will not be exceeded in the uppermost aquifer at the relevant point of compliance, as specified pursuant to 101.107(5) "a"(2)"2." Alternative liners utilizing compacted soil must place the compacted soil in lifts no thicker than eight inches.

2. The relevant point of compliance specified by the department must be within 50 feet of the planned liner or waste boundary, unless site conditions dictate otherwise, downgradient of the facility with respect to the hydrologic unit being monitored in accordance with

101.110(2) “a”(2), and located on land owned by the owner of the MSWLF unit. The relevant point of compliance specified by the department shall be at least 50 feet from the property line of the facility.

3. When approving an alternative liner design, the department shall consider at least the following factors:

- The hydrogeologic characteristics of the facility and surrounding land.
- The climatic factors of the area.
- The volume and physical and chemical characteristics of the leachate.
- The sensitivities and limitations of the modeling demonstrating the applicable point of compliance.
- Practicable capability of the owner or operator.

4. The alternative liner must be adequately sloped toward the leachate collection pipes to provide drainage of leachate. Unless alternative design requirements to this performance standard are approved as part of the permit under 101.102(11) (relating to equivalency review procedure), the leachate collection system shall have a slope greater than or equal to 2 percent and not exceeding 33 percent.

Table I

Chemical	MCL (mg/l)
Arsenic	0.01
Barium	1.0
Benzene	0.005
Cadmium	0.01
Carbon tetrachloride	0.005
Chromium (hexavalent)	0.05

2,4-Dichlorophenoxy acetic acid	0.1
1,4-Dichlorobenzene	0.075
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007
Endrin	0.0002
Fluoride	4.0
Lindane	0.004
Lead	0.05
Mercury	0.002
Methoxychlor	0.1
Nitrate	10.0
Selenium	0.01
Silver	0.05
Toxaphene	0.005
1,1,1-Trichloroethane	0.2
Trichloroethylene	0.005
2,4,5-Trichlorophenoxy acetic acid	0.01
Vinyl chloride	0.002

b. Leachate collection system. MSWLF units shall have a leachate collection system that complies with the following requirements:

(1) The leachate collection system shall be designed and constructed to function for the entire active life of the facility and the post-closure period.

(2) The leachate collection system shall be of a structural strength capable of supporting waste and equipment loads throughout the active life of the facility and the post-closure period.

(3) The leachate collection system shall be designed and constructed to minimize leachate head over the liner at all times. An MSWLF unit shall have a leachate collection system that maintains less than a 30-centimeter (12-inch) depth of leachate over the liner. The leachate collection system shall have a method for accurately measuring the leachate head on the liner at the system's lowest point(s) within the MSWLF unit (e.g., sumps). Furthermore, an additional measuring device shall be installed to measure leachate directly on the liner in the least conductive drainage material outside of the sump and collection trench. Leachate head measurements from cleanout lines or manholes are not acceptable for the second measurement. All such measurement devices shall be in place before waste is placed in the MSWLF unit.

(4) If the leachate collection system is not designed and constructed factoring in leachate recirculation or bioreactor operations, the department may prohibit such activities within the MSWLF unit.

(5) The collection pipes shall be of a length and cross-sectional area that allow for cleaning and inspection through the entire length of all collection pipes at least once every three years. The collection pipes shall not be designed or constructed with sharp bends that prevent cleaning or inspection along any section of the collection pipe or that may cause the collection pipe to be damaged during cleaning or inspection.

(6) Leachate collection system designs shall attempt to minimize the potential for clogging due to mass loading.

(7) Unless alternative design requirements are approved as part of the permit under 101.102(11) (relating to equivalency review procedure), the following design requirements shall apply:

1. A geotextile cushion over the flexible membrane liner if the system utilizes such a liner and granular drainage media. A geotextile cushion is not required if the granular drainage

media is well rounded and less than 3/8 inch in diameter. The geotextile's mass shall be determined based on the allowable pressure on the geomembrane.

2. Collection pipe(s) at least four inches in diameter at the base of the liner slope(s), surrounded by the high hydraulic-conductivity material listed in 101.107(5) "b"(7)"3" below. The collection pipe shall have slots or holes large enough to minimize the potential for clogging from fines conveyed by incoming leachate.

3. One of the following high hydraulic-conductivity materials:

- High hydraulic-conductivity material (e.g., gravel) of uniform size and a fines content of no more than 5 percent by weight passing a #200 sieve. The high hydraulic-conductivity material shall be at least 12 inches in depth and have a hydraulic conductivity of at least 1×10^{-2} cm/sec; or

- A geosynthetic drainage media (e.g., geonet). The transmissivity of geonets shall be tested to demonstrate that the design transmissivity will be maintained for the design period of the facility. The testing for the geonet in the liner system shall be conducted using actual boundary material intended for the geonet at the maximum design normal load for the MSWLF unit and at the design load expected from one lift of waste. At the maximum design normal load, testing shall be conducted for a minimum period of 100 hours unless data equivalent of the 100-hour period is provided, in which case the test shall be conducted for a minimum period of one hour. In the case of the design load from one lift of waste, the minimum period shall be one hour. For geonets used in final covers, only one test shall be conducted for a minimum period of one hour using the expected maximum design normal load from the cover soils and the actual boundary materials intended for the geonet. A granular layer at least 12 inches thick with a hydraulic conductivity of at least 1×10^{-3} cm/sec shall be placed above the geosynthetic drainage material that readily transmits leachate and provides separation between the waste and liner.

(8) Manholes within the MSWLF unit shall be designed to minimize the potential for stressing or penetrating the liner due to friction on the manhole exterior from waste settlement.

(9) The leachate drainage and collection system within the MSWLF unit shall not be used for the purpose of storing leachate. If leachate is to be stored, it shall be stored in designated storage structures outside of the MSWLF unit.

(10) All of the facility's leachate storage and management structures outside of the MSWLF unit and operations shall have containment structures or countermeasures adequate to prevent seepage to groundwater or surface water. The containment structures and countermeasures for leachate storage shall be at least as protective of groundwater at the liner of the MSWLF unit on a performance basis.

(11) Unless alternative design requirements are approved as part of the permit under 101.102(11) (relating to equivalency review procedure), the leachate storage structures shall be able to store at least seven days of accumulated leachate at the maximum generation rate used in designing the leachate collection system. Such minimum storage capacity may be constructed in phases over time so long as the seven-day accumulation capacity is maintained. The storage facility shall also have the ability to load tanker trucks in case sanitary sewer service is unavailable for longer than seven days.

(12) The leachate collection system shall be equipped with valves or devices similar in effectiveness so that leachate can be controlled during maintenance.

(13) The leachate collection system shall be accessible for maintenance at all times and under all weather conditions.

(14) The permit holder shall annually submit a Leachate Control System Performance Evaluation (LCSPE) Report as a supplement to the facility Annual Water Quality Report, as defined in 101.110(10). The report shall include an evaluation of the effectiveness of the system in controlling the leachate, leachate head levels and elevations, the volume of leachate

collected and transported to the treatment works or discharged under any National Pollutant Discharge Elimination System (NPDES) permits, records of leachate contaminants testing required by the treatment works, proposed additional leachate control measures, and an implementation schedule in the event that the constructed system is not performing effectively.

101.107(4) *Quality control and assurance program (QC&A)*. MSWLF units shall be constructed under the supervision of a QC&A program to ensure that MSWLF units are constructed in accordance with the requirements of 567—101.107(455B) and the approved plans and specifications. At a minimum, such QC&A program shall consist of the following.

a. The owner or operator shall designate a QC&A officer. The QC&A officer shall be an Iowa-licensed professional engineer. The QC&A officer shall not be an employee of the facility, the construction company or construction contractor. The owner or operator shall notify the department of the designated QC&A officer and provide the department with that person's contact information. The QC&A officer may delegate another person or persons who are not employees of the facility to supervise or implement aspects of the QC&A program.

b. The QC&A officer shall document compliance with 567—101.107(455B), and the approved plans and specifications, for the following aspects of construction:

(1) The MSWLF unit's subgrade.

(2) The liner system, as follows:

1. For a flexible membrane liner, destructive testing of the flexible membrane liner shall be kept to side slopes when continuous seams are utilized. Patches over destructive testing areas shall be checked with nondestructive methods.

2. For the compacted clay component of the liner system, a minimum of five field moisture density tests per eight-inch lift per acre shall be performed to verify that the correct density, as correlated to permeability by a laboratory analysis, has been achieved. Laboratory

hydraulic conductivity testing of Shelby tube samples from the constructed soil liner or test pad, field hydraulic conductivity testing of the constructed soil liner or test pad, or other methods approved by the department shall be utilized as a QC&A test.

(3) The leachate collection, conveyance, and storage systems.

(4) Any other aspect of construction as required by the department.

c. A sampling and testing program shall be implemented by the QC&A officer as part of the QC&A program. The sampling and testing program shall:

(1) Verify full compliance with the requirements of 567—101.107(455B) and the approved plans and specifications.

(2) Be approved by the department prior to construction of the MSWLF unit.

(3) Detail how each stage of construction will be verified for full compliance with the requirements of 567—101.107(455B) and the approved plans and specifications.

(4) Be based on statistically significant sampling techniques and establish criteria for the acceptance or rejection of materials and constructed components of the MSWLF unit.

(5) Detail what actions will take place to remedy and verify any material or constructed component that is not in compliance with the requirements of 567—101.107(455B) and the approved plans and specifications.

d. The QC&A officer shall document the QC&A program. Upon completion of the MSWLF unit construction, the QC&A officer shall submit a final report to the department that verifies compliance with the requirements of 567—101.107(455B) and the department-approved plans and specifications. A copy of the final report shall also be maintained by the facility in the operating record. At a minimum, the final report shall include the following.

(1) A title page and index.

(2) The name and permit number of the facility.

(3) Contact information for the QC&A officer and persons delegated by the QC&A officer to supervise or implement an aspect of the QC&A program.

(4) Contact information for all construction contractors.

(5) Copies of daily reports containing the following information:

1. The date.
2. Summary of weather conditions.
3. Summary of locations on the facility where construction was occurring.
4. Summary of equipment, materials, and personnel utilized in construction.
5. Summary of meetings held regarding the construction of the MSWLF unit.
6. Summary of construction progress.
7. Photographs of the construction progress, with descriptions of the time, subject matter, and location of each photograph.
8. Details of sampling and testing program for that day. At a minimum, this report shall include details of where sampling and testing occurred, the methods utilized, personnel involved, and test results.
9. Details of how any material or constructed component that was found not to be in compliance via the sampling and testing program was remedied.

(6) A copy of detailed as-built drawings with supporting documentation and photographic evidence. This copy shall also include a narrative explanation of changes from the original department-approved plans and specifications.

(7) A signed and sealed statement by the QC&A officer that the MSWLF unit was constructed in accordance with the requirements of 567—101.107(455B) and the approved plans and specifications.

101.107(5) *Vertical and horizontal expansions of MSWLF units.* All vertical and horizontal expansions of disposal airspace over existing and new MSWLF units shall comply with the following:

a. Horizontal expansions shall, at a minimum, comply with the following requirements:

(1) Horizontal expansions are new MSWLF units and, at a minimum, shall be designed and constructed in accordance with 101.107(4), 101.107(5) and 101.107(6).

(2) The slope stability of the horizontal expansion between the existing unit and new MSWLF unit shall be analyzed. The interface between two MSWLF units shall not cause a slope failure of either of the MSWLF units.

(3) A horizontal expansion may include a vertical elevation increase of an existing MSWLF unit, pursuant to 101.107(7) “*b*,” if approved by the department.

b. Vertical expansions shall, at a minimum, comply with the following:

(1) A vertical expansion of an MSWLF unit shall not be allowed if the MSWLF unit does not have an approved leachate collection system and a composite liner or a leachate collection system and an alternative liner modeled at an approved point of compliance.

(2) An analysis of the structural impacts of the proposed vertical expansion on the liner and leachate collection system shall be completed. The vertical expansion shall not contribute to the structural failure of the liner and leachate collection system.

(3) An analysis of the impact of the proposed vertical expansion on leachate generation shall be completed. The vertical expansion shall not overload the leachate collection system or contribute to excess head on the liner.

(4) An analysis of the effect of the proposed vertical expansion on run-on, runoff, and discharges into waters of the state shall be completed. The vertical expansion shall not cause a violation of 101.107(8).

(5) The proposed vertical expansion shall be in compliance with the final slopes required at closure pursuant to 101.112(1)“e.”

101.107(6) *Run-on and runoff control systems.*

a. Owners or operators of MSWLF units must design, construct, and maintain the following:

(1) A run-on control system to prevent flow onto the active portion of the landfill during the peak discharge from a 25-year storm;

(2) A runoff control system from the active portion of the landfill to collect and control at least the water volume resulting from a 25-year 24-hour storm.

b. Runoff from the active portion of the MSWLF unit must be handled in accordance with 101.110(1)“a.”

567—101.108(455B) Operating requirements. The requirements of this rule shall be consolidated in a DOPs pursuant to 101.108(4).

101.108(1) *Prohibited operations and activities.* For the purposes of this subrule, “regulated hazardous waste” means a solid waste that is a hazardous waste as defined in Iowa Code section 455B.411.

a. *Waste screening for prohibited materials.* Owners or operators of MSWLF units must implement a program at the facility for detecting and preventing the disposal of regulated hazardous wastes, polychlorinated biphenyls (PCB) wastes, and other prohibited wastes listed in 101.108(1)“b.” This program must include, at a minimum:

(1) Random inspections of incoming loads unless the owner or operator takes other steps to ensure that incoming loads do not contain regulated hazardous wastes, PCB wastes or other prohibited wastes listed in 101.108(1)“b”;

(2) Records of any inspections;

(3) Training of facility personnel to recognize regulated hazardous wastes, PCB wastes and other prohibited wastes listed in 101.108(1)“b”; and

(4) Notification of the EPA regional administrator if regulated hazardous wastes or PCB wastes are discovered at the facility.

b. Materials prohibited from disposal. The following wastes shall not be accepted for disposal by an MSWLF.

(1) Waste that is a chemical compound specifically listed by U.S. Environmental Protection Agency (EPA) as a regulated hazardous waste or that is a characteristic hazardous waste pursuant to the following characteristics:

1. Ignitable in that the waste has a flash point of less than 140°F.
2. Corrosive in that the waste has a pH less than 2 or greater than 12.5.
3. Reactive in that the waste is normally unstable, reacts violently with water, forms an explosive mixture with water, contains quantities of cyanide or sulfur that could be released into the air in sufficient quantity to be a danger to human health, or can easily be detonated or exploded.
4. Toxicity characteristic leaching procedure (TCLP) (EPA Method 1311) toxic, in that a TCLP listed chemical constituent exceeds the EPA-assigned concentration standard in 40 CFR Part 261 or the department-assigned concentration standard in Table I of 567—101.107(455B). Waste from a residential building that is contaminated by lead-based paint (i.e., the waste fails the TCLP test for lead only) may be disposed of in an MSWLF unit. The purpose of this exclusion is to help prevent the exposure of children to lead-based paint. Therefore, the meaning of “residential building” in regard to this TCLP exclusion shall be interpreted broadly and include any building that children or parents may utilize as a residence (temporarily or permanently). Such residential buildings include but are not limited to single-

family homes, apartment buildings, townhomes, condominiums, public housing, military barracks, nursing homes, hotels, motels, bunkhouses, and campground cabins.

(2) Polychlorinated biphenyl (PCB) wastes with a concentration equal to or greater than 50 parts per million (ppm).

(3) Free liquids, liquid waste and containerized liquids. However, free liquids and containerized liquids may be placed in MSWLF units if:

1. The containerized liquid is household waste other than septic waste. The container must be a small container similar in size to that normally found in household waste;

2. The waste is leachate or gas condensate derived from the MSWLF unit, whether it is a new or existing MSWLF unit or lateral expansion, and is designed with a composite liner and leachate collection system as described in 101.107(5)“a.” The owner or operator must demonstrate compliance with this subparagraph and place the demonstration in the operating record; or

3. The MSWLF unit is a RD&D project in which the department has authorized the addition of liquids and meets the applicable requirements of 101.104(2).

(4) Septage, which is the raw material, liquids, and pumpings from a septic system, unless treated pursuant to 567—Chapter 68.

(5) Appliances as defined pursuant to 567—Chapter 102, Division VII, unless there is documentation that the appliance has been demanufactured pursuant to 567—Chapter 102, Division VII.

(6) Radioactive waste, excluding luminous timepieces and other items using very small amounts of tritium.

(7) Infectious waste unless managed and disposed of pursuant to 567—Chapter 102, Division VI.

(8) Hot loads, meaning solid waste that is smoking, smoldering, emitting flames or hot gases, or otherwise indicating that the solid waste is in the process of combustion or close to igniting. Ash that has not been fully quenched or cooled is considered a hot load. Such wastes may be accepted at the gate but shall be segregated and completely extinguished and cooled in a manner as safe and responsible as practical before disposal.

(9) Asbestos-containing material (ACM) waste with greater than 1 percent asbestos unless managed and disposed of pursuant to 567—Chapter 102, Division VI.

(10) Grit and bar screenings, grease skimmings, and sewage sludge unless managed and disposed of pursuant to 567—Chapter 102, Division VI.

(11) Waste tires unless each tire is processed into pieces no longer than 18 inches on any side.

(12) Yard waste, except in the circumstances given in Iowa Code section 455D.9(1).

(13) Lead-acid batteries.

(14) Waste oil and materials containing free-flowing waste oil. Materials contaminated with waste oil may be disposed of if no free-flowing oil is retained in the material and the material is not a hazardous waste.

(15) Baled solid waste unless the waste is baled on site after the waste has been visually inspected for prohibited materials.

c. Open burning and fire hazards. No open burning of any type shall be allowed within the permitted boundary of an MSWLF facility. The fueling of vehicles and equipment, and any other activity that may produce sparks or flame, shall be conducted at least 50 feet away from the working face.

d. Scavenging and salvaging. Scavenging shall not be allowed at the MSWLF facility. However, salvaging by MSWLF operators may be allowed by the permitted or other authorized entity.

e. Animal feeding and grazing. Feeding animals municipal solid waste shall not be allowed at an MSWLF facility. The grazing of domestic animals on fully vegetated areas of the MSWLF facility not used for disposal, including closed MSWLF units, may be allowed by the department so long as the animals do not cause damage or interfere with operations, inspections, environmental monitoring, and other required activities. Hoofed animals shall not be allowed on closed MSWLF units.

101.108(2) *Disposal operations and activities.* MSWLFs shall comply with the following requirements.

a. Survey controls and monuments. Survey controls and monuments shall be maintained as follows.

(1) The property boundary, the permitted boundary, and the boundaries of MSWLF units shall be surveyed and marked by a professional land surveyor at least once prior to closure.

(2) Prior to waste placement, all new MSWLF unit boundaries shall be surveyed and staked by an Iowa-licensed professional engineer or land surveyor.

(3) Survey monuments shall be established and maintained by an Iowa-licensed professional land surveyor to provide vertical and horizontal control.

(4) An Iowa-licensed professional engineer or land surveyor shall check vertical elevations and the progression of fill sequencing.

(5) All survey stakes and monuments shall be clearly marked.

(6) An Iowa-licensed professional engineer or land surveyor shall biennially inspect all survey monuments. Any missing or damaged survey monuments shall be replaced by a professional land surveyor.

b. First lift. The first lift and initial placement of MSW over a new MSWLF unit liner and leachate collection system shall comply with the following requirements.

(1) Waste shall not be placed in the new MSWLF unit until the QC&A officer has submitted a signed and sealed final report to the department pursuant to 101.107(4) "d" and that report has been approved by the department.

(2) Construction and earth-moving equipment shall not operate directly on the liner and leachate management system. Waste disposal operations shall begin at the edge of the new MSWLF unit by pushing MSW out over the liner and leachate collection system. Compactors and other similarly heavy equipment shall not operate directly on the leachate collection system until a minimum of four feet of waste has been mounded over the top of the leachate collection system.

(3) Construction and demolitions (C&D) debris waste and materials clearly capable of spearing through the leachate collection system and liner shall not be placed in the first four feet of waste over the top of the leachate collection system. The first four feet of waste shall consist of select waste that is unlikely to damage the liner and performance of the leachate collection system.

(4) The owner or operator must place documentation in the operating record and submit a copy to the department that adequate cover material was placed over the top of the leachate collection system in the MSWLF unit or that freeze/thaw effects had no adverse impact on the compacted clay component of the liner.

c. Fill sequencing. The rate and phasing of disposal operations shall comply with the following requirements.

(1) The fill sequencing shall be planned and conducted in a manner and at a rate that does not cause a slope failure, lead to extreme differential settlement, or damage the liner and leachate collection system.

(2) The fill sequencing shall be planned and conducted in a manner compliant with the run-on and runoff requirements of 101.107(8) and surface water requirements of 567—101.110(455B).

d. Working face. The working face shall comply with the following requirements.

(1) The working face shall be no larger than necessary to accommodate the rate of disposal in a safe and efficient manner.

(2) The working face shall not be so steep as to cause heavy equipment and solid waste collection vehicles to roll over or otherwise lose control.

(3) Litter control devices of sufficient size to help prevent blowing litter shall be utilized at the working face. The operation of the working face shall attempt to minimize blowing litter.

(4) The operation of the working face shall prevent the harborage of vectors and attempt to minimize the attraction of vectors.

(5) Employees at the working face shall be trained to visually recognize universal symbols, markings and indications of prohibited wastes pursuant to 101.108(1) “b.”

e. Special wastes. Special wastes shall be managed and disposed of pursuant to 567—Chapter 102, Division VI.

f. Cover material and alternative cover material. Alternative cover material of an alternative thickness (e.g., tarps, spray covers) may be authorized if the owner or operator demonstrates to the department that the alternative material and thickness control vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment. Cover material or alternative cover material shall be available for use during all seasons in all types of weather. Cover material and alternative cover material shall be utilized as follows.

(1) Daily cover. Six inches of cover material or an approved depth or application of alternative cover material shall be placed and maintained over waste at the end of each operating day, or at more frequent intervals if necessary, to control vectors, fires, odors, blowing litter, and scavenging.

(2) Intermediate cover. At least one foot of compacted cover material or an approved depth or application of alternative cover material shall be placed and maintained over waste in the active portion that has not or will not receive more waste for at least 30 days. At least two feet of compacted cover material or alternative cover material shall be placed and maintained over waste that has not or will not receive waste for at least 180 days. Such active portions shall be seeded if they will not receive waste for a full growing season.

(3) Scarification of cover. To help prevent leachate seeps by aiding the downward flow of leachate, cover material or alternative cover material that prevents the downward flow of leachate and is at least five feet from the outer edge of the MSWLF unit shall be scarified prior to use of that area as a working face. Cover material or alternative cover material that does not impede the downward flow of leachate, as approved by the department, does not require scarification. Scarification may be as simple as the spearing or breaking up of a small area of the cover. Areas of intermediate cover may require removal of some of the cover material or alternative cover material to aid the downward flow of leachate.

(4) Final cover. Final cover over an MSWLF unit that is to be closed shall be constructed and maintained according to the closure and post-closure requirements of 567—101.112(455B) and 567—101.113(455B).

g. Leachate seeps. Leachate seeps shall be contained and plugged upon being identified. Leachate seeps shall not be allowed to reach waters of the state. Soils outside of the MSWLF unit that are contaminated by a leachate seep shall be excavated and then disposed of within the MSWLF unit. Such soils may be used for daily cover material.

h. Leachate recirculation. The department must approve an MSWLF unit for leachate recirculation. The primary goal of the leachate recirculation system is to help stabilize the waste in a more rapid, but controlled, manner. The leachate recirculation system shall not contaminate waters of the state, contribute to erosion, damage cover material, harm vegetation, or spray persons at the MSWLF facility. Leachate recirculation shall be limited to MSWLF units constructed with a composite liner.

i. Differential settlement. Areas of differential settlement sufficient to interfere with runoff and run-on shall be brought back up to the contours of the surrounding active portion. Differential settlement shall not be allowed to cause ponding of water on the active portion.

101.108(3) *Universally approved beneficial use determinations for alternative cover material.* The following alternative cover materials may be beneficially used as daily cover material at MSWLF in the manner and volume specified below. However, MSWLFs shall amend their sanitary landfill permits by notifying the department, and the department field office with jurisdiction over the facility, of their intent to utilize solid by-products pursuant to this rule at least 30 days prior to actual utilization of the by-products as alternative cover material.

a. Asphalt shingles. Asphalt shingles that are certified, consistent with federal regulations (Reference: Appendix E, Subpart E, 40 CFR Part 763, Section 1, Polarized Light Microscopy), as not containing more than 1 percent asbestos and are ground to an average size of three inches or less in any dimension may be mixed with soil in a 50/50 volume.

b. Compost. One hundred percent cured or finished compost, including compost overs, may be used.

c. Diatomaceous earth. Diatomaceous earth may be mixed with soil in a 50/50 volume.

d. Foundry sand. Foundry sand may be mixed with soil in a 50/50 volume.

e. Glass. Glass that has been ground to an average size of one-half inch or less in any dimension may be mixed with soil in a 10 percent glass and 90 percent soil by volume mixture.

f. Gypsum and gypsum wallboard. Gypsum and gypsum wallboard that have been ground to an average size of three inches or less in any dimension may be mixed with soil in a 50/50 volume.

g. Paper mill sludge. Uncontaminated, dewatered paper mill sludge may be mixed with soil in a 50/50 volume.

h. Sandblasting abrasive. Sandblasting abrasive and residuals may be mixed with soil in a 50/50 volume.

i. Tire chips. Tire chips that are an average size of three inches or less in any dimension may be mixed with soil in a 50/50 volume.

101.108(4) *Beneficial use determination application requirements for alternative cover material.* Unless the alternative cover material beneficial use is approved pursuant to 101.108(3), the applicant shall submit the following application information to the department to amend the MSWLF permit. The department may request that additional information be submitted in order to make a beneficial use determination. The department may also require specific beneficial use determination conditions and issue a temporary beneficial use determination on a trial basis.

If the department finds the application information to be incomplete, then it shall notify the applicant in writing of that fact and of the specific deficiencies and return the application materials to the applicant within 30 days of such notification. The applicant may reapply without prejudice.

a. The name, address, and telephone number of:

(1) Owner of the site where the project will be located.

(2) Applicant for the beneficial use determination.

(3) Official responsible for the operation of the project.

(4) Professional engineer licensed by the state of Iowa and retained for the project, if any.

The department may, at its sole discretion, require the applicant to retain a professional engineer for the project or specific parts thereof.

(5) Agency to be served by the project, if any.

(6) Responsible official of agency to be served.

b. A description of the proposed alternative cover material and whether it is to be used as daily, intermediate, or final cover.

c. The chemical and physical characteristics of the alternative cover material.

d. The proposed volume ratio of the alternative cover material(s) to soil or other alternative cover material(s).

e. A demonstration that there is a known or reasonably probable suitability of the alternative cover material as cover material by provision of previous case studies of the alternative cover material being utilized as cover material or information on the ability of the alternative cover material to do the following:

(1) Reduce or maintain current odor levels.

(2) Reduce or deter vectors.

(3) Reduce or maintain the current risk of fire.

(4) Control litter and dust.

(5) Impede the infiltration of liquids and precipitation.

(6) Control landfill gas migration.

(7) Provide a safe and effective working surface.

(8) Provide effective growing media.

(9) Other documentation that the alternative cover material is suitable for cover material.

(10) A demonstration that the proposed use of the alternative cover material will not adversely affect human health or the environment. The demonstration may include but is not limited to a toxicity characteristics leaching procedure (TCLP, EPA Method 1311) analysis of a representative sample of the alternative cover material.

101.108(5) *Beneficial use of alternative cover material and state goal progress.* Alternative cover material placed at no more than the thickness required by MSWLF rules shall be exempt from landfill tonnage measurements used for state goal progress and waste diversion calculations.

101.108(6) *Development and operations plan (DOPs).* An MSWLF unit shall maintain a DOPs. At a minimum, the DOPs shall detail how the facility will operate and how compliance with the requirements of this rule will be maintained. The DOPs shall contain at least the following components:

- a. A title page and table of contents.
- b. Telephone number and email address of the official responsible for the operation of the facility and an emergency contact person if different.
- c. Service area of the facility and political jurisdictions included in that area.
- d. Days and hours of operation of the facility.
- e. Details of how the site will comply with the prohibited operations and activity requirements of 101.108(1) and any related permit conditions.
- f. Details of how the site will comply with the disposal operation and activity requirements of 101.108(2) and any related permit conditions.
- g. Details of how the site will comply with the facility operations and activity requirements of 101.108(3), any related permit conditions, and any leachate and wastewater treatment requirements.

567—101.109(455B) Environmental monitoring and corrective action requirements for air quality and landfill gas. MSWLFs shall comply with the following environmental monitoring and corrective action requirements for air quality and landfill gas.

101.109(1) Air criteria. Owners or operators of MSWLFs must ensure that the units do not violate any applicable requirements developed under a state implementation plan (SIP) approved or promulgated by the department pursuant to Section 110 of the Clean Air Act.

101.109(2) Landfill gas. MSWLFs shall comply with the following requirements for landfill gas. For purposes of this subrule, “lower explosive limit” means the lowest percent by volume of a mixture of explosive gases in air that will propagate a flame at 25°C and atmospheric pressure.

a. Owners or operators of MSWLF units must ensure that:

(1) The concentration of methane gas generated by the facility does not exceed 25 percent of the lower explosive limit for methane in facility structures (excluding gas pipeline, control or recovery system components), and

(2) The concentration of methane gas does not exceed the lower explosive limit for methane at the facility property boundary.

b. Owners or operators of MSWLF units must implement a routine methane-monitoring program to ensure that the standards of 101.109(2) “a” are met. Such a program shall include routine subsurface methane monitoring (e.g., at select groundwater wells, at gas monitoring wells).

(1) The type and frequency of monitoring must be determined based on the following factors:

1. Soil conditions;
2. The hydrogeologic conditions surrounding the facility;
3. The hydraulic conditions surrounding the facility;

4. The location of facility structures (including potential subsurface preferential pathways such as but not limited to pipes, utility conduits, drain tiles, and sewers) and property boundaries; and

5. The locations of structures near the outside of the facility to which or along which subsurface migration of methane gas may occur. Examples of such structures include but are not limited to houses, buildings, basements, crawl spaces, pipes, utility conduits, drain tiles, and sewers.

(2) The minimum frequency of monitoring shall be quarterly.

c. If methane gas levels exceeding the limits specified in 101.109(2) “a” are detected, the owner or operator must:

(1) Immediately take all necessary steps to ensure protection of human health and notify the department and department field office with jurisdiction over the MSWLF;

(2) Within seven days of detection, place in the operating record and notify the department and department field office with jurisdiction over the MSWLF of the methane gas levels detected and a description of the steps taken to protect human health; and

(3) Within 60 days of detection, implement a remediation plan for the methane gas releases, place a copy of the plan in the operating record, and notify the department and department field office with jurisdiction over the MSWLF that the plan has been implemented. The plan shall describe the nature and extent of the problem and the proposed remedy.

d. The owner or operator shall submit an annual report to the department detailing the gas monitoring sampling locations and results, any action taken, and the results of steps taken to address gas levels exceeding the limits of 101.109(2) “a” during the previous year. This report shall include a site map that delineates all structures, perimeter boundary locations, and other monitoring points where gas readings were taken. The site map shall also delineate areas of

landfill gas migration outside the MSWLF units, if any. The report shall contain a narrative explaining and interpreting all of the data collected during the previous year. The report shall be due each year at a date specified by the department in the facility's permit.

567—101.110(455B) Environmental monitoring and corrective action requirements for groundwater and surface water. MSWLFs shall comply with the following environmental monitoring and corrective action requirements for groundwater and surface water.

101.110(1) *General requirements for environmental monitoring and corrective action for groundwater and surface water.*

a. MSWLF units shall not:

(1) Cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act, including but not limited to NPDES requirements, pursuant to Section 402 of the Clean Water Act.

(2) Cause the discharge of a nonpoint source of pollution into waters of the United States, including wetlands, that violates any requirement of an areawide or statewide water quality management plan that has been approved under Section 208 or 319 of the Clean Water Act.

b. A new MSWLF unit must be in compliance with the groundwater monitoring requirements specified in 101.110(2), 101.110(4), 101.110(5) and 101.110(6) before waste can be placed in the unit unless the department establishes an alternative schedule for demonstrating compliance with:

(1) Subparagraph 101.110(2) "c"(3), pertaining to notification of placement of certification in operating record;

(2) Subparagraph 101.110(5) "c"(1), pertaining to notification that statistically significant increase (SSI) notice is in operating record;

(3) Subparagraphs 101.110(5) "c"(2) and "c"(3), pertaining to an assessment monitoring program;

(4) Paragraph 101.110(6) “b,” pertaining to sampling and analyzing 40 CFR Part 258, Appendix II, constituents;

(5) Subparagraph 101.110(6) “d”(1), pertaining to placement of notice (40 CFR Part 258, Appendix II, constituents detected) in record and notification of placement of notice in record;

(6) Subparagraph 101.110(6) “d”(2), pertaining to sampling for 40 CFR Part 258;

(7) Paragraph 101.110(6) “g,” pertaining to notification (and placement of notice in record) of SSI above groundwater protection standard;

(8) Numbered paragraph 101.110(6) “g”(1)“4” and paragraph 101.110(7) “a,” pertaining to assessment of corrective measures;

(9) Paragraph 101.110(8) “a,” pertaining to selection of remedy and notification of placement in record;

(10) Paragraph 101.110(9) “f,” pertaining to notification of placement in record (certification of remedy completed).

c. Once established at an MSWLF unit, groundwater monitoring shall be conducted throughout the active life and post-closure care period of that MSWLF unit.

101.110(2) *Groundwater monitoring systems.* MSWLFs shall have a groundwater monitoring system that complies with the following requirements:

a. *Objectives.* A groundwater monitoring system must be installed that meets the following objectives:

(1) Yields groundwater samples from the uppermost aquifer that represent the quality of background groundwater that has not been affected by leakage from a unit. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the waste management area where either:

1. Hydrogeologic conditions do not allow the owner or operator to determine which wells are hydraulically upgradient; or

2. Sampling at other wells will provide an indication of background groundwater quality that is as representative as or more representative than that provided by the upgradient wells.

(2) Yields groundwater samples from the uppermost aquifer that represent the quality of groundwater passing the relevant point of compliance specified by the department under 101.107(5)“a”(2)“2.” A downgradient monitoring system must be installed at the relevant point of compliance specified by the department under 101.107(5)“a”(2)“2” that ensures detection of groundwater contamination in the uppermost aquifer. When physical obstacles preclude installation of groundwater monitoring wells at the relevant point of compliance at existing units, the downgradient monitoring system may be installed at the closest practicable distance, hydraulically downgradient from the relevant point of compliance specified by the department under 101.107(5)“a”(2)“2,” that ensures detection of groundwater contamination in the uppermost aquifer.

(3) Provides a high level of certainty that releases of contaminants from the site can be promptly detected. Downgradient monitoring wells shall be placed along the site perimeter, within 50 feet of the planned liner or waste boundary unless site conditions dictate otherwise, downgradient of the facility with respect to the hydrologic unit being monitored. Each groundwater underdrain system shall be included in the groundwater detection monitoring program under 101.110(5). The maximum drainage area routed through each outfall shall not exceed ten acres unless it can be demonstrated that site-specific factors such as drain flow capacity or site development sequencing require an alternative drainage area. If contamination is identified in the groundwater underdrain system pursuant to 101.110(5), the owner or operator shall manage the underdrain discharge as leachate in lieu of assessment monitoring and corrective action.

(4) Be designed and constructed with the theoretical release evaluation pursuant to 101.106(3)“e”(6) taken into consideration.

b. Long-term, multiphase operations. For those facilities that are long-term, multiphase operations, the department may establish temporary waste boundaries in order to define locations for monitoring wells. The convergence of groundwater paths to minimize the overall length of the downgradient dimension may be taken into consideration in the placement of downgradient monitoring wells provided that the multiphase unit groundwater monitoring system meets the requirements of 101.8(2), 101.8(3), and 101.110(2) “a” and “c” and will be as protective of human health and the environment as the individual monitoring systems for each MSWLF unit, based on the following factors:

- (1) Number, spacing, and orientation of the MSWLF units;
- (2) Hydrogeologic setting;
- (3) Site history;
- (4) Engineering design of the MSWLF units; and
- (5) Type of waste accepted at the MSWLF units.

c. Hydrologic monitoring system plan (HMSP). Unless otherwise approved by the department in writing, the number, spacing, and depth of groundwater monitoring points shall be:

(1) Determined based upon site-specific technical information, including but not limited to the soil and hydrogeologic investigation pursuant to 101.106(3) and the site exploration and characterization report pursuant to 101.106(3), that must include thorough characterization of:

1. Aquifer thickness, groundwater flow rate, and groundwater flow direction including seasonal and temporal fluctuations in groundwater flow;

2. Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer, including but not limited to

thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities; and

3. Projected paths and rates of movement of contaminants found in leachate pursuant to 101.106(3) “e”(6).

(2) Designed and constructed with a maximum of 300 feet between downgradient groundwater monitoring wells unless it is demonstrated by site-specific analysis or modeling that an alternative well spacing is justified. The convergence of groundwater paths to minimize the overall length of the downgradient dimension may be taken into consideration in the placement of downgradient monitoring wells provided that the groundwater monitoring system meets the requirements of 101.8(2), 101.8(3), and 101.110(2) “a” and “c.”

(3) Certified by a qualified groundwater scientist and approved by the department. Within 14 days of this certification and approval by the department, the owner or operator must notify the department that the certification has been placed in the operating record.

d. Monitoring well maintenance and performance reevaluation plan. A monitoring well maintenance and performance reevaluation plan shall be included as part of the HMSP. The plan shall ensure that all monitoring points remain reliable. The plan shall provide for the following:

(1) A biennial examination of high and low water levels accompanied by a discussion of the acceptability of well location (vertically and horizontally) and exposure of the screened interval to the atmosphere.

(2) A biennial evaluation of water level conditions in the monitoring wells to ensure that the effects of waste disposal or well operation have not resulted in changes in the hydrologic setting and resultant flow paths.

(3) Measurements of well depths to ensure that wells are physically intact and not filling with sediment. Measurements shall be taken annually in wells that do not contain dedicated sampling pumps and every five years in wells containing dedicated sampling pumps.

(4) A biennial evaluation of well recharge rates and chemistry to determine if well deterioration is occurring.

101.110(3) *Surface water monitoring systems.* The department may require an MSWLF facility to implement a surface water monitoring program if there is reason to believe that a surface water of the state has been impacted as a result of facility operations (i.e., leachate seeps, sediment pond discharge) or a groundwater SSI over background has occurred.

a. A surface water monitoring program must be developed that consists of a sufficient number of monitoring points, designated at appropriate locations, to yield surface water samples that provide a representative sample of:

(1) The upstream quality of a surface water of the state if the surface water being monitored is a flowing body of water.

(2) The downstream quality of a surface water of the state if the surface water being monitored is a flowing body of water.

b. Surface water levels must be measured at a frequency specified in the facility's permit, within 1/10 of a foot at each surface water monitoring point immediately prior to sampling, each time surface water is sampled. The owner or operator must determine the rate and direction of surface water flow, if any, each time surface water is sampled. Surface water level and flow measurements for the same surface water of the state must be measured on the same day to avoid temporal variations that could preclude accurate determination of surface water flow and direction.

c. The owner or operator must notify and receive approval from the department for the designation or decommission of any surface water monitoring point and must place that approval in the operating record.

d. A surface water monitoring point shall be designated to maintain sampling at that monitoring point throughout the life of the surface water monitoring program.

e. Each surface water monitoring point must have a unique and permanent number, and that number must never change or be used again at the MSWLF. Surface water monitoring points shall be identified by “SW# (insert unique and permanent number)”.

f. The number, spacing, and location of the surface water monitoring points shall be determined based upon site-specific technical information, including:

- (1) Water level, including seasonal and temporal fluctuations in water level; and
- (2) Flow rate and flow direction, including seasonal and temporal fluctuations in flow.

g. The MSWLF may discontinue the surface water monitoring program if monitoring data indicates that facility operations are not impacting surface water.

101.110(4) *Groundwater sampling and analysis requirements.*

a. The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide an accurate representation of groundwater quality at the background and downgradient wells installed in compliance with 101.110(2). Analyses for a contaminant regulated under this division must be performed by a laboratory certified for the analyte(s) and applicable method pursuant to 567—Chapter 83. The owner or operator must notify the department that the sampling and analysis program documentation has been placed in the operating record, and the program must include procedures and techniques for:

- (1) Sample collection;
- (2) Sample preservation and shipment;

- (3) Analytical procedures;
- (4) Chain of custody control; and
- (5) Quality assurance and quality control.

b. The groundwater monitoring programs must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents and other monitoring parameters in groundwater samples. Groundwater samples shall not be field-filtered prior to laboratory analysis.

c. The sampling procedures and frequency must be protective of human health and the environment and consistent with 101.110(5).

d. Groundwater elevations must be measured at a frequency specified in the facility's permit, within 1/100 of a foot in each well immediately prior to purging, each time groundwater is sampled. The owner or operator must determine the rate and direction of groundwater flow each time groundwater is sampled. Groundwater elevations in wells that monitor the same waste management area must be measured within a period of time short enough to avoid temporal variations in groundwater flow that could preclude accurate determination of groundwater flow rate and direction.

e. The owner or operator must establish background groundwater quality in a hydraulically upgradient or background well(s) for each of the monitoring parameters or constituents required in the particular groundwater monitoring program that applies to the MSWLF unit, as determined under 101.110(5) "a" or 101.110(6) "a." Background groundwater quality may be established at wells that are not located hydraulically upgradient from the MSWLF unit if the wells meet the requirements of 101.110(2) "a"(1).

f. The number of samples collected to establish groundwater quality data must be consistent with the appropriate statistical procedures determined pursuant to 101.110(4) "g." The sampling procedures shall be those specified under 101.110(5) "b" for detection

monitoring, 101.110(6)“b” and 101.110(6)“d” for assessment monitoring, and 101.110(7)“b” for corrective action.

g. The owner or operator must specify in the operating record which of the following statistical methods will be used in evaluating groundwater monitoring data for each hazardous constituent. The statistical test chosen shall be conducted separately for each hazardous constituent in each well.

(1) A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well’s mean and the background mean levels for each constituent.

(2) An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well’s median and the background median levels for each constituent.

(3) A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

(4) A control chart approach that gives control limits for each constituent.

(5) Another statistical test method that meets the performance standards of 101.110(4)“h.” The owner or operator must place a justification for this alternative in the operating record and notify the department of the use of this alternative test. The justification must demonstrate that the alternative method meets the performance standards of 101.110(4)“h.”

h. The statistical method required pursuant to 101.110(4)“g” shall comply with the following performance standards.

(1) The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator to be inappropriate for a normal theory test, then the data shall be transformed or a distribution-free theory test shall be used. If the distributions for the constituents differ, more than one statistical method may be needed.

(2) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a groundwater protection standard, the test shall be done at a Type I error level not less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experiment-wise error rate for each testing period shall be not less than 0.05; however, the Type I error level of not less than 0.01 for individual well comparisons must be maintained.

(3) If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values shall be protective of human health and the environment. The parameters shall be determined after the number of samples in the background database, the data distribution, and the range of the concentration values for each constituent of concern have been considered.

(4) If a tolerance interval or a prediction interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be protective of human health and the environment. These parameters shall be determined after the number of samples in the background database, the data distribution, and the range of the concentration values for each constituent of concern have been considered.

(5) The statistical method shall account for data below the limit of detection (LD) by recording such data at one-half the limit of detection (i.e., LD/2) or as prescribed by the

statistical method. Any practical quantitation limit that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(6) If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

i. The owner or operator must determine whether or not there is an SSI over background values for each parameter or constituent required in the particular groundwater monitoring program that applies to the MSWLF unit, as determined under 101.110(5) “a” or 101.110(6) “a.”

(1) In determining whether an SSI has occurred, the owner or operator must compare the groundwater quality of each parameter or constituent at each monitoring well designated pursuant to 101.110(2) to the background value of that constituent, according to the statistical procedures and performance standards specified under 101.110(4) “g” and “h.”

(2) Within 45 days after completing sampling and analysis, the owner or operator must determine whether there has been an SSI over background at each monitoring well.

101.110(5) *Detection monitoring program.*

a. Detection monitoring is required at MSWLF units at all groundwater monitoring wells defined under 101.110(2). At a minimum, a detection monitoring program must include the monitoring for the constituents listed in 40 CFR Part 258, Appendix I, and any additional parameters required by the department on a site-specific basis. An alternative list of constituents may be used if it can be demonstrated that the constituents removed are not reasonably expected to be in or derived from the waste contained in the unit and if the alternative list of constituents is expected to provide a reliable indication of leachate leakage or gas impact from the MSWLF unit.

The department may establish an alternative list of inorganic indicator parameters for an MSWLF unit within 40 CFR Part 258, Appendix I, in lieu of some or all of the heavy metals (constituents 1 through 15 in 40 CFR Part 258, Appendix I) if the alternative parameters provide a reliable indication of inorganic releases from the MSWLF unit to the groundwater. In determining alternative parameters, the department shall consider the following factors.

(1) The types, quantities, and concentrations of constituents in wastes managed at the MSWLF unit;

(2) The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the MSWLF unit;

(3) The detectability of indicator parameters, waste constituents, and reaction products in the groundwater; and

(4) The concentration or values and coefficients of variation of monitoring parameters or constituents in the groundwater background.

b. The monitoring frequency for all constituents listed in 40 CFR Part 258, Appendix I, or in the alternative list approved in accordance with 101.110(5)“a”(1) shall be at least semiannual (i.e., every six months) during the active life of the facility (including closure) and the post-closure period. Where insufficient background data exist, a minimum of five independent samples from each well, collected at intervals to account for seasonal and temporal variation, must be analyzed for the constituents in 40 CFR Part 258, Appendix I, or in the alternative list approved in accordance with 101.110(5)“a”(1) during the first year. At least one sample from each well must be collected and analyzed during subsequent semiannual sampling events. The department may specify an appropriate alternative frequency for repeated sampling and analysis for constituents in 40 CFR Part 258, Appendix I, or in the alternative list approved in accordance with 101.110(5)“a”(1) during the active life (including closure) and the post-closure care period. The alternative frequency during the

active life (including closure) shall be not less than annually. The alternative frequency shall be based on consideration of the following factors.

- (1) Lithology of the aquifer and unsaturated zone;
- (2) Hydraulic conductivity of the aquifer and unsaturated zone;
- (3) Groundwater flow rates;
- (4) Minimum distance between upgradient edge of the MSWLF unit and downgradient monitoring well screen (minimum distance of travel); and
- (5) Resource value of the aquifer.

c. If the owner or operator determines, pursuant to 101.110(4) “*i*,” that there is an SSI over background for one or more of the constituents listed in 40 CFR Part 258, Appendix I, or in the alternative list approved in accordance with 101.110(5) “*a*”(1) at any monitoring well specified under 101.110(2), then the owner or operator:

- (1) Must, within 14 days of this finding, place a notice in the operating record indicating which constituents have shown statistically significant changes from background levels and notify the department that this notice was placed in the operating record.

- (2) Must establish within 90 days an assessment monitoring program meeting the requirements of 101.110(6), except as provided in 101.110(5) “*c*”(3).

- (3) May demonstrate that a source other than an MSWLF unit caused the contamination or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. A report documenting this demonstration must be certified by a qualified groundwater scientist, approved by the department, and placed in the operating record. If resampling is a part of the demonstration, resampling procedures shall be specified prior to initial sampling. If a successful demonstration to the department is made and documented, the owner or operator may continue detection monitoring as specified in

101.110(5). If, after 90 days, a successful demonstration is not made, the owner or operator must initiate an assessment monitoring program as required in 101.110(6).

101.110(6) *Assessment monitoring program.*

a. Assessment monitoring is required whenever an SSI over background has been confirmed pursuant to 101.110(5) “c” to be the result of a release from the facility.

b. Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator must sample and analyze the groundwater for all constituents identified in 40 CFR Part 258, Appendix II. A minimum of one sample from each downgradient well shall be collected and analyzed during each sampling event. For any constituent detected in the downgradient wells as a result of the complete 40 CFR Part 258, Appendix II, analysis, a minimum of four independent samples from each well must be collected and analyzed to establish background for the constituents. The department may specify an appropriate subset of wells to be sampled and analyzed for 40 CFR Part 258, Appendix II, constituents during assessment monitoring. The department may delete any of the 40 CFR Part 258, Appendix II, monitoring parameters for an MSWLF unit if it can be shown that the removed constituents are not reasonably expected to be in or derived from the waste contained in the unit.

c. The department may specify an appropriate alternate frequency for repeated sampling and analysis for the full set of 40 CFR Part 258, Appendix II, constituents required by 101.110(6) “b” during the active life (including closure) and post-closure care period of the unit. The following factors shall be considered:

- (1) Lithology of the aquifer and unsaturated zone;
- (2) Hydraulic conductivity of the aquifer and unsaturated zone;
- (3) Groundwater flow rates;

(4) Minimum distance between upgradient edge of the MSWLF unit and downgradient monitoring well screen (minimum distance of travel);

(5) Resource value of the aquifer; and

(6) Nature (fate and transport) of any constituents detected in response to this paragraph.

d. After obtaining the results from the initial or subsequent sampling events required in 101.110(6) “*b*,” the owner or operator must:

(1) Within 14 days, place a notice in the operating record identifying the 40 CFR Part 258, Appendix II, constituents that have been detected and notify the department that this notice has been placed in the operating record;

(2) Within 90 days, and on at least a semiannual basis thereafter, resample all wells specified by 101.110(2) and conduct analyses for all constituents in 40 CFR Part 258, Appendix I, or in the alternative list approved in accordance with 101.110(5) “*a*”(1), and for those constituents in 40 CFR Part 258, Appendix II, that are detected in response to the requirements of 101.110(6) “*b*.” Concentrations shall be recorded in the facility operating record. At least one sample from each well must be collected and analyzed during these sampling events. The department may specify an alternative monitoring frequency during the active life and the post-closure period for the constituents referred to in this subparagraph. The alternative frequency for constituents in 40 CFR Part 258, Appendix I, or in the alternative list approved in accordance with 101.110(5) “*a*”(1) during the active life shall be no less than annual. The alternative frequency shall be based on consideration of the factors specified in 101.110(6) “*c*”;

(3) Establish background concentrations for any constituents detected pursuant to 101.110(6) “*b*” or 101.110(6) “*d*”(2); and

(4) Establish groundwater protection standards for all constituents detected pursuant to 101.110(6)“b” or “d.” The groundwater protection standards shall be established in accordance with 101.110(6)“h” or “i.”

e. If the concentrations of all 40 CFR Part 258, Appendix II, constituents are shown to be at or below background values, using the statistical procedures in 101.110(4)“g” for two consecutive sampling events, the owner or operator must notify the department of this finding and may return to detection monitoring.

f. If the concentrations of any 40 CFR Part 258, Appendix II, constituents are above background values, but all concentrations are below the groundwater protection standard established under 101.110(6)“h” or “i,” using the statistical procedures in 101.110(4)“g,” the owner or operator must continue assessment monitoring in accordance with this subrule.

g. If one or more 40 CFR Part 258, Appendix II, constituents are detected at statistically significant levels above the groundwater protection standard established under 101.110(6)“h” or “i” in any sampling event, the owner or operator must, within 14 days of this finding, place a notice in the operating record identifying the 40 CFR Part 258, Appendix II, constituents that have exceeded the groundwater protection standard and notify the department and all other appropriate local government officials that the notice has been placed in the operating record. The owner or operator also:

(1) Must, within 90 days of this finding, comply with the requirements in 101.110(6)“g”(2) or the following requirements.

1. Characterize the nature and extent of the release by installing additional monitoring wells as necessary until the horizontal and vertical dimensions of the plume have been defined to background concentrations;

2. Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with 101.110(6)“g”(2);

3. Notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off site when indicated by sampling of wells in accordance with 101.110(6) “g”(1); and

4. Initiate an assessment of corrective measures as required by 101.110(7).

(2) May demonstrate that a source other than an MSWLF unit caused the contamination or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. A report documenting this demonstration must be certified by a qualified groundwater scientist, approved by the department, and placed in the operating record. If a successful demonstration is made, the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to 101.110(6) and may return to detection monitoring if the 40 CFR Part 258, Appendix II, constituents are at or below background as specified in 101.110(6) “e.” Until a successful demonstration is made, the owner or operator must comply with 101.110(6) “g,” including initiating an assessment of corrective measures.

h. The owner or operator must establish a groundwater protection standard for each 40 CFR Part 258, Appendix II, constituent detected in the groundwater. The groundwater protection standard shall be:

(1) For constituents for which a maximum contaminant level (MCL) has been promulgated under Section 1412 of the Safe Drinking Water Act (codified) under 40 CFR Part 141, the MCL for that constituent;

(2) For constituents for which MCLs have not been promulgated, the background concentration for the constituent established from wells in accordance with 101.110(2); or

(3) For constituents for which the background concentration is higher than the MCL identified under 101.110(6) “h”(1) or health-based concentrations identified under 101.110(6) “i,” the background concentration.

i. The department may establish an alternative groundwater protection standard for constituents for which MCLs have not been established. These groundwater protection standards shall be appropriate health-based concentrations that comply with the statewide standards for groundwater established pursuant to 567—Chapter 137.

j. In establishing alternative groundwater protection standards under 101.110(6) “*i*,” the department may consider the following:

- (1) The policies set forth by the Groundwater Protection Act;
- (2) Multiple contaminants in the groundwater with the assumption that the effects are additive regarding detrimental effects to human health and the environment;
- (3) Exposure threats to sensitive environmental receptors; and
- (4) Other site-specific exposure or potential exposure to groundwater.

101.110(7) *Assessment of corrective measures.*

a. Within 90 days of finding that any of the constituents listed in 40 CFR Part 258, Appendix II, have been detected at a statistically significant level exceeding the groundwater protection standards defined under 101.110(6) “*h*” or “*i*,” the owner or operator must initiate an assessment of corrective measures. Such an assessment must be completed and submitted to the department for review and approval within 180 days of the initial finding unless otherwise authorized or required by the department.

b. The owner or operator must continue to monitor in accordance with the assessment monitoring program as specified in 101.110(6).

c. The assessment shall include an analysis of the effectiveness of potential corrective measures in meeting all of the requirements and objectives of the remedy as described under 101.110(8), addressing at least the following:

(1) The performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;

(2) The time required to begin and complete the remedy;

(3) The costs of remedy implementation; and

(4) The institutional requirements such as state or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the remedy(ies).

d. Within 60 days of approval from the department of the assessment of corrective measures, the owner or operator must discuss the results of the corrective measures assessment, prior to the selection of a remedy, in a public meeting with interested and affected parties. The department may establish an alternative schedule for completing the public meeting requirement. Notice of public meeting shall be sent to all owners and occupiers of property adjacent to the permitted boundary of the facility, the department, and the department field office with jurisdiction over the facility. A copy of the minutes of this public meeting and the list of community concerns must be placed in the operating record and submitted to the department.

101.110(8) *Selection of remedy.*

a. Based on the results of the corrective measures assessment conducted under 101.110(7), the owner or operator must select a remedy within 60 days of holding the public meeting that, at a minimum, meets the standards listed in 101.110(8) “*b.*” The department may establish an alternative schedule for selecting a remedy after holding the public meeting. The owner or operator must submit a report to the department within 14 days of selecting a remedy describing the selected remedy, stating that the report has been placed in the operating record, and explaining how the selected remedy meets the standards in 101.110(8) “*b.*”

b. Remedies must:

- (1) Be protective of human health and the environment;
- (2) Attain the groundwater protection standards specified pursuant to 101.110(6) “h” or “i”;
- (3) Control the source(s) of releases so as to reduce or eliminate, to the maximum extent practicable, further releases of 40 CFR Part 258, Appendix II, constituents into the environment that may pose a threat to human health or the environment; and
- (4) Comply with standards for management of wastes as specified in 101.110(9) “d.”

c. In selecting a remedy that meets the standards of 101.110(8) “b,” the owner or operator shall consider the following evaluation factors.

(1) The long-term and short-term effectiveness and protectiveness of the potential remedy(ies), along with the degree of certainty that the remedy will prove successful based on consideration of the following:

1. Magnitude of reduction of existing risks;
2. Magnitude of residual risks in terms of likelihood of further releases due to waste remaining following implementation of a remedy;
3. The type and degree of long-term management required, including monitoring, operation, and maintenance;
4. Short-term risks that might be posed to the community, workers, or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, redisposal, or containment;
5. Time period until full protection is achieved;
6. Potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, redisposal, or containment;

7. Long-term reliability of the engineering and institutional controls; and
8. Potential need for replacement of the remedy.

(2) The effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:

1. The extent to which containment practices will reduce further releases; and
2. The extent to which treatment technologies may be used.

(3) The ease or difficulty of implementing a potential remedy(ies) based on consideration of the following factors:

1. Degree of difficulty associated with constructing the technology;
2. Expected operational reliability of the technology;
3. Necessity of coordination with and obtaining necessary approvals and permits from other agencies;
4. Availability of necessary equipment and specialists; and
5. Available capacity and location of needed treatment, storage, and disposal services.

(4) Practicable capability of the owner or operator, including a consideration of technical and economic capabilities.

(5) The degree to which community concerns, including but not limited to the concerns identified at the public meeting required pursuant to 101.110(7) “d,” are addressed by a potential remedy(ies).

d. The owner or operator shall specify as part of the selected remedy a schedule(s) for initiating and completing remedial activities. Such a schedule must require the initiation of remedial activities within a reasonable period of time taking into consideration the factors set forth in 101.110(8) “d”(1) through “d”(8). The owner or operator must consider the following factors in determining the schedule of remedial activities:

- (1) Extent and nature of contamination;

(2) Practical capabilities of remedial technologies in achieving compliance with groundwater protection standards established under 101.110(6) “h” or “i” and other objectives of the remedy;

(3) Availability of treatment or disposal capacity for wastes managed during implementation of the remedy;

(4) Desirability of utilizing alternative or experimental technologies that are not widely available but that may offer significant advantages over already available technologies in terms of effectiveness, reliability, safety, or ability to achieve remedial objectives;

(5) Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;

(6) Resource value of the aquifer, including:

1. Current and future uses;
2. Proximity and withdrawal rate of users;
3. Groundwater quantity and quality;
4. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;

5. The hydrogeologic characteristics of the facility and surrounding land;

6. Groundwater removal and treatment costs; and

7. The cost and availability of alternative water supplies;

(7) Practicable capability of the owner or operator; and

(8) Other relevant factors.

101.110(9) *Implementation of the corrective action plan.*

a. Based on the schedule established under 101.110(8) “d” for initiation and completion of remedial activities, the owner or operator must:

(1) Establish and implement a corrective action groundwater monitoring program that:

1. At a minimum, meets the requirements of an assessment monitoring program under 101.110(6);

2. Indicates the effectiveness of the corrective action remedy; and

3. Demonstrates compliance with groundwater protection standards pursuant to 101.110(9)“e”;

(2) Implement the corrective action remedy selected under 101.110(8); and

(3) Take any interim measures necessary to ensure the protection of human health and the environment. Interim measures should, to the greatest extent practicable, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to 101.110(8). The following factors must be considered by an owner or operator in determining whether interim measures are necessary.

1. Time period required to develop and implement a final remedy;

2. Actual or potential exposure of nearby populations or environmental receptors to hazardous constituents;

3. Actual or potential contamination of drinking water supplies or sensitive ecosystems;

4. Further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;

5. Weather conditions that may cause hazardous constituents to migrate or be released;

6. Risk of fire or explosion or potential for exposure to hazardous constituents as a result of an accident or the failure of a container or handling system; and

7. Other factors that may pose threats to human health and the environment.

b. An owner or operator may determine, based on information developed after implementation of the remedy has begun or other information, that compliance with the requirements of 101.110(8)“b” is not being achieved through the remedy selected. In such cases, the owner or operator must notify the department and implement other methods or

techniques that could practicably achieve compliance with the requirements unless the owner or operator makes the determination under 101.110(9) “c.” The notification shall explain how the proposed alternative methods or techniques will meet the standards in 101.110(8) “b,” or the notification shall indicate that the determination was made pursuant to 101.110(9) “c.” The notification shall also specify a schedule(s) for implementing and completing the remedial activities to comply with 101.110(8) “b” or the alternative measures to comply with 101.110(9) “c.” Within 90 days of approval by the department for the proposed alternative methods or techniques or the determination of impracticability, the owner or operator shall implement the proposed alternative methods or techniques meeting the standards of 101.110(8) “b” or implement alternative measures meeting the requirements of 101.110(9) “c”(2) and “c”(3).

c. If the owner or operator determines that compliance with requirements under 101.110(8) “b” cannot be practicably achieved with any currently available methods, the owner or operator must:

(1) Obtain certification of a qualified groundwater scientist and approval by the department that compliance with requirements under 101.110(8) “b” cannot be practicably achieved with any currently available methods.

(2) Implement alternate measures to control exposure of humans or the environment to residual contamination, as necessary to protect human health and the environment.

(3) Implement alternate measures for control of the sources of contamination or for removal or decontamination of equipment, units, devices, or structures that are:

1. Technically practicable; and
2. Consistent with the overall objective of the remedy.

(4) Notify the department within 14 days that a report justifying the alternate measures prior to implementation has been placed in the operating record.

d. All solid wastes that are managed pursuant to a remedy required under 101.110(8), or an interim measure required under 101.110(9) “*a*”(3), shall be managed in a manner that:

- (1) Is protective of human health and the environment; and
- (2) Complies with applicable RCRA, state, and local requirements.

e. Remedies selected pursuant to 101.110(8) shall be considered complete when:

(1) The owner or operator complies with the groundwater protection standards established under 101.110(6) “*h*” or “*i*” at all points within the plume of contamination that lie beyond the groundwater monitoring well system established under 101.110(2).

(2) Compliance with the groundwater protection standards established under 101.110(6) “*h*” or “*i*” has been achieved by demonstrating that concentrations of 40 CFR Part 258, Appendix II, constituents have not exceeded the groundwater protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards 101.110(4) “*g*” and “*h*.” The department may specify an alternative length of time during which the owner or operator must demonstrate that concentrations of 40 CFR Part 258, Appendix II, constituents have not exceeded the groundwater protection standard(s), taking into consideration:

1. The extent and concentration of the release(s);
2. The behavior characteristics of the hazardous constituents in the groundwater;
3. The accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variables that may affect accuracy; and
4. The characteristics of the groundwater.

(3) All actions required by the department to complete the remedy have been satisfied.

f. Upon completion of the remedy, the owner or operator must notify the department within 14 days that a certification has been placed in the operating record verifying that the remedy has been completed in compliance with the requirements of 101.110(9) “*e*.” The certification

must be signed by the owner or operator and by a qualified groundwater scientist and approved by the department.

g. When, upon completion of the certification, the owner or operator determines that the corrective action remedy has been completed in accordance with the requirements under 101.110(9) “e,” the owner or operator shall be released from the requirements for financial assurance for corrective action pursuant to 101.114(5).

101.110(10) *Annual water quality reports (AWQR)*. The owner or operator shall submit an annual report to the department detailing the water quality monitoring sampling locations and results, assessments, selection of remedies, implementation of corrective action, and results of corrective action remedies to address SSIs, if any, during the previous year. This report shall include a site map that delineates all monitoring points where water quality samples were taken and plumes of contamination, if any. The report shall contain a narrative explaining and interpreting all of the data collected during the previous year. The report shall be due each year on a date set by the department in the facility’s permit.

567—101.111(455B,455D) Recordkeeping and reporting requirements. The purpose of the recordkeeping and reporting activities is to verify compliance with this division and to document the construction and operations of the facility. The department can set alternative schedules for recordkeeping and notification requirements as specified in 101.111(1) and 101.111(2), except for the notification requirements in 101.106(2) “a” and 101.110(6) “g”(1)“3.” MSWLFs shall comply with the following recordkeeping and reporting requirements.

101.111(1) *Recordkeeping*. The owner or operator of an MSWLF unit must record and retain near the facility in an operating record or in an alternative location approved by the department the following information as it becomes available.

- a. Permit application, permit renewal, and permit modification application materials pursuant to 567—101.105(455B);
- b. Site exploration and characterization reports pursuant to 101.106(3);
- c. Design and construction plans and specifications, and related analyses and documents, pursuant to 567—101.107(455B). The QC&A final reports, and related analyses and documents, pursuant to 101.107(4) “d”;
- d. Inspection records, training procedures, and notification procedures required in 567—101.108(455B);
- e. Any MSWLF unit design documentation for placement of leachate or gas condensate in an MSWLF unit as required under 101.108(1) “b”(3)“2” and “3”;
- f. Gas monitoring results from monitoring and any remediation plans required by 567—101.109(455B);
- g. Any demonstration, certification, finding, monitoring, testing, or analytical data required by 567—101.110(455B);
- h. Closure and post-closure care plans and any monitoring, testing, or analytical data as required by 567—101.112(455B) and 567—101.113(455B); and
- i. Any cost estimates and financial assurance documentation required by this chapter.

101.111(2) Reporting. The owner or operator must notify the department when the documents required in 101.111(1) have been placed in the operating record. All information contained in the operating record must be furnished upon request to the department for inspection.

567—101.112(455B) Closure criteria. MSWLFs shall comply with the following closure requirements.

101.112(1) Owners or operators of MSWLF units must install a final cover system that is designed to minimize infiltration and erosion. The final cover system must be designed and constructed to:

a. Have a permeability less than or equal to the permeability of any bottom liner system (for MSWLFs with some type of liner) or have a permeability no greater than 1×10^{-7} cm/sec, whichever is less;

b. Minimize infiltration through the closed MSWLF by the use of an infiltration layer that contains a minimum of 18 inches of compacted earthen material;

c. Minimize erosion of the final cover by the use of an erosion layer that contains a minimum of 24 inches of earthen material that is capable of sustaining native plant growth;

d. Have an infiltration layer and erosion layer that are a combined minimum of 42 inches of earthen material at all locations over the closed MSWLF unit; and

e. Have a slope between 5 percent and 25 percent. Steeper slopes may be used if it is demonstrated that a steeper slope is unlikely to adversely affect final cover system integrity.

101.112(2) The department may approve an alternative final cover design that includes:

a. An infiltration layer that achieves reduction in infiltration equivalent to the infiltration layer specified in 101.112(1) “*a*” and “*b*”; and

b. An erosion layer that provides protection from wind and water erosion equivalent to the erosion layer specified in 101.112(1) “*c*” and “*d*.”

101.112(3) The owner or operator must prepare a written closure plan that describes the steps necessary to close all MSWLF units at any point during the active life in accordance with the cover design requirements in 101.112(1) or 101.112(2), as applicable. The closure plan, at a minimum, must include the following information.

a. A description of the final cover including source, volume, and characteristics of cover material designed in accordance with 101.112(1) or 101.112(2) and the methods and procedures to be used to install the cover;

b. An estimate of the largest area of the MSWLF unit requiring a final cover, as required under 101.112(1) or 101.112(2), at any time during the active life;

c. An estimate of the maximum inventory of wastes on site over the active life of the landfill facility; and

d. A schedule for completing all activities necessary to satisfy the closure criteria in 567—101.112(455B).

101.112(4) The owner or operator must notify the department that the closure plan has been placed in the operating record no later than the initial receipt of waste in a new MSWLF unit.

101.112(5) At least 180 days prior to beginning closure of each MSWLF unit as specified in 101.112(6), an owner or operator must notify the department of the intent to close the MSWLF unit and that a notice of the intent to close the unit has been placed in the operating record. If the MSWLF facility will no longer be accepting MSW for disposal, then the owner or operator must also notify all local governments utilizing the facility and post a public notice of the intent to close and no longer to accept MSW.

101.112(6) The owner or operator must begin closure activities of each MSWLF unit:

a. No later than 30 days after the date on which the MSWLF unit receives the known final receipt of wastes; or

b. If the MSWLF unit has remaining capacity and there is a reasonable likelihood that the MSWLF unit will receive additional wastes, no later than one year after the most recent receipt of wastes. Extensions beyond the one-year deadline for beginning closure may be granted by the department if the owner or operator demonstrates that the MSWLF unit has the capacity

to receive additional wastes and the owner or operator has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the unclosed MSWLF unit.

101.112(7) The owner or operator must complete closure activities of each MSWLF unit in accordance with the closure plan within 180 days following the beginning of closure as specified in 101.112(6). Extensions of the closure period may be granted by the department if the owner or operator demonstrates that closure will, of necessity, take longer than 180 days and that the owner or operator has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed MSWLF unit.

101.112(8) Following closure of each MSWLF unit, the owner or operator must submit to the department certification, signed by an independent professional engineer registered in Iowa, verifying that closure has been completed in accordance with the closure plan. Upon approval by the department, the certification shall be placed in the operating record.

101.112(9) Following closure of all MSWLF units, the owner or operator must record a notation on the deed to the landfill facility property, or some other instrument that is normally examined during title search in lieu of a deed notification, and notify the department that the notation has been recorded and a copy has been placed in the operating record. The notation on the deed must in perpetuity notify any potential purchaser of the property that:

- a.* The land has been used as a landfill facility, and
- b.* Its use is restricted under 101.113(3) “c.”

101.112(10) The owner or operator may request permission from the department to remove the notation from the deed if all wastes are removed from the facility.

567—101.113(455B) Post-closure care requirements. MSWLFs shall comply with the following post-closure care requirements.

101.113(1) Following closure of each MSWLF unit, the owner or operator must conduct post-closure care. Post-closure care must be conducted for 30 years, except as provided under 101.113(2), and consist of at least the following.

a. Maintaining the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and runoff from eroding or otherwise damaging the final cover;

b. Maintaining and operating the leachate collection system in accordance with the requirements in 101.107(5) "b" and 101.105(9), if applicable. The department may allow the owner or operator to stop managing leachate if the owner or operator demonstrates that leachate no longer poses a threat to human health and the environment;

c. Monitoring the groundwater in accordance with the requirements of 567—101.110(455B) and maintaining the groundwater monitoring system; and

d. Maintaining and operating the gas monitoring system in accordance with the requirements of 567—101.109(455B).

101.113(2) The length of the post-closure care period may be:

a. Decreased by the department if the owner or operator demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is approved by the department; or

b. Increased if the department determines that the lengthened period is necessary to protect human health and the environment.

101.113(3) The owner or operator of all MSWLF units must prepare a written post-closure plan that includes, at a minimum, the following information:

a. A description of the monitoring and maintenance activities required in 101.113(1) for each MSWLF unit and the frequency at which these activities will be performed;

b. Name, address, email, and telephone number of the person or office to contact about the facility during the post-closure period; and

c. A description of the planned uses of the property during the post-closure period. Post-closure use of the property shall not disturb the integrity of the final cover, liner(s), or any other components of the containment system or the function of the monitoring systems unless necessary to comply with the requirements in this division. The department may approve any other disturbance if the owner or operator demonstrates that disturbance of the final cover, liner, or other component of the containment system, including any removal of waste, will not increase the potential threat to human health or the environment.

101.113(4) The owner or operator must notify the department that a post-closure plan has been prepared and placed in the operating record by the date of initial receipt of waste.

101.113(5) Following completion of the post-closure care period for each MSWLF unit, the owner or operator must submit to the department a certification, signed by an independent Iowa-licensed professional engineer, verifying that post-closure care has been completed in accordance with the post-closure plan. Upon department approval, the certification shall be placed in the operating record.

567—101.114(455B) Financial assurance requirements. The owner or operator of an MSWLF must establish financial assurance for closure, post-closure care and corrective action, if applicable, in accordance with Division VIII of this chapter.

567—101.115(455B) Waiver limitations. Some provisions of this division are minimum standards required by federal law (including but not limited to 40 CFR 258), and waivers to such provisions shall not be granted unless they are as protective as the applicable minimum federal standards.

These rules are intended to implement Iowa Code section 455B.304.

567—101.116 to 101.199Reserved.

DIVISION III
INDUSTRIAL LANDFILLS

567—101.200(455B) Purpose. The purpose of this division is to implement Iowa Code chapter 455B, subchapter IV (solid waste disposal), for the siting, designing, and operating of a sanitary landfill accepting only industrial solid waste or a sanitary landfill accepting only C&D.

567—101.201(455B) Applicability.

101.201(1) This division shall apply to sanitary landfills that are constructed and operated exclusively for the final deposition of industrial solid waste or C&D, known for purposes of this chapter as industrial landfills.

101.201(2) Pursuant to Iowa Code section 455B.305(1), an industrial landfill shall not be constructed or operated without first obtaining a permit from the department pursuant to this division, the requirements set forth in 567—Chapter 100, and Division I of this chapter.

101.201(3) The issuance of a permit to an industrial landfill pursuant to this division in no way relieves the applicant of the responsibility of complying with all other local; state; or federal statutes, ordinances, and rules or other requirements applicable to the construction and operation of an industrial landfill.

101.201(4) All rules, standards, technical guidance, and other similar legal or technical documents referenced in this division shall be the version of those documents in effect on August 1, 2025, unless otherwise noted in these rules, and except for references to the Iowa Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

567—101.202(455B) Definitions. For the purposes of this division, the definitions in 567—Chapter 100 and Iowa Code section 455B.301 shall apply.

567—101.203(455B) Permits. For purposes of this division, the permit requirements in 567—Chapter 100 shall apply.

567—101.204(455B) Permit applications. Unless otherwise authorized by the department, a permit applicant shall submit on a form prescribed by the department the requirements in 567—Chapter 100 and Division I of this chapter, as well as the following information.

101.204(1) A detailed description of the disposal process to be used. The department may request additional details to ensure compliance with all operation requirements.

101.204(2) A table listing the equipment to be used, its design capacities, and expected loads.

101.204(3) A closure/post-closure plan that:

a. Details how and when the facility will be closed in accordance with applicable requirements of this division.

b. Describes the proposed groundwater monitoring plan, leachate control system, and site inspection and maintenance activities necessary to comply with this division.

c. States the name, address, and telephone number of the person or office to serve as a contact with regard to the facility during the post-closure period.

101.204(4) Such other information as may be required by the director.

567—101.205(455B) Soil and hydrogeologic investigations. An industrial landfill shall have a qualified groundwater scientist conduct a soil investigation, hydrogeologic investigation, and evaluation of hydrogeologic conditions. The purpose of these investigations is to obtain data to determine potential routes of contaminant migration via groundwater. Such information is vital for development of the hydrologic monitoring system plan and design.

This division sets forth the minimum requirements for this work, including reporting. An industrial landfill shall comply with this division unless the department issues written approval due to specific site conditions.

567—101.206(455B) Soil investigation.

101.206(1) Soil borings.

a. Number of borings. A sufficient number of soil borings shall be made to accurately identify the hydrogeologic variations of the landfill site. For new landfill sites, the minimum number of borings required is 10 for landfill sites of less than 10 acres, 20 for landfill sites of 10 to 50 acres, and 20 plus an additional boring for every 10 acres above 50 acres for landfill sites larger than 50 acres. Fewer borings may be needed for existing landfill sites, depending on previous work done at the landfill site. Also, no borings will be required in existing fill areas. The department may require additional borings based on the geological complexity of the landfill site.

b. Depth of borings. All borings must extend a minimum of 25 feet deep and at least 10 feet deep below the water table; however, borings in proposed fill areas shall be terminated 10 feet above the uppermost aquifer or be grouted to provide such separation. At least half the borings located outside the existing or proposed fill area shall extend either 10 feet into the uppermost aquifer, 50 feet below the water table, or 10 feet into bedrock. At least one boring shall extend 10 feet into bedrock or 100 feet below the lowest ground surface elevation.

c. Boring method. Borings shall comply with the applicable portions of this chapter. The preferred boring method is hollow stem auger, although it may be necessary to use other methods at greater depths and in bedrock. When wet drilling methods are used for boring in which monitoring wells or piezometers are installed, the drilling fluid and methods and development procedures shall be approved by and documented with the department.

d. Assurance that soil boring samples have been taken at the landfill site. The soil boring samples must be kept by the permit applicant until the permit is issued and must be made available to the department if the department requests them.

101.206(2) *Soil samples.* Samples shall be collected at five-foot intervals and at every change in stratum. These samples shall be obtained using a split spoon sampler and the procedures of the standard penetration test. A minimum of one undisturbed Shelby tube sample shall be obtained in the uppermost cohesive stratum at or below the lowest depth at which solid waste will be disposed of. Samples shall be clearly marked, preserved, and maintained for future inspection. Samples selected for laboratory analysis shall be properly preserved.

101.206(3) *Laboratory test of discrete soil samples.* Laboratory tests of discrete soil samples shall be conducted to correlate strata between soil borings, obtain permeability data on each stratum, and design monitoring wells.

a. Hydraulic conductivity tests. Tests using a constant-head or falling-head permeameter shall be run on a minimum of one sample from each Shelby tube sample. Each sample shall be from a different soil boring representing a different area of the landfill site.

b. Grain size distribution. Grain size distribution tests shall be conducted on a minimum of one sample from each distinct stratum.

567—101.207(455B) Hydrogeologic investigation.

101.207(1) *Groundwater level measurements.* The elevation of the water table shall be determined at or near the location of each soil boring that penetrates the water table. The water table may be determined using a completed water table monitoring well, or piezometer. The bottom of a piezometer used to measure water table elevation shall be no more than five feet below the water table. The apparent horizontal groundwater flow direction shall be determined based on water table measurements. Vertical groundwater flow shall then be

assessed in at least two profiles approximately parallel to the apparent horizontal flow direction. Vertical groundwater flow shall be assessed using at least two well clusters per profile. Each well cluster shall contain a water table monitoring well or piezometer and additional water level monitoring points based on landfill site conditions as follows.

a. If the water table is in the uppermost aquifer, one additional water level monitoring point shall be located near the base of the aquifer or at least 20 feet below the base of the water table monitoring point. This additional monitoring point may not be required if the aquifer is less than 20 feet thick.

b. If the uppermost aquifer is less than 50 feet below the water table, an additional water level monitoring point shall be located at the top of the aquifer.

c. If the uppermost aquifer is more than 50 feet below the water table, additional water level monitoring points shall be placed at depths of 30 feet and 50 feet below the water table.

d. If required, the one deeper soil boring into bedrock shall be used as a landfill site for one well cluster. Water table monitoring points in this cluster shall correspond to the other well cluster used for a profile. In addition, water level monitoring points shall be placed at the bottom of the boring and, if possible, at the top and bottom of the uppermost aquifer. Groundwater level measurements shall be made after the water levels have stabilized in the monitoring point and at least 24 hours after completion and bailing of the monitoring well or installation of the piezometer. The water level in existing wells shall be observed and recorded prior to bailing. Each set of water level measurements shall be made in as short a time frame as possible not to exceed eight hours.

101.207(2) *In situ permeability tests.* In situ permeability tests shall be conducted on each monitoring well and piezometer in each well cluster.

a. *Pumping test.*

(1) If more than one monitoring point is located in the uppermost aquifer, a pumping test shall be conducted at one or more upper aquifer monitoring points. A pumping test involves pumping at a constant rate from one well while observing water levels in other wells. The pumping rate shall be as high as possible without dewatering the well. Water level measurements in other uppermost aquifer wells shall be measured at frequent intervals near the start of the test and then at progressively longer intervals. Continuous water level recording is preferable.

(2) Water levels in wells not located in the uppermost aquifer shall be recorded throughout the test at regular intervals. Water levels in all wells shall be measured 24 hours prior to the test and just before the test. The test duration shall be at least four hours and continue until a stabilized drawdown condition is observed. Longer tests may be necessary if other uppermost aquifer monitoring points are slow to respond. Water level readings shall be recorded through the recovery phase of the water table.

b. Bail and slug tests. Monitoring wells and piezometers located in materials with low hydraulic conductivities shall be tested using a bail or slug test. These tests involve rapidly removing or adding a known volume of water to a well and then recording water levels in the well as the well recovers to its original level. Typically, the necessary frequency of measurements will be similar to that required of a pumping test. In materials of very low hydraulic conductivities, less frequent measurements are necessary. In materials of higher hydraulic conductivities, more frequent measurements may be necessary.

101.207(3) *Existing well research.* A reasonable effort to inventory all active, unused, and abandoned water wells within one mile of the facility and the identification of all water wells within three miles of the permitted waste boundary shall be conducted. Well logs, other available information on well construction, static water levels, and usage shall be obtained. The well inventory shall be based on thorough reviews of state and local collections of well

logs and, when possible, interviews or surveys of well owners. Also to be included are maps showing the location of soil borings, other field tests and measurements, and existing wells.

567—101.208(455B) Evaluation of hydrogeologic conditions.

101.208(1) Based on soil boring and other available information, a description of the landfill site geology shall be made. This description shall include preparation of geologic cross sections of sufficient number and spacing (no fewer than four at every landfill site) to adequately define all areas of the landfill site and of sufficient detail to adequately depict major stratigraphic and structural trends and reflect geologic structural features in relation to groundwater flow. Each pair of cross sections must be as near to perpendicular as possible to adequately portray the landfill site geology.

101.208(2) A description of the hydrogeologic unit(s) within the saturated zone shall be made, including thickness; depth; hydraulic properties, such as transmissivity and storage coefficient or specific yield; description of the role of each as confining bed, aquifer, or perched saturated zone; and its actual or potential use as a water supply aquifer.

101.208(3) All groundwater flow paths from the landfill site shall be identified, including both horizontal and vertical components of flow. A contour map of the water table shall be presented showing horizontal flow paths. A potentiometric surface map of the uppermost aquifer showing horizontal flow paths shall also be presented, if different from the water table. Vertical flow paths shall be shown in at least two profiles approximately parallel to the direction of horizontal flow. Vertical flow paths shall be determined by water level measurements from clustered wells at different depths if possible. An evaluation of vertical groundwater flow based on the hydrologic properties of the various strata encountered at the landfill site, estimated groundwater flow and recharge rates, and known information on hydraulic head shall also be made.

101.208(4) The seasonal, temporal, and artificially induced variations in groundwater flow shall be evaluated. Temporal variations occur due to natural events, such as rainfall. The addition of tile lines, removal of overburden, or deposition of wastes would constitute artificially induced variations.

101.208(5) Surface water flow paths from the landfill site shall be identified on topographic contour maps.

567—101.209(455B) Monitoring system plan. A hydrologic monitoring system shall be designed to intercept the groundwater and surface water flow paths from the landfill site, including proposed locations and depths for monitoring wells in accordance with monitoring well siting criteria in 567—101.212(455B). The surface water monitoring plan shall include monitoring points on all standing and flowing bodies of water that will receive surface runoff or groundwater discharge from the landfill site. For streams, sampling points upstream and downstream of areas of potential impact from the landfill site shall be selected. The monitoring system plan shall also include sampling protocols and monitoring well maintenance and performance reevaluation procedures.

567—101.210(455B) Sampling protocol. At a minimum, the sampling protocol must include the following.

101.210(1) Order in which monitoring points are to be sampled, all tests and procedures needed at each monitoring point and the order in which these procedures will be carried out, equipment and containers to be used, procedures and precautions for their use, precautions to avoid introducing contaminants from outside sources into monitoring wells or samples, and how equipment must be cleaned between uses;

101.210(2) Procedures for evacuating, if applicable, each monitoring well prior to each water quality sampling;

101.210(3) Procedures for handling field blanks and other quality assurance samples at the facility and in transit to and from the laboratory;

101.210(4) Procedures for sample preservation;

101.210(5) Procedures for sample collection, labeling and handling at the facility and during transport to the laboratory;

101.210(6) Procedures for recording field observations and measurements;

101.210(7) Procedures for records maintenance and data analysis; and

101.210(8) Procedures for sampling surface water monitoring points, including exact sampling locations and depths.

567—101.211(455B) Monitoring well maintenance and performance reevaluation plan.

101.211(1) A monitoring well maintenance and performance reevaluation plan shall be included as part of the hydrologic monitoring system plan. The plan shall ensure that all monitoring points remain reliable.

101.211(2) The plan shall provide for the following.

a. A biennial examination of high and low water levels accompanied by a discussion of the acceptability of well location (vertically and horizontally) and exposure of the screened interval to the atmosphere.

b. A biennial evaluation of water level conditions in the monitoring wells to ensure that the effects of waste disposal or well operation have not resulted in changes in the hydrologic setting and resultant flow paths.

c. Annual measurement of well depths to ensure that wells are physically intact and not filling with sediment.

d. An in situ permeability test to be conducted every five years on monitoring wells to compare test data with those collected originally to determine if well deterioration is occurring or other methods approved by the department.

567—101.212(455B) Monitoring well siting requirements.

101.212(1) *Downgradient monitoring wells.* Downgradient monitoring wells must be located to provide a high level of certainty that releases of contaminants from the landfill site can be promptly detected. Downgradient monitoring wells shall be placed along the landfill site perimeter, within 50 feet of the planned liner or waste boundary unless landfill site conditions dictate otherwise, downgradient of the facility with respect to the hydrologic unit being monitored. For those facilities that are long-term, multiphase operations, the department may establish temporary waste boundaries in order to define locations for monitoring wells. The convergence of groundwater paths to minimize the overall length of the downgradient dimension may be taken into consideration in the placement of downgradient monitoring wells.

101.212(2) *Water table wells.* At least three downgradient water table monitoring wells shall be installed at each facility. The maximum spacing between wells shall be 600 feet.

101.212(3) *Uppermost aquifer monitoring wells.* If different from water table monitoring wells, at least three uppermost aquifer monitoring wells shall be installed at each facility. Uppermost aquifer monitoring wells shall be spaced no more than 600 feet apart. If the uppermost aquifer is located more than 50 feet below the water table, the requirement for three wells may be relaxed, although at least one downgradient uppermost aquifer monitoring well will be required.

101.212(4) *Other downgradient monitoring wells.* Additional downgradient monitoring wells will be required if the water table and uppermost aquifer monitoring wells do not intercept most vertical flow paths from the landfill site. In such situations, monitoring wells shall be placed at the appropriate depths to intercept the remaining flow paths and shall be spaced at no more than 600 feet apart.

101.212(5) *Upgradient monitoring wells.* Upgradient monitoring wells shall not be affected by the landfill site. At least one upgradient monitoring well shall be installed into each stratum being monitored by downgradient monitoring wells. If it is not possible to actually locate a monitoring well upgradient of the landfill site, the well shall be placed as near the landfill site as feasible without being affected by the landfill site.

567—101.213(455B) General requirements.

101.213(1) *Plan requirements.* The plans for industrial landfills shall include the following.

a. The map and aerial photograph of sufficient scale to show all homes, buildings, lakes, ponds, watercourses, wetlands, dry runs, rock outcroppings, roads, and other applicable details including topography and drainage patterns. All wells shall be identified on the map or aerial photograph, and a benchmark shall be indicated.

b. A plot drawing in appropriate scale of the landfill site and the immediately adjacent area showing dimensions, topography with appropriate contour intervals, drainage patterns, known existing drainage tiles, locations where any geologic samples were taken, all water wells with their uses, and present and planned pertinent features including but not limited to roads, fencing, and borrow areas.

c. Detailed engineering drawing of the landfill site showing all initial and permanent roads, buildings, and equipment to be installed; unloading and holding areas; fences and gates; landscaping and screening devices; personnel and maintenance facilities; and sewer and water lines.

d. CCR landfills shall have a soil liner consisting of at least four feet of recompacted soil. The description, source and volume of the material to be used for the landfill liner, including the method of installation, must be provided. The hydraulic conductivity must be $1 \times 10E^{-7}$ cm/sec (0.00028 ft/day) or less as determined by appropriate laboratory analysis. The percent

of standard or modified proctor density at moisture contents consistent with expected field conditions and corresponding to a measured hydraulic conductivity equal to or less than $1 \times 10E^{-7}$ cm/sec shall be determined in the laboratory. The soil shall be placed in lifts not to exceed eight inches in thickness. A minimum of one field moisture and density test shall be performed per lift per acre to verify that the moisture and density determined by the laboratory analysis as correlated to permeability has been achieved. Results of field moisture and density tests shall be submitted to the department prior to the placement of solid waste.

e. Alternative liner systems. An alternative liner system may be approved by the director if the design of the liner system is equivalent to the soil liner required in 101.213(1) “*d*” in performance, longevity, and protection of the groundwater, or, based on the specific type of waste to be disposed of, the design of the liner system offers equivalent protection of the groundwater. Undisturbed soil shall not be used as a liner.

f. Diversion and drainage structures designed to prevent ponding, infiltration, inundation, erosion, slope failure, and washout from surface runoff due to a 25-year 24-hour rainfall event.

g. A leachate collection, storage and treatment and disposal system designed to protect the soils, surface water, and groundwater from leachate contamination. This system shall also be designed to operate during the active life of the landfill site and during the post-closure period.

(1) The design and construction of the system must be in accordance with 101.213(10) and be coordinated with the planned phase development of the landfill site and the timing of leachate generation.

(2) The potential for leachate generation shall be evaluated in determining the design for the facility.

(3) The plan must include proposed quality assurance and quality control testing to be performed during installation and operation of the system. This plan shall include procedures

that will be followed during installation of the leachate collection system and during normal landfill operations to ensure the system's integrity and design standards.

h. A drawing of the scheme of development shown progressively with time. The methods to be used to ensure compliance with the scheme and to provide vertical and horizontal controls shall be described.

i. Cross-sectional drawings showing progressively with time the original and proposed elevation of excavating, trenching, and fill.

j. An ultimate land use proposal, including intermediate stages, with time schedules indicating the total and complete land use. Final elevations, grades, permanent drainage structures, monitoring or treatment facilities, and permanent improvements of the completed landfill shall be included. Any supporting drawings to the ultimate land use proposal shall be in appropriate scale.

k. Information describing:

- (1) Source, volume, and characteristics of cover material;
- (2) Area of landfill site in acres.

l. A report consisting of information verifying that the portion of the landfill site to be filled is:

(1) Situated to obviate any predictable lateral movement of significant quantities of leachate from the landfill site to standing or flowing surface water or to shallow aquifers that are in actual use or are deemed to be of potential use as a water resource.

(2) At least 50 feet from the adjacent property line unless there is a written agreement with the owner of the abutting property. The report shall verify that the portion to be filled is at least 50 feet from the adjacent property line. The written agreement shall be filed with the county recorder and shall become a permanent record of the property.

(3) Beyond 500 feet from any existing habitable residence unless there is written agreement with the owner of the residence and the landfill site is screened by natural objects, plantings, or fences or by other appropriate means. The residence must be in existence on the date of application for the original permit from the department. The written agreement shall be filed with the county recorder and recorded for abstract of title purposes and a copy submitted to the department.

m. Such additional data and information as may be deemed necessary by the director to evaluate a proposed industrial landfill.

n. When a new landfill or lateral expansion is located within 200 feet of a fault that has had displacement in Holocene time, the plan must contain a notice that the facility's official files will include demonstration that an alternative setback distance of less than 200 feet will prevent damage to the structural integrity of the landfill site and will be protective of human health and the environment.

o. When a new landfill or a lateral expansion is located in seismic impact zones, the plan must contain a notice that the facility's official files will include the following demonstration: that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in the lithified earth material for the landfill site.

p. When a new landfill or lateral expansion is located in an unstable area, the plan must contain a notice that the facility's official files will include the following demonstration: that engineering measures have been incorporated into the landfill site design to ensure that the integrity of the structural components of the landfill site will not be disrupted. The demonstration must consider the on-site or local soil conditions that may result in significant differential settling, on-site or local geologic or geomorphologic features, and on-site or local human-made features or events (both surface and subsurface). For existing facilities located

in an unstable area, the owner or operator must prepare the above demonstration required in this paragraph and notify the director that it has been placed in the facility's official files.

101.213(2) *Operating requirements.* The plan submitted shall detail how the industrial landfill will comply with these requirements.

a. Solid waste shall be unloaded at the working face only when an operator is on duty at that area. Solid waste may be deposited in storage containers inside the facility under the supervision of an attendant or operator.

b. A copy of the permit, engineering plans, and reports shall be kept at the facility at all times.

c. Each landfill site shall be graded and provided with drainage facilities to minimize flow of surface water onto and into the portion of the landfill site being filled and to prevent soil erosion and ponding of water.

d. The finished surface of the landfill site shall be repaired as required, covered with soil, and seeded with native grasses or other suitable vegetation immediately upon completion or promptly in the spring on areas terminated during winter conditions. If necessary, seeded slopes shall be covered with straw or similar material to prevent erosion.

e. Each industrial landfill shall be staked as necessary and inspected annually, or as otherwise specified in the permit, by an Iowa-licensed professional engineer. A brief report by the engineer indicating areas of conformance or nonconformance with the approved plans and specifications shall be submitted to the department by the permit holder within 30 days of the inspections. In specifying alternate inspection frequencies or schedules, the department shall consider the types and quantities of waste disposed of, the rate of development of the landfill site, the degree of control over landfill site development inherent in the design and topography of the landfill site, and the quality of prior operation.

f. If any pockets, seams or layers of sand or other highly permeable material are encountered at the industrial landfill, the permit holder shall promptly notify the department and shall ensure that a professional engineer registered in Iowa has certified that all sands encountered were totally excavated or sealed off properly or otherwise handled as explicitly provided for in the permit before solid waste is disposed of in that area of the landfill site.

g. The total volume of leachate collected for each month shall be recorded, and the elevation and thickness of leachate in the landfill shall be provided to the department in accordance with the schedule specified in the permit.

101.213(3) *Hydrologic monitoring system.* The owner or operator of a solid waste disposal facility shall operate and maintain a hydrologic monitoring system that includes a sufficient number of groundwater monitoring wells and surface water monitoring points to determine the impact, if any, that the sanitary disposal project is having on the groundwater and surface water.

The hydrologic monitoring systems shall enable early detection of the escape of pollutants from an industrial landfill. The hydrologic monitoring system shall be planned, designed, and constructed in accordance with the provisions of 101.213(3) through 101.213(9), and implemented in accordance with the following schedule.

a. A hydrologic monitoring system plan shall be submitted to the department for review and approval with any application for a new permit. Installation of the approved system shall be completed prior to the deposition of solid waste into the landfill.

b. A hydrologic monitoring system plan shall be submitted with applications for permit renewal.

c. Upon notice by the department, a hydrologic monitoring system plan may be required to be submitted within six months of such notification.

d. Completion of installation and operation of the approved plan shall be completed within one year of the date of department approval.

101.213(4) *Hydrologic monitoring system operating requirements.*

a. *Operational sampling requirements.* All sampling shall be conducted in accordance with an approved sampling protocol, components of which are described in 567—101.210(455B).

b. *Groundwater levels.* The elevation of water in each monitoring well shall be measured during sampling events and recorded to the nearest 0.01 foot. Level measurements must be made before a well is evacuated for sample collection.

c. *Surface water levels.* The water level or flow rate of each surface water body sampled shall be measured and recorded at the time of sample collection.

d. *First-year water sampling.* During the first year of operation of the hydrologic monitoring system, a sample shall be collected quarterly from each groundwater monitoring well and surface water monitoring point. The purpose of this sample is to determine baseline water quality information and enable initial estimation of water quality variability. Each sample shall be analyzed for the following parameters in addition to the parameters listed in 101.213(4)“e” and any additional parameter deemed necessary by the department.

(1) Arsenic.

(2) Barium.

(3) Cadmium.

(4) Chromium, total.

(5) Lead.

(6) Mercury.

(7) Magnesium.

(8) Zinc.

- (9) Copper.
- (10) Benzene.
- (11) Carbon tetrachloride.
- (12) 1,2-Dichloroethane.
- (13) Trichloroethylene.
- (14) 1,1,1-Trichloroethane.
- (15) 1,1-Dichloroethylene.
- (16) Paradichlorobenzene.

e. Routine semiannual water sampling. After the first year, each monitoring point must be sampled semiannually as specified in the facility's operation permit and analyzed for the following parameters.

- (1) Chloride.
- (2) Specific conductance (field measurement).
- (3) pH (field measurement).
- (4) Ammonia nitrogen.
- (5) Iron, dissolved.
- (6) Chemical oxygen demand.
- (7) Temperature (field measurement).
- (8) Any additional parameters deemed necessary by the department.

f. Routine annual water sampling. One sample per year from each monitoring point collected in a quarter specified in the facility's operation permit must be analyzed for the following parameters.

- (1) Total organic halogen.
- (2) Phenols.
- (3) Any additional parameters deemed necessary by the department.

101.213(5) *Laboratory procedures.* Analyses for a contaminant regulated under this division must be performed by a laboratory certified for the analyte(s) and applicable method pursuant to 567—Chapter 83.

a. All analyses of parameters not covered in the Safe Drinking Water Act (SDWA) must be performed according to methods specified in SW-846 or approved by the United States Environmental Protection Agency. Any analytical method used on non-SDWA parameters deviating from those specified in SW-846 or approved by EPA must be approved by the department.

b. All analyses must be recorded on forms that, in addition to the analytical results, show the precision of the data set, bias, and limit of detection.

101.213(6) *Analysis of sampling data.* For each parameter analyzed during the first year of operation of the hydrologic monitoring system, as listed in 101.213(4) “*d*,” the mean and standard deviation for each upgradient monitoring well shall be determined using the first year of data. For routine semiannual monitoring parameters, as listed in 101.213(4) “*e*,” mean and standard deviation shall be recalculated annually using all available analytical data. If the analytical results for a downgradient monitoring point do not fall within the control limits of two standard deviations above the mean parameter(s) level in a corresponding upgradient monitoring point, the owner or operator shall submit this information to the department within 30 days of receipt of the analytical results. If the analytical results from an upgradient monitoring point do not fall within two standard deviations of the mean parameter(s) level for that monitoring point, the department shall also be notified within 30 days.

101.213(7) *Additional sampling.* The department will determine if additional sampling is warranted after receipt of information indicating a possible release as required in 101.213(6). The department may require any additional samples to be split and analyzed to determine whether the values obtained outside the control limits were the result of laboratory or

sampling error. Any additional analytical results shall be submitted to the department by the owner or operator within seven days of receipt. The department will review the information and determine if additional monitoring or preparation of a groundwater quality assessment plan, in accordance with 101.213(9), is necessary.

101.213(8) *Recordkeeping and recording.*

a. The persons conducting the sampling must record the procedures, measurements, and observations at the time of sampling. The field records must be sufficient to document whether the procedures and requirements specified in the sampling protocol have been followed. The records must also contain the names of the persons conducting the sampling, the time and date each monitoring point was sampled, and the required field measurement or test result. The owner or operator must submit copies of these field records to the department upon request.

b. The owner or operator shall keep records of analyses and the associated groundwater surface elevations for the active life and post-closure period of the facility. These records shall be kept at the landfill site or in the administrative files of the owner or operator and shall be available for review by the department.

c. The owner or operator shall provide the department with copies of the quarterly monitoring analytical results by the dates specified in the facility's operation permit.

d. An annual report summarizing the effect of the facility on groundwater and surface water quality shall be submitted to the department by November 30 each year. The summary is to be prepared by qualified groundwater scientist and incorporated in the November annual engineer inspection report. The contents of this summary are to include the following items.

(1) A narrative describing the effects of the facility on surrounding surface water and groundwater quality and any changes made or maintenance needed in the monitoring network.

(2) Graphs showing concentrations versus time for all monitoring parameters for each well for as long as records exist for that parameter. Control limits (two standard deviations from the initial background value) must be shown in each graph.

(3) Results of activities and tests required by the well maintenance and performance reevaluation plan described in 567—101.211(455B).

101.213(9) *Groundwater quality assessment plan.*

a. If leachate migration occurs, the owner or operator shall develop and submit for approval a specific plan to conduct a groundwater quality assessment study at the facility to determine the rate of migration and the extent and constituent composition of the leachate release. At a minimum, the assessment monitoring plan must contain the following elements.

(1) Discussion of the hydrogeologic conditions at the landfill site with an identification of potential contaminant pathways.

(2) Description of the present detection monitoring system.

(3) A description of the approach the owner or operator will take to substantiate any contention that the contamination may have been falsely indicated.

(4) Description of the investigatory approach used to characterize the rate and extent of leachate migration.

(5) Discussion of the number, location, and depth of wells that will be initially installed, as well as a strategy for installing more wells in subsequent investigatory phases.

(6) Information on well design and construction.

(7) Description of the sampling and analytical program used to obtain and analyze groundwater monitoring data.

(8) Description of data collection and analysis procedures.

(9) Schedule for the implementation of each phase of the assessment study.

b. After the plan has been approved by the department, the owner or operator shall implement the plan according to the schedule in the plan.

c. Within 90 days after the activities prescribed in the groundwater assessment plan have been completed, the owner or operator shall submit a written groundwater quality assessment report to the department.

d. If the department determines that no waste or waste constituents from the facility have entered the groundwater, the owner or operator shall reinstate the routine monitoring program.

e. If the department determines that waste or waste constituents have been released from the facility and have entered the groundwater, the owner or operator shall continue to make the determinations described by the assessment plan and develop a remedial action/mitigation plan to alleviate or reduce contamination to the fullest extent possible.

101.213(10) *Leachate control system and liner design.* New industrial landfills or expansions of existing industrial landfills must have a leachate collection, storage, and treatment and discharge system in place prior to accepting waste. This system shall be operated in conformance with the approved design during the active life of the landfill site and during the post-closure period.

a. *Leachate collection system.*

(1) The leachate collection system shall be designed to allow not more than one foot of head above the top of the landfill liner. The collection system must include a method for measuring the leachate head in the landfill at the lowest area(s) of the collection system.

(2) The landfill liner must be graded toward the leachate collection pipe at a minimum slope of two percent and not to exceed 10 percent. The side slopes of the landfill liner must be less than 25 percent.

(3) A drainage layer must be placed immediately above the landfill liner. This drainage layer shall consist of a minimum of 1 foot of soil with a coefficient of permeability of $1 \times 10E^{-3}$ cm/sec (2.8 ft/day) or greater.

(4) Leachate collection pipe shall be surrounded by a gravel protection and drainage layer.

(5) The collection pipe must be perforated of a sufficient internal diameter to handle the expected flow but not less than four inches in diameter; capable of being cleaned throughout the active life of the landfill site and during the post-closure period; chemically resistant to the wastes and the expected leachate; and of sufficient strength to support maximum static and dynamic loads imposed by the overlying wastes, cover materials, and equipment used during the construction and operation of the landfill site. Documentation shall be submitted that includes methods and specifications for cleaning of the pipes, chemical compatibility of the pipes, and calculations and specifications for pipe strength.

(6) The leachate collection system shall be equipped with valves to enable the flow of leachate from the facility to be shut off during periods of maintenance.

(7) The leachate collection system shall be cleaned out once every three years or more frequently if conditions warrant. A report of the methods and results of the cleanout shall be submitted at the time of permit renewal.

b. Leachate storage system. The leachate storage system must be:

(1) Capable of storing at least seven days' accumulation of leachate;

(2) Constructed of materials that are compatible with the expected leachate; and

(3) Accessible at all times of the year and under all weather conditions.

c. Leachate recirculation. The primary goal of the leachate recirculation system is to help stabilize the waste. The leachate recirculation system shall not contaminate waters of the state, contribute to erosion, damage cover material, harm vegetation, or spray persons. Leachate

recirculation shall be limited to areas satisfying the requirements of 101.213(10). The department shall approve areas for leachate recirculation.

d. Construction certification report. Prior to inspection and startup, a construction certification report must be submitted discussing quality assurance and quality control testing done to ensure that all materials and equipment for the leachate control system have been placed in accordance with the approved engineering plans, reports, and specifications. The results of all testing must be included, along with documentation of any failed tests, a description of the procedures used to correct the failures, and results of any retesting performed.

101.213(11) *Closure requirements.* The owner or operator of the industrial landfill must close the landfill site in a manner that minimizes the potential for post-closure release of pollutants to the air, groundwater, and surface waters.

a. A minimum of two permanent surveying monuments must be installed by a registered land surveyor from which the location and elevation of wastes, containment structures, and monitoring facilities can be determined throughout the post-closure period.

b. Contents of final cover.

(1) The final cover of an industrial landfill shall consist of:

1. Not less than two feet of compacted soil. The hydraulic conductivity must be $1 \times 10E^{-7}$ cm/sec or less as determined by appropriate laboratory analysis. The percent of standard or modified proctor density at moisture content consistent with expected field conditions and corresponding to a measured hydraulic conductivity equal to or less than $1 \times 10E^{-7}$ cm/sec shall be determined in the laboratory. The soil shall be placed in lifts not to exceed eight inches in thickness. A minimum of one field moisture and density test shall be performed per lift per acre to verify that the density determined by the laboratory analysis as correlated to the hydraulic conductivity has been achieved. Results of field moisture and density tests shall

be submitted to the department. The compacted soil shall be keyed into the bottom liner at the waste cell boundary.

2. Not less than two feet of uncompacted soil, containing sufficient organic matter to support vegetation. The thickness of this soil layer must be at least the root depth of the planned vegetative cover to prevent root penetration into the underlying soil layers. This layer shall be placed as soon as possible to prevent desiccation, cracking, and freezing of the compacted soil layer described in 101.213(11) “b”(1)“1.”

(2) A layer of compacted soil, incinerator ash, or similar material permitted by the department may be used to prepare the landfill site for placement of the compacted soil layer described in 101.213(11) “b”(1)“1.” The use of such material will not serve as a replacement for the compacted soil layer described in 101.213(11) “b”(1)“1.”

(3) Alternate methods and materials may be permitted if shown to provide equivalent or superior performance.

c. The final cover shall be designed and graded to meet the drainage requirements of 101.213(11) “c.” The final cover must have a minimum slope of 5 percent and shall not exceed a slope of 25 percent. Those portions of existing landfills demonstrating placement of final cover in conformance with previously approved plans and specifications shall not be required to reconstruct the cover to meet either the minimum or maximum slope established by this subrule.

d. The final cover shall be seeded with native grasses or other suitable vegetation as soon as practical upon completion to prevent soil erosion. If seeding must be delayed due to summer or winter conditions, silt fences or other structures shall be used to minimize erosion of the final cover until the next season suitable for planting. The placement of cover in conformance with 101.213(13) “b” shall not be delayed due to season and shall be placed as soon as the solid waste has reached its maximum design elevation within the cell. Vegetation

type shall be based on density and root depth, nutrient availability, soil thickness, and soil type. Alternatives to vegetative cover may be considered to control erosion and promote runoff.

101.213(12) *Post-closure care.* Industrial landfills shall comply with the following post-closure care requirements for 30 years.

a. The diversion and drainage system must be maintained to approved specifications to prevent run-on and runoff from eroding or otherwise damaging the final cover.

b. The integrity and effectiveness of the final cover must be maintained by making repairs as necessary to correct the effects of settling, subsidence, erosion, or other events. If damage to the compacted soil layer described in 101.213(11) “b”(1)“1” occurs, repairs shall be made to correct the damage and return it to its original specifications.

c. The vegetative cover shall be reseeded as necessary to maintain good vegetative growth. Any invading vegetation whose root system could damage the compacted soil layer shall be removed or destroyed immediately.

d. The groundwater monitoring system shall be operated and maintained.

e. The leachate collection, removal and treatment systems shall be operated and maintained.

f. The landfill gas monitoring and collection systems shall be operated and maintained.

g. Semiannual reports shall be submitted to the department. These reports shall contain information concerning the general conditions at the landfill site, groundwater monitoring results, amount of leachate collected and treated, information concerning the landfill gas monitoring and collection system, and other information as may be required by the closure permit. In addition, locations and elevations of all permanent monuments, required in 101.213(11) “a,” shall be determined at least once every three years or more frequently in the

event of obvious disturbance of the monument. The reports are due by April 30 and October 31 for the preceding six-month period.

h. The permanent surveying monuments required in 101.213(11) “*a*” shall be maintained.

101.213(13) *Landfill gas.* This subrule shall not apply to industrial landfills that do not pose a risk to generating explosive gases.

a. Owners or operators of industrial landfills must ensure that:

(1) The concentration of explosive gases generated by the facility does not exceed 25 percent of the lower explosive limit for methane gas in facility structures (excluding gas control or recovery system components); and

(2) The concentration of methane gas does not exceed the lower explosive limit for methane gas at the facility property boundary.

b. Owners or operators of industrial landfills must monitor quarterly for compliance with 101.213(13) “*a.*” An annual report shall be submitted by November 30 summarizing the methane gas monitoring results and any action taken resulting from gas levels exceeding the limits during the previous year.

c. If methane gas levels exceeding the limits specified in 101.213(13) “*a*” are detected, the owner or operator must:

(1) Immediately take all necessary steps to ensure protection of human health and notify the director;

(2) Within seven days after detection, submit to the director a report stating the methane gas levels detected and a description of the steps taken to protect human health;

(3) Within 60 days of detection, implement a plan for remediation of the methane gas releases and send a copy of the remediation plan to the director. The plan shall describe the nature and extent of the problem and the proposed remedy.

567—101.214(455B) Operating requirements.

101.214(1) Open burning shall be prohibited within the permitted boundary.

101.214(2) No free liquids or waste containing free liquids shall be disposed of in an industrial landfill.

101.214(3) Each permit issued by the department will contain facility-specific operating requirements consistent with the type of solid waste and the disposal process.

101.214(4) Closure requirements.

a. The owner or operator shall notify the department in writing at least 180 days prior to closure of the facility or suspension of operations.

b. Notice of closure shall be posted at the facility at least 180 days prior to closure indicating the date of closure and alternative solid waste management facilities. Notice of closure shall also be published at least 180 days prior to closure in a newspaper of local circulation. This notice shall include the date of closure and alternative solid waste management facilities if the facility is open to the public.

c. Implementation of the closure/post-closure plan shall be completed within 90 days of the closure of the facility. The owner and an Iowa-licensed professional engineer shall certify that the closure/post-closure plan has been implemented in compliance with the rules, the closure/post-closure plan, and the permit.

d. Upon completion of closure activities, a construction certification report must be submitted discussing quality assurance and quality control testing done to ensure that all materials for the cap have been placed in accordance with the approved engineering plans, reports, and specifications. The results of all testing must be included, along with documentation of any failed tests, a description of the procedures used to correct the failures, and results of any retesting performed. In addition, the following documentation shall be submitted: as-built plans showing changes from the original design plans, a copy of the notation filed with the county recorder, and other forms of documentation as required.

567—101.215(455B) Financial assurance requirements. The owner or operator of an industrial landfill pursuant to this division must establish financial assurance for closure, post-closure, and corrective action, if applicable, in accordance with Division VIII of this chapter. These rules are intended to implement Iowa Code section 455B.304.

567—101.216 to 101.299Reserved.

DIVISION IV

COAL COMBUSTION RESIDUAL LANDFILLS

567—101.300(455B) Purpose. The purpose of this division is to implement Iowa Code chapter 455B, subchapter IV (solid waste disposal), for the siting, designing, and operating of a solid waste sanitary landfill accepting only coal combustion residuals.

567—101.301(455B) Applicability.

101.301(1) This division shall apply to sanitary landfills that are constructed and operated exclusively for the final deposition of coal combustion residuals, known for purposes of this chapter as CCR landfills.

101.301(2) Pursuant to Iowa Code section 455B.305(1), a CCR landfill shall not be constructed or operated without first obtaining a permit from the department pursuant to this division, the requirements set forth in 567—Chapter 100, and Division I of this chapter.

101.301(3) The issuance of a permit to a CCR landfill pursuant to this division in no way relieves the applicant of the responsibility of complying with all other local, state, or federal statutes, ordinances, and rules or other requirements applicable to the construction and operation of a CCR landfill.

101.301(4) All rules, standards, technical guidance, and other similar legal or technical documents referenced in this division shall be the version of those documents in effect on August 1, 2025, unless otherwise noted in these rules, and except for references to the Iowa

Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

567—101.302(455B) Definitions. For the purposes of this division, the definitions in 567—Chapter 100 and Iowa Code section 455B.301 shall apply.

567—101.303(455B) Permits. For purposes of this division, the permit requirements in 567—Chapter 100 shall apply.

567—101.304(455B) Permit applications. Unless otherwise authorized by the department, a permit applicant shall submit on a form prescribed by the department the requirements in 567—Chapter 100, Division I of this chapter, and the following information.

101.304(1) A copy of the written agreement under 567—101.306(455B), if any, and documentation that it has been filed with the county recorder.

101.304(2) A topographic map of the site extending a minimum of 300 feet beyond the permitted property, with contour intervals not exceeding 10 feet, that shows the location of existing conditions, including but not limited to structures, wells, lakes, roads, drain tiles, or similar items.

101.304(3) A minimum of three soil borings for sites of ten acres or less with one additional boring for each additional three acres to determine the hydrogeologic conditions and establish the direction of groundwater flow, the depth to groundwater, and potential contaminant pathways throughout the site.

101.304(4) An adequate number of representative groundwater sample results to fully characterize the groundwater quality both temporally and spatially at the site and establish baseline levels for the following analytical parameters: arsenic, barium, beryllium, cobalt, copper, iron, lead, magnesium, manganese, selenium, zinc, chlorides, and sulfate.

101.304(5) A groundwater monitoring network that includes sufficient upgradient and downgradient monitoring wells that adequately monitor the potential contaminant pathways throughout the life of the site and the post-closure period.

101.304(6) Plans and specifications detailing how the CCR landfill will be constructed, operated, and closed.

101.304(7) An operations plan and a post-closure plan in accordance with the rules and the permit.

567—101.305(455B) Design requirements. In addition to the provisions in 567—100.5(455B,455D) and Division I of this chapter, the design shall include a liner and leachate collection system to protect groundwater and surface water.

567—101.306(455B) Operating requirements. Unless otherwise specified within a permit, a CCR landfill shall be operated in accordance with the provisions of 567—100.9(455B,455D). No wastes shall be deposited within 300 feet of an inhabitable residence or a commercial enterprise unless there is a written agreement with the property owner(s) allowing a lesser distance that has been filed with the local county recorder under the adjoining property or within 50 feet of the property boundary under any circumstances. An operations plan shall be prepared and submitted to the department that includes the following.

101.306(1) An identification of the area(s) to be filled during the period for which a permit is being requested.

101.306(2) The method(s) that will be utilized to prevent illicit municipal or putrescible solid wastes from being deposited as a result of mixing with authorized waste brought to the site.

101.306(3) The frequency, extent, and method of spreading and compacting the waste; the optimum layer thickness; and the size and slope of the operating face.

101.306(4) A description of the operating procedures from the arrival of waste to the site through unloading, placing, and closure to control fugitive dust, erosion, and contact water. If the methods used do not adequately control dust, contact water, and erosion, the department may require site-specific controls including a soil cover.

101.306(5) Detailed procedures for the removal of waste from the CCR landfill for beneficial reuse, if applicable.

101.306(6) Operating procedures for stormwater, contact water, and leachate management systems.

567—101.307(455B) Groundwater monitoring and reporting. Unless otherwise specified within a permit, the groundwater at a CCR landfill shall be monitored and reported in accordance with this rule.

101.307(1) For all new solid waste units, the groundwater monitoring network shall be installed before waste placement.

101.307(2) Quarterly sampling of all monitoring wells and analysis for the parameters specified in 101.304(4) shall commence within one year of initiating waste placement for the purpose of establishing the average baseline concentrations for each well.

101.307(3) Annual sampling of all monitoring wells for the parameters specified in 101.304(4) shall commence within one year of completing the quarterly baseline monitoring.

101.307(4) Additional sampling or a site assessment may be required by the department when there is an exceedance of any primary or secondary Maximum Contaminant Level (MCL), the Health Advisory Level (HAL), or the Drinking Water Standards and Health Advisories of the federal Environmental Protection Agency.

101.307(5) When an MCL or HAL does not exist for a parameter, then the statewide standard for a protected drinking water source shall be used. If no statewide standard exists, then an analysis of available groundwater data for the parameter of concern must be prepared

and submitted to the department to determine whether additional sampling or site assessment is required. The analysis shall include a comparison of the most recent sample result to the average of the most recent two years of data or utilize an alternative method approved by the department.

101.307(6) A report of the groundwater monitoring results, including a site inspection, shall be submitted to the department by the end of the first year's operation and annually thereafter.

101.307(7) A minimum of one sample from each monitoring well shall be collected annually during the post-closure period and analyzed for the parameters specified in the permit. The results shall be included in the annual report.

567—101.308(455B) Closure and post-closure requirements. Unless otherwise specified within a permit, a CCR landfill shall close in accordance with the following.

101.308(1) A closure and post-closure plan shall be prepared and submitted to the department and include the actions that will be taken to close the site, final site contours and final cover design, stormwater controls and management, groundwater monitoring and reporting, permanent survey control, annual inspections, and contact information for post-closure monitoring and maintenance.

101.308(2) The final cover shall consist of not less than two feet of compacted soil and one foot of uncompacted soil capable of sustaining the growth of native vegetation. The slope of the final cover after closure shall be not less than 3 percent nor more than 25 percent.

567—101.309(455B) Financial assurance requirements. The owner or operator of a CCR landfill must establish financial assurance for closure, post-closure, and remedial action/mitigation plan, if applicable, in accordance with Division VIII of this chapter.

These rules are intended to implement Iowa Code section 455B.304.

567—101.310 to 101.399Reserved.

DIVISION V
SOLID WASTE TRANSFER STATIONS

567—101.400(455B) Purpose. The purpose of this division is to implement Iowa Code chapter 455B, subchapter IV (solid waste disposal), for the collection, temporary storage, and transfer of solid waste prior to final disposition.

567—101.401(455B) Applicability. This division applies to all solid waste transfer stations and solid waste collection and transport vehicles. The registration of a solid waste transfer station or issuance of a solid waste transfer station permit by the department in no way relieves the registrant or applicant of the responsibility of complying with all other local, state, or federal statutes, ordinances, and rules or other requirements applicable to the construction and operation of a solid waste transfer station. All rules, standards, technical guidance, and other similar legal or technical documents referenced in this division shall be the version of those documents in effect on August 1, 2025, unless otherwise noted in these rules, and except for references to the Iowa Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

567—101.402(455B) Definitions. For the purposes of this division, the definitions in 567—Chapter 100 and Iowa Code section 455B.301 shall apply.

567—101.403(455B) Location restrictions.

101.403(1) *Floodplains.* A solid waste transfer station shall not be located within a 100-year floodplain unless the design includes structures to prevent floodwater inundation from a 100-year flood of any area that comes into contact with solid waste or washwater.

101.403(2) *Inhabitable structure and sensitive populations.* A solid waste transfer station shall not be located within 500 feet of the property line of an educational or health care facility

or permanent residence unless screening is utilized to minimize noise and visibility of operations. Such screening shall utilize natural components to the maximum extent possible. This requirement shall not apply if construction of the educational or health care facility or permanent residence began after the department received the solid waste transfer station permit application.

101.403(3) *Property line setback.* A solid waste transfer station building or solid waste receptacle (e.g., dumpster, roll-off box) shall be at least 50 feet from an adjacent property line unless otherwise approved by the department in writing.

567—101.404(455B) Registration in lieu of permit.

101.404(1) *Exemption requirements.* A person may construct and operate a solid waste transfer station without a permit issued pursuant to this division if all of the following criteria apply.

- a. The person registers the facility pursuant to this rule;
- b. The facility only receives solid waste from citizens and small businesses that do not utilize solid waste collection vehicles or satellite solid waste collection vehicles;
- c. Solid waste will not be processed at the facility;
- d. The facility will not be used by anyone who has been contracted to do any hauling or disposal of solid waste;
- e. Solid waste will not be placed on the ground or tipping floor of a building as part of the facility's operation; and
- f. The department has not notified the registrant that a permit pursuant to this division is required to protect human health and the environment.

101.404(2) *Notification requirements.* A person registering a solid waste transfer station pursuant to this rule shall provide the following, on a form prescribed by the department, prior

to accepting waste and shall notify the department in writing at least 30 days prior to any operational change.

- a. The physical location of the solid waste transfer station.
- b. The name, address, email address, and phone number of the site owner.
- c. The name, address, email address, and phone number of the responsible official.
- d. The solid waste comprehensive planning area of the facility and political jurisdictions included within the facility's service area.
- e. The sanitary disposal project(s) designated for final disposal of the collected waste.
- f. An emergency response and remedial action plan pursuant to 567—100.14(455B).
- g. Proof of the applicant's ownership of the site or legal entitlement to use the site as a solid waste transfer station.
- h. Proof that the site complies with local zoning.
- i. A closure cost estimate pursuant to 101.413(2) and the documents establishing financial assurance pursuant to Division VIII of this chapter or documentation of a surety bond in the amount of \$15,000 pursuant to 101.413(3).

101.404(3) *Inspection prior to startup.* Registrants shall adhere to the inspection requirements of 567—100.7(455B,455D).

101.404(4) *Registration renewal.* A solid waste transfer station registration shall be issued and may be renewed for a period of no longer than five years. Renewal registrations shall be subject to the provisions of all rules of the department in effect at the time of the renewal.

101.404(5) *Operating requirements.* In addition to the provisions of 567—100.9(455B,455D), registered solid waste transfer stations shall comply with the following.

- a. Solid waste shall not be accepted from solid waste collection vehicles or loaded into solid waste transport vehicles to facilitate final disposition.

b. All solid waste received shall be loaded into dumpsters, compactors, or roll-off boxes and removed by solid waste collection vehicles to facilitate final disposition.

c. Solid waste receptacles shall not be allowed to overflow, and the waste shall be removed as often as necessary to prevent a nuisance or public health hazard.

101.404(6) *Recordkeeping and reporting requirements.* Registered solid waste transfer stations that directly dispose of solid waste outside of Iowa shall, on a form prescribed by the department, report the information required in 101.404(6) “a” through “c” to the department quarterly. For registered solid waste transfer stations that directly dispose of solid waste within Iowa, the following records shall be maintained by the owner or operator for a period of three calendar years and be made available at all reasonable times for inspection by the department.

a. Tons of solid waste disposed of.

b. The solid waste comprehensive planning area(s) from which the solid waste originated.

c. Destination of all outgoing solid waste.

101.404(7) *Closure requirements.* In addition to the provisions of 567—100.10(455B,455D), registered solid waste transfer stations shall adhere to the closure requirements in 567—101.411(455B).

567—101.405(455B) *Permits.* Pursuant to Iowa Code section 455B.305(1), and except as provided 567—101.404(455B), no person shall construct or operate a solid waste transfer station without first obtaining a permit from the department pursuant to this division and 567—Chapter 100.

101.405(1) *Plans.* In addition to the provisions of 567—100.5(455B,455D), a solid waste transfer station permit applicant shall address the following on a form prescribed by the department.

a. Design plan. An engineering design, including applicable approvals from responsible government agencies and public entities, and engineering plans and specifications completed by the professional engineer listed in 567—subparagraph 100.5(1)“a”(4) detailing how the site will comply with 567—101.403(455B), 567—101.406(455B), and 567—101.408(455B).

b. Operations plan. A plan of operations detailing how the site will comply with 567—100.9(455B,455D), 567—101.407(455B), and 567—101.410(455B).

101.405(2) Duration. A solid waste transfer station permit shall be issued and may be renewed for a period of no longer than five years. Renewal applications shall be subject to the provisions of all rules of the department in effect at the time of the renewal.

567—101.406(455B) Design requirements. Unless registered pursuant to 567—101.404(455B) or otherwise specified within a permit, a solid waste transfer station shall be designed and constructed in accordance with this rule.

101.406(1) Solid waste transfer station building. A solid waste transfer station shall include a building inside which all solid waste is unloaded from solid waste collection vehicles and loaded into solid waste transport vehicles.

a. All surfaces that come into contact with solid waste shall be enclosed by walls and a roof satisfactory to:

- (1) Minimize dust.
- (2) Prevent litter from exiting the building.
- (3) Keep precipitation out of the building.
- (4) Prevent the attraction or harboring of vectors.

b. All surfaces that come in contact with solid waste or washwater shall be impervious to liquids.

c. The solid waste transfer station building shall have a drainage system that maintains a separation between stormwater and washwater.

d. The solid waste transfer station building shall have a washwater collection system that directs washwater to a storage tank for subsequent disposal, a sanitary sewer system, or equivalent as approved by the department. Unless otherwise approved by the department, storage tanks shall have high-level indicators or gauges.

e. Each area where unloaded solid waste is stored during nonoperating hours shall be clearly marked and include a fire detection system that notifies local emergency responders in case of a fire.

f. If solid waste is to be managed or stored in a surge pit, then effective odor control mechanisms are required and a sprinkler system shall be installed over the area.

g. The solid waste transfer station building shall have adequate indoor and outdoor lighting that minimizes the difference in lighting when entering or exiting the building.

h. The solid waste transfer station building shall have doors at each entrance and exit.

101.406(2) *Other site design requirements.* A solid waste transfer station shall:

a. Provide a secure perimeter fence with lockable gate(s).

b. Use a scale certified by the Iowa department of agriculture and land stewardship. A solid waste transfer station may use a certified scale located off the premises and owned by a separate entity.

c. Provide adequate queuing distance for vehicles entering and exiting the property such that lines of vehicles will not extend onto public streets during peak hours unless approved by the appropriate local or state government authority.

d. Provide signs or pavement markings indicating safe and proper on-site traffic patterns.

567—101.407(455B) Operating requirements. Unless otherwise specified within a permit, a solid waste transfer station shall be operated in accordance with the provisions of 567—100.9(455B,455D) and this rule.

101.407(1) Unless registered pursuant to 567—101.404(455B), all handling, processing, screening, open storage, loading, and similar activities or processes involving solid waste shall be performed inside the solid waste transfer station building.

101.407(2) Truck-to-truck transfer of solid waste that is not incidental solid waste transfer is not allowed outside a solid waste transfer station building. A rear-loading solid waste transport vehicle that does not have any other open access and securely abuts the solid waste transfer station building so that minimal amounts of solid waste escape during loading shall qualify as being inside the building.

101.407(3) Solid waste transfer station operators shall segregate and manage unacceptable wastes and hot loads in accordance with applicable laws and in a manner as safe and responsible as practical.

101.407(4) Solid waste receptacles shall not be allowed to overflow, and the waste shall be removed as often as necessary to prevent a nuisance or public health hazard.

101.407(5) Solid waste transfer stations shall not accept special wastes pursuant to 567—Chapter 102, Division VI.

101.407(6) Washwater management systems, if applicable, shall not be allowed to overflow and shall be inspected monthly and maintained in proper operating condition.

101.407(7) Any breach of a surface that prevents washwater from entering the ground and groundwater shall be repaired within 24 hours to make that surface impervious to liquids. If such repairs cannot be made within 24 hours, the facility shall not allow solid waste or washwater to come into contact with the breached area until repairs are complete. If the facility cannot prevent solid waste or washwater from coming into contact with the breached area, the department may require the facility to shut down until repairs are completed.

101.407(8) Unless registered pursuant to 567—101.404(455B), site access shall be controlled and limited to a time when a solid waste transfer station operator is on site and:

a. Has read, understands, and is able to implement the operational requirements of 567—101.407(455B).

b. Has read, understands, and is able to implement the emergency response and remedial action plan pursuant to 567—100.14(455B).

c. Is able to visually recognize universal symbols and markings and indications of unacceptable materials pursuant to 101.407(9).

101.407(9) All solid waste accepted by a solid waste transfer station shall, at a minimum, be visually inspected by personnel capable of identifying hot loads and hazardous, infectious, radioactive, and other wastes not acceptable for disposal in a sanitary landfill.

567—101.408(455B) Temporary solid waste storage requirements. Unless otherwise specified within a permit, a solid waste transfer station shall comply with the following storage requirements.

101.408(1) *Areas permitted for storage.* Solid waste shall be stored in the following manner.

- a. Inside a solid waste transfer station building in a clearly marked designated area;
- b. Inside a solid waste transfer station building in a surge pit;
- c. Inside a secure solid waste transport vehicle, including intermodal container systems, protected from precipitation and vectors; or
- d. Inside dumpsters, compactors, roll-off boxes, and other solid waste receptacles adequate to prevent the accidental discharge of its contents and the attraction or harborage of vectors.

101.408(2) *Storage time requirements.* Solid waste shall be stored no longer than the following periods of time unless shorter storage times are required by the local government authority to prevent a nuisance or public health hazard.

- a. Inside a solid waste transfer station building without a surge pit or similar operational structure for not more than four days, excluding Sundays and national holidays.

b. Inside a solid waste transfer station building in a surge pit for not more than seven days, including Sundays and national holidays.

c. Inside a solid waste transport vehicle designated to travel only via roadway for not more than four days, excluding Sundays and national holidays.

d. Inside a solid waste transport vehicle designated to travel via rail or navigable waterway, including intermodal container systems, for not more than seven days, including Sundays and national holidays.

e. Inside dumpsters, roll-off boxes, and other solid waste receptacles at registered solid waste transfer stations for not more than four days, excluding Sundays and national holidays.

567—101.409(455B) Recordkeeping and reporting requirements.

101.409(1) Unless registered pursuant to 567—101.404(455B) or otherwise specified within a permit, a solid waste transfer station shall comply with the following recordkeeping requirements.

a. A solid waste transfer station shall maintain a copy of the following documents on site:

- (1) Current operating permit.
- (2) Design plan pursuant to 101.405(1) “*a.*”
- (3) Operations plan pursuant to 101.405(1) “*b.*”
- (4) Emergency response and remedial action plan pursuant to 567—100.14(455B).
- (5) Proof of financial assurance pursuant to 567—101.413(455B).

b. A solid waste transfer station shall maintain records of the following information for a period of three calendar years:

- (1) Tons of all solid waste disposed of quarterly.
- (2) Destination of all outgoing solid waste.
- (3) Washwater management system inspection log, if applicable.
- (4) Hot loads and hazardous, infectious, radioactive, or other unacceptable wastes found.

101.409(2) Unless registered pursuant to 567—101.404(455B) and directly disposing of solid waste within Iowa, or otherwise specified within a permit, a solid waste transfer station shall report the following information, on a form prescribed by the department, to the department on a quarterly basis:

- a. Tons of solid waste disposed of.
- b. The solid waste comprehensive planning area(s) from which the solid waste originated.
- c. Destinations of all outgoing solid waste.

567—101.410(455B) Solid waste collection and transport vehicle construction and operation requirements. Unless otherwise specified within a permit, solid waste collection vehicles and solid waste transport vehicles shall comply with the following requirements.

101.410(1) The portion of a solid waste collection or transport vehicle that contains solid waste shall be designed to prevent the accidental discharge of its contents, the attraction or harborage of vectors, and the infiltration of precipitation. This design shall include a suitable cover, where applicable, that is not easily torn, shredded, broken, or otherwise breached under normal use.

101.410(2) Any solid waste collection or transport vehicle that fails to comply the requirements of this rule shall be repaired before it is utilized in the transport or storage of solid waste.

101.410(3) A solid waste collection or transport vehicle's openings shall be securely closed before transport and during solid waste storage so as to prevent the loss of solid waste.

101.410(4) A solid waste transport vehicle shall be loaded with solid waste inside a solid waste transfer station building and in a manner that minimizes the spilling of materials. Solid waste spilled from a solid waste transport vehicle during loading shall be collected as often as necessary to minimize litter, dust, or other fugitive debris.

101.410(5) All solid waste collection and transport vehicles shall be cleaned at intervals frequent enough to prevent the attraction or harborage of vectors, so as not to create a nuisance or public health hazard.

101.410(6) Liquids generated from the cleaning of the areas of solid waste collection or transport vehicles that hold solid waste shall be considered washwater and managed accordingly.

101.410(7) If solid waste is spilled from a solid waste collection or transport vehicle during transport to a solid waste disposal facility, the spilled solid waste shall be collected as soon as possible. The solid waste transfer station shall immediately report the spill to the department and the department field office with jurisdiction over the facility and spill location.

567—101.411(455B) Closure requirements. Unless otherwise specified within a permit, a solid waste transfer station shall be closed in accordance with the provisions of 567—100.10(455B,455D) and this rule. Closure shall not be official until the department has given written certification of the completion of the following activities.

101.411(1) Proper disposal of all solid waste and litter at the site.

101.411(2) Cleaning of all dumpsters, compactors, roll-off boxes, and other solid waste receptacles that will remain on site, including the rinsing of all surfaces that have come in contact with solid waste.

101.411(3) Cleaning the solid waste transfer station building, if applicable, including the rinsing of all surfaces that have come in contact with solid waste or washwater.

101.411(4) Cleaning of all solid waste collection and transport vehicles that will remain on site, including the rinsing of all surfaces that have come in contact with solid waste.

101.411(5) Removal and proper management of all washwater in the washwater management system.

101.411(6) Locking all doors, gates, entrances and exits.

101.411(7) Reporting of the completion of these activities to the local political jurisdictions, the department, and the department field office with jurisdiction over the solid waste transfer station.

567—101.412(455B) Emergency solid waste transfer permit. If a primary sanitary disposal project in a solid waste comprehensive planning area becomes inoperable, the department may issue an emergency solid waste transfer permit for a period of time no longer than necessary for a sanitary disposal project that provides replacement capacity to be constructed and become operational. The department may also issue an emergency solid waste transfer permit for a period of time no longer than necessary for a sanitary disposal project to return to operation or if more solid waste is produced by an extraordinary event (e.g., unforeseen disasters such as storms, fires, floods, tornadoes) than can be managed by a sanitary disposal project. The conditions of an emergency solid waste transfer permit shall be determined by the department and may be used as an alternative to the requirements of this division. The department shall issue an emergency solid waste transfer permit only if the department has determined that solid waste must be transferred from the impacted area(s) in order to protect human health and the environment.

567—101.413(455B) Financial assurance requirements. The owner or operator of a solid waste transfer station must establish financial assurance for the costs of site closure in accordance with the criteria pursuant to this rule and Division VIII of this chapter.

101.413(1) Except as provided in 101.413(3), the owner or operator shall submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer, of the cost of hiring a third party to properly close the solid waste transfer station in accordance with the closure criteria in 567—101.411(455B).

101.413(2) The detailed written estimate shall account for at least the following factors determined by the department to be minimal necessary costs for site closure.

a. Third-party labor and transportation costs and total tip fees to properly dispose of all solid waste and litter at the facility equal to twice the maximum storage capacity of the facility. If materials are temporarily stored on site in solid waste collection or transport vehicles or waste receptacles, then this estimate shall include disposal costs for the maximum number of solid waste collection or transport vehicles and waste receptacles that can be on site at any one time.

b. The cost of hiring a third party to properly clean and decontaminate all equipment, storage facilities, holding areas and drainage collection systems. This estimate shall include the cost of properly disposing of a one-week volume of washwater from the facility. If the facility utilizes a washwater storage tank, then this estimate shall assume that the storage tank is full and add that volume to the one-week volume.

c. The cost associated in maintaining financial assurance pursuant to this rule and Division VIII of this chapter.

101.413(3) The owner or operator of a solid waste transfer station that is permitted for or manages no more than 5,000 tons of solid waste annually shall have the option to comply with the financial assurance requirements of this rule and Division VIII of this chapter by executing a surety bond in the sum of \$15,000 pursuant to 567—subrule 101.707(2). In electing this option, the owner or operator shall not be required to submit a detailed written cost estimate for site closure pursuant to 101.413(1). This surety bond shall be unique to the solid waste transfer station and shall not be combined or used to meet the financial assurance obligations of any other permitted facility or activity.

These rules are intended to implement Iowa Code section 455B.304.

567—101.414 to 101.499Reserved.

DIVISION VI

SOLID WASTE INCINERATOR OPERATOR CERTIFICATION

567—101.500(455B) Purpose. The purpose of this division is to implement Iowa Code section 455B.304(12) by providing the criteria for establishing the certification of operators of solid waste incinerators.

567—101.501(455B) Applicability. The requirements of this division apply to all operators of solid waste incinerators. All rules, standards, technical guidance, and other similar legal or technical documents referenced in this division shall be the version of those documents in effect on August 1, 2025, unless otherwise noted in these rules, and except for references to the Iowa Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

567—101.502(455B) Solid waste incinerator operator certification. Solid waste incinerator operators shall be trained, tested, and certified by a department-approved certification program.

101.502(1) *Operator on duty.* A solid waste incinerator operator shall be on duty during all hours of operation of a solid waste incinerator, consistent with the respective certification.

101.502(2) *Training course; reciprocity.* To become a certified operator, an individual shall complete a basic operator training course that has been approved by the department or alternative, equivalent training approved by the department and shall pass a departmental examination as specified by this division. An operator certified by another state may have reciprocity subject to approval by the department.

101.502(3) *Biennial certification.* A solid waste incinerator operator certification is valid from the date of issuance until June 30 of the following even-numbered year.

101.502(4) *Basic operator training course.* The required basic operator training course for a certified solid waste incinerator operator shall have at least eight contact hours and shall address the following areas at a minimum.

- a. Description of types of wastes;

- b. Incinerator design;
- c. Interpreting and using engineering plans;
- d. Incinerator operations and safety;
- e. Combustion controls and monitoring;
- f. Applicable laws and regulations;
- g. Permitting processes;
- h. Incinerator maintenance; and
- i. Ash and residue disposal.

101.502(5) *Alternative basic operator training.* Alternative basic operator training must be approved by the department. It shall be the applicant's responsibility to submit any documentation the department may require to evaluate the equivalency of alternative training.

101.502(6) *Fees.*

- a. The examination fee for each examination is \$20.
- b. The initial certification fee is \$8 for each one-half year of a two-year period from the date of issuance to June 30 of the next even-numbered year.
- c. The certification renewal fee is \$24.
- d. The penalty fee is \$12.

101.502(7) *Examinations.*

- a. The operator certification examinations will be based on the basic operator training course curriculum in 101.502(4).
- b. All persons wishing to take the examination required to become a certified operator of a solid waste incinerator shall complete an operator certification examination application on a form prescribed by the department. A listing of dates and locations of examinations is available from the department upon request. The application form requires the applicant to indicate the basic operator training course taken. Evidence of training course completion must

be submitted with the application for certification. The completed application and the application fee shall be sent to the Iowa Department of Natural Resources, 6200 Park Avenue, Des Moines, Iowa 50321. Application for examination must be received by the department prior to the date of examination.

c. A properly completed application for examination shall be valid for one year from the date the application is approved by the department.

d. Upon failure of the first examination, the applicant may be reexamined at the next scheduled examination. Upon failure of the second examination, the applicant shall be required to wait a period of 180 days before taking a third examination. If the third examination occurs beyond the one year time frame in 101.502(7)“c,” a new operator certification examination application is required.

e. Upon each reexamination when a valid application is on file, the applicant shall submit to the department the examination fee prior to the date of examination.

f. Failure to successfully complete the examination within one year from the date of approval of the application shall invalidate the application.

g. Oral examinations may be given at the discretion of the department.

101.502(8) *Certification.*

a. All operators will be required to take the basic operator training course and pass the examination in order to become certified.

b. Application for certification must be received by the department within 30 days of the date the applicant receives written notification of successful completion of the examination. All applications for certification shall be made on a form prescribed by the department and be accompanied by the certification fee.

c. Applications for certification by examination that are received more than 30 days but less than 60 days after notification of successful completion of the examination shall be

accompanied by the certification fee and the penalty fee. Applicants who do not apply for certification within 60 days of notice of successful completion of the examination will not be certified on the basis of that examination.

d. For applicants who have been certified under a mandatory certification program in another state, the equivalency of which has been previously reviewed and accepted by the department, certification without examination will be recommended.

e. For applicants who have been certified under voluntary certification programs in another state, certification will be considered. The applicant must have successfully completed a basic operator training course and an examination generally equivalent to the Iowa examination. The department may require the applicant to successfully complete the Iowa examination.

f. Applicants who seek Iowa certification pursuant to 101.502(8) “*d*” or “*e*” shall submit an application for examination accompanied by a letter requesting certification pursuant to this subrule. Application for certification pursuant to this subrule shall be received by the department in accordance with 101.502(8) “*b*” and “*c*.”

101.502(9) *Duration and renewal of certification.* All certificates shall expire every two years, on even-numbered years, and must be renewed every two years to maintain certification. The renewal application and fee are due prior to expiration of certification.

a. Late application for renewal of a certification may be made, provided that such late application shall be received by the department or postmarked within 30 days of the expiration of the certification. Such late application shall be on a form prescribed by the department and accompanied by the penalty fee and the certification renewal fee.

b. If a certificate holder fails to apply for renewal within 30 days following expiration of the certification, the right to renew the certification automatically terminates. Certification may be allowed at any time following such termination, provided that the applicant

successfully completes the examination. The applicant must then apply for certification in accordance with 101.502(8).

c. An operator shall not continue to operate a solid waste incinerator after expiration of a certification without renewal thereof.

d. Continuing education credits must be earned during the two-year certification period. All certified operators must earn six contact hours per certification during each two-year period. The two-year period will begin upon issuance of certification.

e. Only those operators fulfilling the continuing education requirements before the end of each two-year period will be allowed to renew their certifications. The certifications of operators not fulfilling the continuing education requirements shall be void upon expiration unless an extension is granted.

f. All activities for which continuing education credit will be granted must be related to the subject matter of the particular certification to which the credit is being applied.

g. The department may, in individual cases involving hardship or extenuating circumstances, grant an extension of time of up to three months within which the applicant may fulfill the minimum continuing education requirements. Hardship or extenuating circumstances include documented health-related confinement or other circumstances beyond the control of the certified operator that prevent attendance at the required activities. All requests for extensions must be made prior to expiration of certification.

h. The certified operator is responsible for notifying the department of the continuing education credits earned during the period. The continuing education credits earned during the period shall be shown on the application for renewal.

i. A certified operator shall be deemed to have complied with the continuing education requirements of this division during periods that the operator serves honorably on active duty in military service, during periods that the operator is a resident of another state or district

having a continuing education requirement for operators and meets all the requirements of that state or district for practice there, during periods that the person is a government employee working as an operator and is assigned to duty outside of the United States, or during other periods of active practice and absence from the state approved by the department.

567—101.503(455B) Discipline of certified operators.

101.503(1) Disciplinary action may be taken on any of the following grounds.

a. Failure to use reasonable care or judgment or to apply knowledge or ability in performing the duties of a certified operator. Duties of certified operators include compliance with rules and permit conditions applicable to solid waste incinerator operation.

b. Failure to submit required records of operation or other reports required under applicable permits or rules of the department, including failure to submit complete records or reports.

c. Knowingly making any false statement, representation, or certification on any application, record, report, or document required to be maintained or submitted under any applicable permit or rule of the department.

101.503(2) The following disciplinary sanctions are allowable.

a. Revocation of a certification.

b. Probation under specified conditions relevant to the specific grounds for disciplinary action. Additional education or training or reexamination may be required as a condition of probation.

101.503(3) The procedure for discipline is as follows.

a. The department shall initiate disciplinary action. The commission may direct that the department investigate any alleged factual situation that may be grounds for disciplinary action under 101.503(1) and report the results of the investigation to the commission.

b. A disciplinary action may be prosecuted by the department.

c. Written notice shall be given to an operator against whom disciplinary action is being considered and, as appropriate, to the responsible official of the permitted solid waste incinerator. The notice shall state the informal and formal procedures available for determining the matter. The operator shall be given 20 days to present any relevant facts and indicate the operator's position in the matter and to indicate whether informal resolution of the matter may be reached.

d. An operator who receives notice shall communicate in writing or in person with the department, and efforts shall be made to clarify the respective positions of the operator and department.

e. The applicant's failure to communicate facts and positions relevant to the matter by the required date may be considered when appropriate disciplinary action is determined.

f. If agreement as to appropriate disciplinary sanction, if any, can be reached with the operator and the commission concurs, a written stipulation and settlement between the department and the operator shall be entered into. The stipulation and settlement shall recite the basic facts and violations alleged, any facts brought forth by the operator, and the reasons for the particular sanctions imposed.

g. If an agreement as to appropriate disciplinary action, if any, cannot be reached, the department may initiate formal hearing procedures. Notice and formal hearing shall be in accordance with 561—Chapter 7 related to contested and certain other cases pertaining to licensee discipline.

101.503(4) Upon revocation of a certificate, application for certification may be allowed after two years from the date of revocation. Any such applicant must successfully complete the examination and be certified in the same manner as a new applicant.

567—101.504(455B) Temporary operator designation. A temporary operator of a solid waste incinerator may be designated for a period of six months when an existing certified

operator is no longer available to the facility. The facility must make application to the department, explain why a temporary certification is needed, identify the temporary operator, and identify the efforts that will be made to obtain a certified operator. A temporary operator designation shall not be approved for greater than a six-month period except for extenuating circumstances. In any event, not more than one six-month extension to the temporary operator designation may be granted. Approval of a temporary operator designation may be rescinded for cause as set forth in 567—101.503(455B).

These rules are intended to implement Iowa Code section 455B.304(12).

567—101.505 to 101.599Reserved.

DIVISION VII

RESERVED

DIVISION VIII

FINANCIAL ASSURANCE

567—101.700(455B) Purpose. The purpose of this division is to implement Iowa Code sections 455B.304(8) and 455B.306(9) by providing the criteria for establishing financial assurance for closure, post-closure care, and corrective action at sanitary disposal projects, whichever is applicable.

567—101.701(455B) Applicability.

101.701(1) The requirements of this division apply to all owners and operators of sanitary disposal projects, except owners or operators who are state or federal government entities, whose debts and liabilities are the debts and liabilities of a state or the United States.

101.701(2) This division does not apply to municipal solid waste sanitary landfills regulated pursuant to Division II of this chapter that ceased accepting solid waste by August 24, 1994, nor to industrial sanitary landfills and coal combustion residual sanitary landfills

regulated pursuant to Divisions III and IV of this chapter, respectively, that ceased accepting waste by October 31, 2007.

101.701(3) This division does not apply to sanitary disposal projects that are not sanitary landfills and that have completed proper site closure nor to sanitary landfills that have completed post-closure care obligations prior to [the effective date of this rule].

101.701(4) All rules, standards, technical guidance, and other similar legal or technical documents referenced in this division shall be the version of those documents in effect on August 1, 2025, unless otherwise noted in these rules, and except for references to the Iowa Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

~~567—101.702(455B)~~ Definitions. For the purposes of this division, the definitions in ~~567—~~Chapter 100 and Iowa Code section 455B.301 shall apply.

~~567—101.703(455B)~~ Financial assurance for closure of sanitary disposal projects that are not sanitary landfills. The owner or operator of a sanitary disposal project must establish financial assurance for the costs of site closure in accordance with the criteria in this division. The owner or operator must provide continuous coverage for site closure until released from this requirement by demonstrating compliance with the closure criteria expressed within each sanitary disposal project's applicable division. Proof of compliance pursuant to 101.703(1) through 101.703(3) shall be submitted to the department by the owner or operator at the time of application for a permit, and with each renewal thereafter, until the owner or operator is released from this requirement by the department.

101.703(1) The owner or operator shall submit, on a form prescribed by the department, the amount of the financial assurance required and the current value of the financial assurance instrument(s) at the time of submittal as required by Iowa Code section 455B.306(9).

101.703(2) The owner or operator shall submit a copy of the documents establishing the financial assurance instrument(s) in an amount equal to or greater than the amount specified in 567—101.710(455B). Documentation for the instrument(s) used to demonstrate financial assurance shall contain, at a minimum, the items required to be submitted as specified in 567—101.707(455B).

101.703(3) The owner or operator shall submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer, of the cost of hiring a third party to properly close the sanitary disposal project in accordance with the closure criteria expressed within each sanitary disposal project's applicable division.

a. The cost estimate must equal the cost of closing the sanitary disposal project at any time during its permitted life when the extent and manner of its operation would make closure the most expensive.

b. The costs contained in the estimate for site closure must be accurate and reasonable when compared to the cost estimates used by other similarly situated sanitary disposal projects in Iowa.

c. The owner or operator must, at the time of permit renewal or at the time of application for a permit modification that increases closure costs, whichever occurs first, have an Iowa-licensed professional engineer update the closure cost estimate, and update the amount of financial assurance provided if changes to the closure plan or sanitary disposal project conditions increase the maximum cost of closure at any time during the remaining active life of the site.

d. The owner or operator may reduce the amount of financial assurance for proper closure of the site if the most recent estimate of the maximum cost of closure at any time during the active life of the site is less than the amount of financial assurance currently provided. Prior to the reduction, the owner or operator must submit to the department the justification for the

reduction of the closure cost estimate and the updated documentation required by 101.703(1) through 101.703(3) and receive department approval for the reduction.

567—101.704(455B) Financial assurance for closure of sanitary landfills. The owner or operator of a sanitary landfill must establish financial assurance for the costs of site closure in accordance with the criteria in this division. The owner or operator must provide continuous coverage for site closure until released from this requirement by demonstrating compliance with the approved closure plan and the closure permit. Proof of compliance pursuant to 101.704(1) through 101.704(5) shall be submitted to the department by the owner or operator yearly by April 1 and approved by the department.

101.704(1) The owner or operator shall submit, on a form prescribed by the department, the amount of the financial assurance required, the annual financial statement required by Iowa Code section 455B.306(9)“e,” and the current value of the financial assurance instrument(s) as required by Iowa Code section 455B.306(9).

101.704(2) The owner or operator shall submit a copy of the documents establishing the financial assurance instrument(s) in an amount equal to or greater than the amount specified in 567—101.710(455B). Documentation for the instruments(s) used to demonstrate financial assurance shall contain, at a minimum, the items required to be submitted as specified in 567—101.707(455B).

101.704(3) The owner or operator shall, except for the allowance granted in 101.704(3)“c,” submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer, of the cost of hiring a third party to close the sanitary landfill in accordance with the approved closure plan and the closure permit.

a. The cost estimate must equal the cost of closing the sanitary landfill at the time the cost estimate is prepared.

b. The costs contained in the estimate for closure must be accurate and reasonable when compared to the cost estimates used by other similarly situated sanitary landfills in Iowa.

c. During the active life of the sanitary landfill, the owner or operator may, for the duration of the permit cycle or five years, whichever is less, have an Iowa-licensed professional engineer adjust the certified closure cost estimate for inflation by using an inflation factor derived from the most recent annual Implicit Price Deflator for Gross Domestic Product published by the United States Department of Commerce. The inflation factor is the result of dividing the latest published annual deflator by the deflator for the previous year. After applying the inflation factor for the duration of the permit cycle, or five years, whichever is less, the owner or operator shall again submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer pursuant to 101.704(3).

d. The owner or operator must annually or at the time of permit renewal, at the time of application for a permit modification, or due to other requirements that increase closure costs have an Iowa-licensed professional engineer update the detailed written closure cost estimate and update the amount of financial assurance provided if changes to the closure plan or sanitary landfill conditions increase the cost of closure.

e. The owner or operator may reduce the amount of financial assurance for proper closure of the site if the most recent estimate is less than the amount of financial assurance currently provided. Prior to the reduction, the owner or operator must submit to the department the justification for the reduction of the closure cost estimate and the updated documentation required by 101.704(1) through 101.704(5) and receive department approval for the reduction.

f. The estimate submitted to the department must include the site area subject to closure (in acres) and account for at least the following factors determined by the department to be the minimal necessary costs for closure.

(1) Closure and post-closure plan document revisions;

- (2) Site preparation, earthwork, and final grading;
- (3) Drainage control culverts, piping, and structures;
- (4) Erosion control structures, sediment ponds, and terraces;
- (5) Final cap construction;
- (6) Cap vegetation soil placement;
- (7) Cap seeding, mulching, and fertilizing;
- (8) Monitoring well, piezometer, and gas control modifications;
- (9) Leachate system cleanout and extraction well modifications;
- (10) Monitoring well installations and abandonments;
- (11) Facility modifications to effect closed status;
- (12) Engineering and technical services;
- (13) Legal, financial, and administrative services; and
- (14) Closure compliance certifications and documentation.

101.704(4) For publicly owned sanitary landfills, the owner or operator shall submit to the department a copy of the owner's or operator's most recent annual audit report in the form prescribed by the office of the auditor of the state of Iowa. In addition to the annual audit report, the owner or operator of a publicly owned sanitary landfill may submit financial institution statements to document the current balance of a trust fund or local government dedicated fund established pursuant to 101.707(1) and 101.707(9) or the closure and post-closure care account(s) pursuant to 567—101.709(455B).

101.704(5) Privately owned sanitary landfills shall submit an affidavit from the owner or operator indicating that a yearly review has been performed by an Iowa-licensed certified public accountant to determine whether the privately owned sanitary landfill is in compliance with this division. The affidavit shall state the name of the Iowa-licensed certified public

accountant, the dates and conclusions of the review, and the steps taken to rectify any deficiencies identified by the accountant.

567—101.705(455B) Financial assurance for post-closure care of sanitary landfills. The owner or operator of a sanitary landfill must establish financial assurance for the costs of post-closure care in accordance with the criteria in this division. The owner or operator must provide continuous coverage for post-closure care until released from this requirement by demonstrating compliance with the approved post-closure plan and the closure permit. Proof of compliance pursuant to 101.705(1) through 101.705(5) shall be submitted to the department by the owner or operator yearly by April 1 and approved by the department.

101.705(1) The owner or operator shall submit, on a form prescribed by the department, the amount of the financial assurance required, the annual financial statement required by Iowa Code section 455B.306(9)“e,” and the current value of the financial assurance instrument(s) as required by Iowa Code section 455B.306(9).

101.705(2) The owner or operator shall submit a copy of the documents establishing the financial assurance instrument(s) in an amount equal to or greater than the amount specified in 567—101.710(455B). Documentation for the instrument(s) used to demonstrate financial assurance shall contain, at a minimum, the items required to be submitted as specified in 567—101.707(455B).

101.705(3) The owner or operator shall, except for the allowance granted in 101.705(3)“c,” submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer, of the cost of hiring a third party to conduct post-closure care for the sanitary landfill in accordance with the approved post-closure plan and the closure permit.

a. The cost estimate must account for the total cost of conducting post-closure care, as described in the plan, for the entire post-closure care period.

b. The costs contained in the estimate for post-closure care must be accurate and reasonable when compared to the cost estimates used by other similarly situated sanitary landfills in Iowa.

c. During the active life of the sanitary landfill and during the post-closure care period, the owner or operator may, for the duration of the permit cycle or five years, whichever is less, have an Iowa-licensed professional engineer adjust the certified post-closure cost estimate for inflation by using an inflation factor derived from the most recent annual Implicit Price Deflator for Gross Domestic Product published by the United States Department of Commerce. The inflation factor is the result of dividing the latest published annual deflator by the deflator for the previous year. After applying the inflation factor for the duration of the permit cycle, or five years, whichever is less, the owner or operator shall again submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer pursuant to 101.705(3).

d. The owner or operator must, annually or at the time of application for a permit modification, or due to other requirements that increase post-closure care costs, have an Iowa-licensed professional engineer increase the detailed written post-closure cost estimate and update the amount of financial assurance provided if changes in the post-closure plan or sanitary landfill conditions increase the cost of post-closure care.

e. The owner or operator may reduce the amount of financial assurance for post-closure care if the most recent estimate of post-closure care is less than the amount of financial assurance currently provided. Prior to the reduction, the owner or operator must submit to the department the justification for the reduction of the post-closure cost estimate and the updated documentation required by 101.705(1) through 101.705(5) and receive department approval for the reduction.

f. The estimate submitted to the department must include the site area subject to post-closure care and account for at least the following factors determined by the department to be the minimal necessary costs for post-closure care.

- (1) General site facilities, access roads, and fencing maintenance;
- (2) Cap and vegetative cover maintenance;
- (3) Drainage and erosion control systems maintenance;
- (4) Groundwater to waste separation systems maintenance;
- (5) Gas control systems maintenance, if applicable;
- (6) Gas control systems monitoring and reports, if applicable;
- (7) Groundwater and surface water monitoring systems maintenance;
- (8) Groundwater and surface water quality monitoring and reports;
- (9) Groundwater monitoring systems performance evaluations and reports;
- (10) Leachate control systems maintenance;
- (11) Leachate management, transportation, and disposal;
- (12) Leachate control systems performance evaluations and reports;
- (13) Facility inspections and technical reports;
- (14) Engineering and technical services;
- (15) Legal, financial, and administrative services; and
- (16) Financial assurance, accounting, audits, and reports.

101.705(4) For publicly owned sanitary landfills, the owner or operator shall submit to the department a copy of the owner's or operator's most recent annual audit report in the form prescribed by the office of the auditor of the state of Iowa. In addition to the annual audit report, the owner or operator of a publicly owned sanitary landfill may submit financial institution statements to document the current balance of a trust fund or local government

dedicated fund established pursuant to 101.707(1) and 101.707(9), or the closure and post-closure care account(s) pursuant to 567—101.709(455B).

101.705(5) Privately owned sanitary landfills shall submit an affidavit from the owner or operator indicating that a yearly review has been performed by an Iowa-licensed certified public accountant to determine whether the privately owned sanitary landfill is in compliance with this division. The affidavit shall state the name of the Iowa-licensed certified public accountant, the dates and conclusions of the review, and the steps taken to rectify any deficiencies identified by the accountant.

567—101.706(455B) Financial assurance for corrective action at sanitary landfills.

101.706(1) An owner or operator required to undertake corrective action must have a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer, of the cost of hiring a third party to perform the required corrective action. The cost estimate must account for the total cost of conducting the activities described in the corrective action plan for the entire corrective action period. The owner or operator must submit to the department for approval the cost estimate and financial assurance documentation prior to implementation of the corrective action remedy. Proof of continued compliance pursuant to 101.706(1) and 101.706(2) shall be submitted to the department by the owner or operator yearly by April 1 and approved by the department.

a. The owner or operator shall submit, on a form prescribed by the department, the amount of the financial assurance required to complete the corrective action remedy and the current value of the financial assurance instrument(s).

b. The owner or operator may, for up to three consecutive years, have an Iowa-licensed professional engineer adjust the certified corrective action cost estimate for inflation by using an inflation factor derived from the most recent annual Implicit Price Deflator for Gross Domestic Product published by the United States Department of Commerce. The inflation

factor is the result of dividing the latest published annual deflator by the deflator for the previous year. After three consecutive years of applying the inflation factor, the owner or operator shall again submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer pursuant to this subrule.

c. The owner or operator must increase the detailed written corrective action cost estimate and update the amount of financial assurance provided if changes in the corrective action remedy or sanitary landfill conditions increase the maximum cost of corrective action.

d. The owner or operator may reduce the amount of the cost estimate and the amount of financial assurance provided if the cost estimate exceeds the maximum remaining costs of the remaining corrective action. Prior to the reduction, the owner or operator must submit to the department the justification for the reduction of the corrective action cost estimate and the updated documentation required by 101.706(1) through 101.706(2) and receive department approval for the reduction.

101.706(2) The owner or operator of a sanitary landfill required to undertake corrective action must establish financial assurance for the corrective action remedy by one of the instruments prescribed in 567—101.707(455B). The owner or operator must provide continuous coverage for corrective action until released from financial assurance requirements by demonstrating compliance with the following.

a. Upon completion of the corrective action remedy, the owner or operator must submit to the department a certification of compliance with the corrective action plan. The certification must be signed by the owner or operator and by a qualified groundwater scientist.

b. Upon department approval of completion of the corrective action remedy, the owner or operator shall be released from the requirement for financial assurance for corrective action pursuant to 567—101.706(455B).

567—101.707(455B) Allowable financial assurance instruments. The instruments used to demonstrate financial assurance, as required by Iowa Code sections 455B.304(8) and 455B.306(9), must ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known releases will be available whenever the funds are needed. The instruments used shall not be canceled, revoked, disbursed, released, or allowed to terminate without the approval of the department. Owners or operators must choose from options in 101.707(1) through 101.707(9), as provided for in Iowa Code section 455B.301(9) “c.”

101.707(1) Trust fund.

a. An owner or operator may demonstrate financial assurance for closure, post-closure care and corrective action, whichever is applicable, by establishing a trust fund that conforms to the requirements of this subrule. The trustee must be an entity that has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency. The owner or operator must submit to the department a copy of the executed trust agreement.

b. For a trust fund used to demonstrate financial assurance for proper closure at a sanitary disposal project that is not sanitary landfill, there is no pay-in period as defined in 101.707(1) “c.” Instead, the trust fund shall be in an amount equal to or greater than the amount specified in 101.703(3).

c. Payments into the trust fund must be made annually by the owner or operator over ten years or over the remaining permitted life of the sanitary landfill, whichever is shorter, in the case of a trust fund for closure and post-closure care, or over one-half of the estimated length of the corrective action remedy in the case of response to a known release. This period is referred to as the pay-in period.

d. For a trust fund used to demonstrate financial assurance for closure and post-closure care at a sanitary landfill, the first payment into the fund must be at least equal to the amount

specified in 567—101.710(455B) for closure and post-closure care, divided by the number of years in the pay-in period, as defined in 101.707(1)“c.” The amount of subsequent payments must be determined by the following formula.

$$\text{Next Payment} = \frac{\text{CE} - \text{B}}{\text{Y}}$$

Where:

“CE” is the amount specified in 567—101.710(455B) for closure and post-closure care (updated for inflation or other changes).

“B” is the balance of the trust fund at the close of the previous fiscal year.

“Y” is the number of years remaining in the pay-in period.

e. Unless otherwise authorized by the department, for a trust fund used to demonstrate financial assurance for corrective action at a sanitary landfill, the first payment into the trust fund must be at least equal to one-half of the amount specified in 101.706(1) for corrective action, divided by the number of years in the corrective action pay-in period, as defined in 101.707(1)“c.” The amount of subsequent payments must be determined by the following formula.

$$\text{Next Payment} = \frac{\text{RB} - \text{V}}{\text{Y}}$$

Where:

“RB” is the most recent estimate of the required trust fund balance for corrective action.

“V” is the current value of the trust fund at the close of the previous fiscal year.

“Y” is the number of years remaining in the pay-in period.

f. The initial payment into the trust fund must be made prior to the initial receipt of solid waste at the sanitary landfill or before the cancellation of an alternative financial assurance

instrument, in the case of closure and post-closure care; or no later than 120 days after the selection of the corrective action remedy.

g. The owner or operator, or other person authorized to conduct closure, post-closure care, and corrective action activities, may request reimbursement from the trustee for these expenditures, including partial closure, as they are incurred. The owner or operator must submit to the department documentation of the justification for reimbursement and verification that reimbursement has been received.

h. After the pay-in period has been completed for a sanitary landfill, the trust fund shall be adjusted annually to correct any deficiency of the fund with respect to the updated cost estimates and may be adjusted annually should the balance in the fund exceed the updated cost estimates.

i. The trust fund may be terminated by the owner or operator only if the owner or operator substitutes alternative financial assurance as specified in this rule or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this division.

101.707(2) *Surety bond guaranteeing payment or performance.*

a. An owner or operator may demonstrate financial assurance for closure and post-closure care by obtaining a payment or performance surety bond, which conforms to the requirements of this subrule. An owner or operator may demonstrate financial assurance for corrective action by obtaining a performance bond, which conforms to the requirements of this subrule. The bond must be effective and all required submissions made to the department prior to the initial receipt of solid waste or before the cancellation of an alternative financial assurance instrument, in the case of closure and post-closure care, or, in the case of corrective action, no later than 120 days after the selection of the corrective action remedy. The owner or operator must submit to the department a copy of the executed surety bond and subsequent proof of continuance in accordance with 567—101.703(455B) through 567—101.706(455B). The

surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on federal bonds in Circular 570 of the U.S. Department of the Treasury.

b. The penal sum of the bond must be in an amount at least equal to the amount specified in 567—101.710(455B) for closure, post-closure care, and corrective action, whichever is applicable.

c. Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond and also upon notice from the department pursuant to 101.707(2) “*f.*”

d. The owner or operator must also establish a standby trust fund. The standby trust fund must meet the requirements of 101.707(1), except the requirements for initial payment and subsequent annual payments specified in 101.707(1) “*c*” through “*f.*”

e. Payments made under the terms of the bond will be deposited by the surety directly into the standby trust fund. Payments from the trust fund must be authorized by the trustee pursuant to 101.707(1) “*g.*”

f. Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 90 days, provide to the department adequate proof of alternative financial assurance, notice from the surety of withdrawal of the cancellation, or proof of a deposit into the standby trust fund of a sum equal to the amount of the bond. If the owner or operator has not complied with this paragraph within the 90-day time period, this shall constitute a failure to perform and the department shall notify the surety, prior to the expiration of the 120-day notice period, that such a failure has occurred. The provision of funds by the issuer of the surety bond shall be considered an issuance of a loan to the owner or operator, and the terms of that loan shall be governed by the surety bond or subsequent agreement between those parties.

g. The owner or operator may cancel the bond only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this division.

101.707(3) *Letter of credit.*

a. An owner or operator may demonstrate financial assurance for closure, post-closure care, and corrective action, whichever is applicable, by obtaining an irrevocable standby letter of credit, which conforms to the requirements of this subrule. The letter of credit must be effective and all required submissions made to the department prior to the initial receipt of solid waste or before the cancellation of an alternative financial assurance instrument, in the case of closure and post-closure care, or, in the case of corrective action, no later than 120 days after the selection of the corrective action remedy. The owner or operator must submit to the department a copy of the executed letter of credit, and subsequent proof of continuance in accordance with 567—101.703(455B) through 567—101.706(455B). The issuing institution must be an entity that has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency.

b. A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the name and address of the facility and the amount of funds assured, must be included with the letter of credit submitted to the department.

c. The owner or operator must also establish a standby trust fund. The standby trust fund must meet the requirements of 101.707(1), except the requirements for initial payment and subsequent annual payments specified in 101.707(1) “c” through “f.”

d. Payments made under the terms of the letter of credit will be deposited by the issuing institution directly into the standby trust fund. Payments from the trust fund must be authorized by the trustee pursuant to 101.707(1) “g.”

e. The letter of credit must be irrevocable and issued for a period of at least one year in an amount at least equal to the amount specified in 567—101.710(455B) for closure, post-closure care, and corrective action, whichever is applicable. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner or operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 90 days, provide to the department adequate proof of alternative financial assurance, notice from the issuing institution of withdrawal of the cancellation, or proof of a deposit into the standby trust fund of a sum equal to the amount of the letter of credit. If the owner or operator has not complied with this paragraph within the 90-day time period, this shall constitute a failure to perform and the department shall notify the issuer of the letter of credit, prior to the expiration of the 120-day notice period, that such a failure has occurred. The provision of funds by the issuer of the letter of credit shall be considered an issuance of a loan to the owner or operator, and the terms of that loan shall be governed by the letter of credit or subsequent agreement between those parties.

f. The owner or operator may cancel the letter of credit only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this division.

101.707(4) *Insurance.*

a. An owner or operator may demonstrate financial assurance for closure and post-closure care, whichever is applicable, by obtaining insurance that conforms to the requirements of this subrule. The insurance must be effective and all required submissions made to the department prior to the initial receipt of solid waste or before the cancellation of an alternative financial assurance instrument, in the case of closure and post-closure care. At a minimum,

the insurer must be licensed to transact the business of insurance or be eligible to provide insurance as an excess or surplus lines insurer in Iowa. The owner or operator must submit to the department a copy of the executed insurance policy and subsequent proof of continuance in accordance with 567—101.703(455B) through 567—101.706(455B).

b. The closure or post-closure care insurance policy must guarantee that funds will be available to close the sanitary disposal project whenever final closure occurs or to provide post-closure care for a sanitary landfill whenever the post-closure care period begins, whichever is applicable. The policy must also guarantee that once closure or post-closure care begins, the insurer will be responsible for the paying out of funds to the owner or operator or other person authorized to conduct closure or post-closure care, up to an amount equal to the face amount of the policy.

c. The insurance policy must be issued for a face amount at least equal to the amount specified in 567—101.710(455B) for closure and post-closure care, whichever is applicable. Actual payments by the insurer will not change the face amount, although the insurer's future liability will be lowered by the amount of the payments.

d. An owner or operator, or any other person authorized to conduct closure or post-closure care, may receive reimbursements for closure or post-closure care expenditures, including partial closure, whichever is applicable. Requests for reimbursement will be granted by the insurer only if the remaining value of the policy is sufficient to cover the remaining costs of closure or post-closure care. The owner or operator must submit to the department documentation of the justification for reimbursement and verification that the reimbursement has been received.

e. Each policy must contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided that such consent is not unreasonably refused.

f. The insurance policy must provide that the insurer may not cancel, terminate, or fail to renew the policy, except for failure to pay the premium. The automatic renewal of the policy must, at a minimum, provide the insured with the option of renewal at the face amount of the expiring policy. If there is a failure to pay the premium, the insurer may cancel the policy by sending notice of cancellation by certified mail to the owner or operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 90 days, provide to the department adequate proof of alternative financial assurance, notice from the insurer of withdrawal of the cancellation, or proof of a deposit of a sum equal to the amount of the insurance coverage into either the closure and post-closure care account(s) established pursuant to Iowa Code section 455B.306(9) “*b*” or a standby trust fund that meets the requirements of 101.707(1), except the requirements for initial payment and subsequent annual payments specified in 101.707(1) “*c*” through “*f*.” If the owner or operator has not complied with this paragraph within the 90-day time period, this shall constitute a failure to perform and shall be a covered event pursuant to the terms of the insurance policy. A failure by the owner or operator to comply with this paragraph within the 90-day time period shall make the insurer liable for the closure and post-closure care of the covered facility up to the amount of the policy limits, which shall be equal to the most recently submitted cost estimates.

g. For insurance policies providing coverage for post-closure care, commencing on the date that liability to make payments pursuant to the policy accrues, the insurer will thereafter annually increase the face amount of the policy. Such increase must be equivalent to the face amount of the policy, less any payments made, multiplied by an amount equivalent to 85 percent of the most recent investment rate or of the equivalent coupon-issue yield announced by the U.S. Treasury for 26-week Treasury securities.

h. The owner or operator may cancel the insurance policy only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this division.

101.707(5) *Corporate financial test.* An owner or operator that satisfies the requirements of this subrule may demonstrate financial assurance for closure, post-closure care, and corrective action, whichever is applicable, up to the amount specified below.

a. Financial component. The owner or operator must satisfy the requirements of 101.707(5)“a”(1) through “a”(3) to meet the financial component of the corporate financial test.

(1) The owner or operator must satisfy one of the following three conditions.

1. A current rating for its senior unsubordinated debt of AAA, AA, A, or BBB as issued by Standard & Poor’s or Aaa, Aa, A or Baa as issued by Moody’s;

2. A ratio of less than 1.5 comparing total liabilities to net worth (net worth calculations may not include future permitted capacity of a subject landfill as an asset); or

3. A ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion, and amortization, minus \$10 million, to total liabilities.

(2) The tangible net worth (excluding future permitted capacity of a subject sanitary landfill) of the owner or operator must be greater than:

1. The sum of the current closure, post-closure care, and corrective action cost estimates, whichever is applicable, and any other environmental obligations, including guarantees covered by a financial test, except as provided in 101.707(5)“a”(2)“2.” For sanitary landfill owners or operators, this sum shall include an additional \$10 million.

2. For sanitary landfill owners or operators, a net worth of \$10 million plus the amount of any guarantees that have not been recognized as liabilities on the financial statements, provided that all of the current closure, post-closure care, and corrective action costs and any

other environmental obligations covered by a financial test are recognized as liabilities on the owner's or operator's audited financial statements and subject to the approval of the department.

(3) The owner or operator must have located in the United States assets (excluding future permitted capacity of a subject sanitary landfill) amounting to at least the sum of current closure, post-closure care, and corrective action cost estimates, whichever is applicable, and any other environmental obligations covered by a financial test as described in 101.707(5) "f."

b. Recordkeeping and reporting requirements. The owner or operator must submit the following records to the department prior to the initial receipt of solid waste or before cancellation of an alternative financial assurance instrument, in the case of closure and post-closure care, or no later than 120 days after the selection of the corrective action remedy.

(1) A letter signed by the owner's or operator's chief financial officer that:

1. Lists all the current cost estimates covered by a financial test, including but not limited to cost estimates required by 567—101.703(455B) through 567—101.706(455B); cost estimates required for municipal solid waste landfills pursuant to 40 CFR Part 258, if applicable; cost estimates required for UIC facilities under 40 CFR Part 144, if applicable; cost estimates required for petroleum underground storage tank facilities under 40 CFR Part 280, if applicable; cost estimates required for PCB storage facilities under 40 CFR Part 761, if applicable; and cost estimates required for hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, if applicable; and

2. Provides evidence demonstrating that the firm meets the conditions of 101.707(5) "a."

(2) A copy of the Iowa-licensed certified public accountant's unqualified opinion of the owner's or operator's financial statements for the latest completed fiscal year. To be eligible to use the financial test, the owner's or operator's financial statements must receive an unqualified opinion from the Iowa-licensed certified public accountant. An adverse opinion

or disclaimer of opinion shall be cause for disallowance of this instrument. A qualified opinion related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance. If the department does not allow use of the corporate financial test, the owner or operator must provide alternative financial assurance that meets the requirements of 567—101.707(455B).

(3) If the chief financial officer's letter providing evidence of financial assurance includes financial data showing that the owner or operator satisfies 101.707(5) "a"(1)"2" or "3" that differs from data in the audited financial statements referred to in 101.707(5) "b"(2) or any other audited financial statement or data filed with the U.S. Securities and Exchange Commission, a special report from the owner's or operator's Iowa-licensed certified public accountant to the owner or operator. The special report shall be based on an agreed-upon procedures engagement in accordance with professional auditing standards and shall describe the procedures performed in comparing the data in the chief financial officer's letter derived from the independently audited year-end financial statements for the latest fiscal year with the amounts in such financial statements, the findings of that comparison, and the reasons for any differences.

(4) If the chief financial officer's letter provides a demonstration that the owner or operator has assured for environmental obligations as provided in 101.707(5) "a"(2)"2," a report from the Iowa-licensed certified public accountant that verifies that all of the environmental obligations covered by a financial test have been recognized as liabilities on the audited financial statements, that documents how these obligations have been measured and reported, and that verifies that the tangible net worth of the owner or operator is at least the amount of any guarantees provided. For sanitary landfill owners or operators, this sum shall include an additional \$10 million.

c. Cease submission of information. The owner or operator may cease the submission of the information required by 101.707(5) only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this division.

d. Financial test. The owner or operator must satisfy the requirements of the financial test at the close of each fiscal year. If the owner or operator no longer meets the requirements of the corporate financial test, the owner or operator must immediately notify the department in writing and, within 90 days following the close of the owner's or operator's fiscal year, obtain alternative financial assurance that meets the requirements of 567—101.707(455B) and submit the financial assurance documentation to the department for approval.

e. Financial condition. The department may, based on a reasonable belief that the owner or operator may no longer meet the requirements of 101.707(5) "a," require at any time the owner or operator to provide reports of its financial condition in addition to, or including, current financial test documentation as specified in 101.707(5) "b." If the department finds that the owner or operator no longer meets the requirements of 101.707(5) "a," the owner or operator must provide alternative financial assurance that meets the requirements of 567—101.707(455B) within 90 days of written notification by the department.

f. Calculation of costs to be assured. When calculating the current cost estimates for closure, post-closure care, corrective action, or the sum of the combination of such costs to be covered, and any other environmental obligations assured by a financial test referred to in 101.707(5), the owner or operator must include cost estimates required for 567—101.703(455B) through 567—101.706(455B) and cost estimates required for the following environmental obligations, if the owner or operator assures them through a financial test: municipal solid waste landfills pursuant to 40 CFR Part 258; UIC facilities under 40 CFR Part 144; petroleum underground storage tank facilities under 40 CFR Part 280; PCB storage

facilities under 40 CFR Part 761; and hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265.

101.707(6) *Local government financial test.* An owner or operator that satisfies the requirements of this subrule may demonstrate financial assurance for closure, post-closure care, and corrective action, whichever is applicable, up to the amount specified below.

a. Financial component.

(1) The local government owner or operator must satisfy one of the following conditions.

1. If the owner or operator has outstanding, rated general obligation bonds that are not secured by insurance, a letter of credit, or other collateral or guarantee, the owner or operator must have a current rating of Aaa, Aa, A, or Baa, as issued by Moody's, or AAA, AA, A, or BBB, as issued by Standard & Poor's, on all such general obligation bonds; or

2. The owner or operator must satisfy both of the following financial ratios based on the owner's or operator's most recent audited annual financial statement: a ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05 and a ratio of annual debt service to total expenditures less than or equal to 0.20.

(2) The owner or operator must prepare its financial statements in conformity with Generally Accepted Accounting Principles or Other Comprehensive Bases of Accounting for governments and have its financial statements audited by an Iowa-licensed certified public accountant or the office of the auditor of the state of Iowa. The financial statement shall be in the form prescribed by the office of the auditor of the state of Iowa.

(3) A local government is not eligible to assure its obligations under 101.707(6) if it:

1. Is currently in default on any outstanding general obligation bonds;
2. Has any outstanding general obligation bonds rated lower than Baa as issued by Moody's or BBB as issued by Standard & Poor's;

3. Operated at a deficit equal to 5 percent or more of total annual revenue in each of the past two fiscal years; or

4. Receives an adverse opinion or disclaimer of opinion from the Iowa-licensed certified public accountant or office of the auditor of the state of Iowa auditing its financial statement as required under 101.707(6)“a”(2). A qualified opinion related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance. If the department does not allow use of the local government financial test, the owner or operator must provide alternative financial assurance that meets the requirements of 567—101.707(455B).

b. Public notice component. The local government owner or operator must include disclosure of the closure and post-closure care costs assured through the financial test in its next comprehensive annual financial report, prior to the initial receipt of solid waste or prior to cancellation of an alternative financial assurance instrument, whichever is later. Disclosure must include the nature and source of closure and post-closure care requirements, the reported liability at the balance sheet date, the estimated total closure and post-closure care cost remaining to be recognized, the percentage of landfill capacity used to date, and the estimated landfill life in years, if applicable. A reference to corrective action costs must be placed in the next comprehensive annual financial report after the selection of the corrective action remedy. For the first year the financial test is used to assure costs at a particular facility, the reference may instead be placed in the facility’s operating record until issuance of the next available comprehensive annual financial report if timing does not permit the reference to be incorporated into the most recently issued comprehensive annual financial report or budget. For closure and post-closure care costs at municipal solid waste sanitary landfills, conformance with Governmental Accounting Standards Board Statement 18 assures compliance with this public notice component.

c. Recordkeeping and reporting requirements.

(1) The local government owner or operator must submit to the department the following items.

1. A letter signed by the local government's chief financial officer that lists all the current cost estimates covered by a financial test, as described in 111.707(6) "d," that provides evidence and certifies that the local government meets the conditions of 101.707(6) "a"(1) through "a"(3) and certifies that the local government meets the conditions of 101.707(6) "b" and "d"; and

2. The local government's independently audited year-end financial statements for the latest fiscal year, including the unqualified opinion of the auditor who must be an Iowa-licensed certified public accountant or the office of the auditor of the state of Iowa. The comprehensive annual financial report shall indicate compliance with the financial ratios required by 101.707(6) "a"(1)"2," if applicable, and the requirements of 101.707(6) "a"(2) and 101.707(6) "a"(3)"3" and "4."

(2) The items required in 101.707(6) "c"(1) must be submitted to the department prior to the initial receipt of solid waste or prior to the cancellation of an alternative financial assurance instrument, in the case of closure and post-closure care, or, in the case of corrective action, not later than 120 days after the selection of the corrective action remedy.

(3) The local government owner or operator may cease the submission of the information required by 101.707(6) only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this division.

(4) The local government owner or operator must satisfy the requirements of the financial test at the close of each fiscal year. If the owner or operator no longer meets the requirements of the local government financial test, the owner or operator must immediately notify the

department in writing and, within 90 days following the close of the owner's or operator's fiscal year, obtain alternative financial assurance that meets the requirements of 567—101.707(455B) and submit the financial assurance documentation to the department for approval.

(5) The department may, based on a reasonable belief that the local government owner or operator may no longer meet the requirements of 101.707(6) "a," require at any time the owner or operator to provide reports of its financial condition in addition to, or including, current financial test documentation as specified in 101.707(6) "c." If the department finds that the owner or operator no longer meets the requirements of 101.707(6) "a," the owner or operator must provide alternative financial assurance that meets the requirements of 567—101.707(455B) within 90 days of written notification by the department.

d. Calculation of costs to be assured. The portion of the closure, post-closure care, and corrective action costs for which an owner or operator may assure under this subrule is determined as follows.

(1) If the local government owner or operator does not assure other environmental obligations through a financial test, the owner or operator may assure closure, post-closure care, and corrective action costs that equal up to 43 percent of the local government's total annual revenue.

(2) If the local government owner or operator assures other environmental obligations through a financial test, including those associated with municipal solid waste landfills pursuant to 40 CFR Part 258; UIC facilities under 40 CFR Part 144.62; petroleum underground storage tank facilities under 40 CFR Part 280; PCB storage facilities under 40 CFR Part 761; and hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, the owner or operator must add those costs to the closure, post-closure

care, and corrective action costs it seeks to assure under this subrule. The total that may be assured must not exceed 43 percent of the local government's total annual revenue.

(3) The owner or operator must obtain an alternative financial assurance instrument for those costs that exceed the limits set in 101.707(6) "d"(1) and "d"(2).

101.707(7) *Corporate guarantee.* An owner or operator that satisfies the requirements of this subrule may demonstrate financial assurance for closure, post-closure care, and corrective action, whichever is applicable, by obtaining a written guarantee.

a. Affiliation. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, a firm whose parent corporation is also the parent corporation of the owner or operator, or a firm with a substantial business relationship with the owner or operator. The guarantor must meet the requirements of the corporate financial test in 101.707(5) and must comply with the terms of the written guarantee. A certified copy of the executed guarantee must be placed in the facility's operating record along with copies of the letter from the guarantor's chief financial officer and the independent certified public accountant's opinion(s). If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter from the guarantor's chief financial officer must describe the value received in consideration of the guarantee. If the guarantor is a firm with a substantial business relationship with the owner or operator, this letter must describe this substantial business relationship and the value received in consideration of the guarantee.

b. Terms of the written guarantee. The guarantee must be effective and all required submissions made to the department prior to the initial receipt of solid waste or before the cancellation of an alternative financial assurance instrument, in the case of closure and post-closure care, or, in the case of corrective action, no later than 120 days after the selection of the corrective action remedy. The guarantee must provide that:

(1) If the owner or operator fails to perform closure, post-closure care, and corrective action of a facility covered by the guarantee, or fails to obtain alternative financial assurance within 90 days of notice of intent to cancel pursuant to 101.707(7) “b”(2) and “b”(3), the guarantor will:

1. Perform, or pay a third party to perform, closure, post-closure care, and corrective action as required (performance guarantee); or

2. Establish a fully funded trust fund as specified in 101.707(1) in the name of the owner or operator (payment guarantee).

(2) The guarantee will remain in force for as long as the owner or operator must comply with the applicable financial assurance requirements of this division unless the guarantor sends prior notice of cancellation by certified mail to the owner or operator and to the department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the department, as evidenced by the return receipts.

(3) If notice of cancellation is given, the owner or operator must, within 90 days following receipt of the cancellation notice by the owner or operator and the department, provide to the department adequate proof of alternative financial assurance, notice from the guarantor of withdrawal of the cancellation, or proof of a deposit into a trust fund pursuant to 101.707(1) of a sum equal to the amount of the corporate guarantee. If the owner or operator fails to comply with the requirements of this subparagraph within the 90-day period, the guarantor must provide that alternative financial assurance prior to cancellation of the corporate guarantee.

c. Recordkeeping and reporting requirements.

(1) The owner or operator must submit to the department a certified copy of the executed guarantee along with the items required under 101.707(5) “b.”

(2) The owner or operator shall no longer be required to submit the items specified in 101.707(7)“c”(1) when proof of alternative financial assurance has been submitted to the department or the owner or operator is no longer required to demonstrate financial responsibility in accordance with this division.

(3) If a corporate guarantor no longer meets the requirements of 101.707(5), the owner or operator must immediately notify the department in writing and, within 90 days of notification, submit to the department proof of alternative financial assurance. If the owner or operator fails to obtain alternative financial assurance within the 90-day time period, the guarantor must provide that alternative financial assurance within the next 30 days.

101.707(8) *Local government guarantee.* An owner or operator that satisfies the requirements of this subrule may demonstrate financial assurance for closure, post-closure care, and corrective action, whichever is applicable, by obtaining a written guarantee provided by a local government or jointly provided by the members of an agency established pursuant to Iowa Code chapter 28E.

a. Financial component. The guarantor must meet the requirements of the local government financial test in 101.707(6) and must comply with the terms of the written guarantee.

b. Terms of the written guarantee. The guarantee must be effective and all required submissions made to the department prior to the initial receipt of solid waste or before the cancellation of an alternative financial assurance instrument, in the case of closure and post-closure care, or, in the case of corrective action, no later than 120 days after the selection of the corrective action remedy. The guarantee must provide that:

(1) If the owner or operator fails to perform closure, post-closure care, and corrective action of a facility covered by the guarantee, or fails to obtain alternative financial assurance

within 90 days of notice of intent to cancel pursuant to 101.707(8) “b”(2) and “b”(3), the guarantor will:

1. Perform, or pay a third party to perform, closure, post-closure care, and corrective action as required (performance guarantee); or

2. Establish a fully funded trust fund as specified in 101.707(1) in the name of the owner or operator (payment guarantee).

(2) The guarantee will remain in force for as long as the owner or operator must comply with the applicable financial assurance requirements of this division unless the guarantor sends prior notice of cancellation by certified mail to the owner or operator and to the department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the department, as evidenced by the return receipts.

(3) If notice of cancellation is given, the owner or operator must, within 90 days following receipt of the cancellation notice by the owner or operator and the department, provide to the department adequate proof of alternative financial assurance, notice from the guarantor of withdrawal of the cancellation, or proof of a deposit into a trust fund pursuant to 101.707(1) of a sum equal to the amount of the local government guarantee. If the owner or operator fails to comply with the requirements of this subparagraph within the 90-day period, the guarantor must provide that alternative financial assurance prior to cancellation of the local government guarantee.

c. Recordkeeping and reporting requirements.

(1) The owner or operator must submit to the department a certified copy of the executed guarantee along with the items required under 101.707(6) “c.”

(2) The owner or operator shall no longer be required to submit the items specified in 101.707(8) “c”(1) when proof of alternative financial assurance has been submitted to the

department or the owner or operator is no longer required to demonstrate financial responsibility in accordance with this division.

(3) If a local government guarantor no longer meets the requirements of 101.707(6), the owner or operator must immediately notify the department in writing and, within 90 days of notification, submit to the department proof of alternative financial assurance. If the owner or operator fails to obtain alternative financial assurance within the 90-day period, the guarantor must provide that alternative financial assurance within the next 30 days.

101.707(9) *Local government dedicated fund.*

a. The owner or operator of a publicly owned sanitary disposal project, or local government serving as a guarantor, may demonstrate financial assurance for closure, post-closure care, and corrective action, whichever is applicable, by establishing a dedicated fund that conforms to the requirements of this subrule. The owner or operator must submit to the department a copy of the executed local government dedicated fund agreement.

b. The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, resolution, or order to pay for closure, post-closure care and corrective action, whichever is applicable, arising from the operation of the sanitary disposal project, and shall be funded for the full amount of coverage or funded for part of the required amount of coverage and used in combination with another instrument(s) that provides the remaining coverage.

c. For a local government dedicated fund used to demonstrate financial assurance for proper closure at a sanitary disposal project that is not sanitary landfill, there is no pay-in period as defined in 101.707(9) "d." Instead, the local government dedicated fund shall be in an amount equal to or greater than the amount specified in 101.703(3).

d. Payments into the local government dedicated fund must be made annually by the owner or operator over ten years or over the remaining permitted life of the sanitary landfill,

whichever is shorter, in the case of a dedicated fund for closure and post-closure care or over one-half of the estimated length of the corrective action remedy in the case of a response to a known release. This period is referred to as the “pay-in period.”

e. For a local government dedicated fund used to demonstrate financial assurance for closure and post-closure care at a sanitary landfill, the first payment into the dedicated fund must be at least equal to the amount specified in 567—101.710(455B) for closure and post-closure care, divided by the number of years in the pay-in period, as defined in 101.707(9) “*d.*” The amount of subsequent payments must be determined by the following formula:

$$\text{Next Payment} = \frac{\text{CE} - \text{B}}{\text{Y}}$$

Where:

“CE” is the amount specified in 567—101.710(455B) for closure and post-closure care (updated for inflation or other changes).

“B” is the balance of the dedicated fund at the close of the previous fiscal year.

“Y” is the number of years remaining in the pay-in period.

f. Unless otherwise authorized by the department, for a local government dedicated fund used to demonstrate financial assurance for corrective action at a sanitary landfill, the first payment into the dedicated fund must be at least equal to one-half of the amount specified in 101.706(1) for corrective action, divided by the number of years in the corrective action pay-in period, as defined in 101.707(9) “*d.*” The amount of subsequent payments must be determined by the following formula:

$$\text{Next Payment} = \frac{\text{RB} - \text{V}}{\text{Y}}$$

Where:

“RB” is the most recent estimate of the required dedicated fund balance for corrective action.

“V” is the value of the dedicated fund at the close of the previous fiscal year.

“Y” is the number of years remaining in the pay-in period.

g. The initial payment into the local government dedicated fund must be made prior to the initial receipt of solid waste at a sanitary landfill or before the cancellation of an alternative financial assurance instrument, in the case of closure and post-closure care, or no later than 120 days after the selection of the corrective action remedy.

h. After the pay-in period has been completed for a sanitary landfill, the dedicated fund shall be adjusted annually to correct any deficiency of the dedicated fund with respect to the updated cost estimates and may be adjusted annually should the balance in the dedicated fund exceed the updated cost estimates.

i. The local government dedicated fund may be terminated by the owner or operator only if the owner or operator substitutes alternative financial assurance as specified in this rule or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this division.

567—101.708(455B) General requirements.

101.708(1) *Use of multiple financial assurance instruments.* An owner or operator may satisfy the requirements of this division by establishing more than one financial assurance instrument per facility, except that instruments guaranteeing performance rather than payment may not be combined with other instruments. The instruments must be a combination of those instruments outlined in 567—101.707(455B) and 101.709(455B) and must provide financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care, and corrective action, whichever is applicable. The financial test and a guarantee provided by a corporate parent, sibling, or grandparent may not be combined if the financial statements if the two entities are consolidated.

101.708(2) *Use of one financial assurance instrument for multiple facilities.* An owner or operator may satisfy the requirements of this division for multiple sanitary disposal projects by the use of one instrument if the owner or operator ensures that the instrument provides financial assurance for an amount at least equal to the current cost estimates for closure, post-closure care, and corrective action, whichever is applicable, for all sanitary disposal projects covered. Evidence of financial assurance submitted to the department shall include, for each sanitary disposal project, the name, address, and permit number and the amount of funds for closure, post-closure care, and corrective action assured by the instrument.

101.708(3) *Criteria.* The language of the financial assurance instruments listed in ~~567—~~101.707(455B) must ensure that the instruments satisfy the following criteria.

a. The financial assurance instrument must ensure that the amount of funds assured is sufficient to cover the costs of closure, post-closure care, and corrective action for known releases, whichever is applicable;

b. The financial assurance instrument must ensure that funds will be available in a timely fashion, not to exceed three months from department notification, when needed;

c. The financial assurance instrument must be obtained by the owner or operator prior to the initial receipt of solid waste, in the case of closure and post-closure care, or, in the case of corrective action, no later than 120 days after the selection of the corrective action remedy, until the owner or operator is released from the financial assurance requirements; and

d. The financial assurance instrument must be legally valid, binding, and enforceable under Iowa law.

101.708(4) *No permit without financial assurance.* The department shall not issue or renew a permit to an owner or operator of a sanitary disposal project pursuant to Iowa Code section 455B.305 until a financial assurance instrument(s) has been submitted to and approved

by the department. The department may request that additional information be submitted for review to make a financial assurance compliance decision.

101.708(5) *Request for payment.* The department may request payment from any financial assurance provider for the purpose of completing site closure, post-closure care, and corrective action, whichever is applicable, when the owner or operator declares an economic inability to comply with this division either by sending written notification to the department or through an action such as but not limited to filing for bankruptcy.

101.708(6) *Financial assurance cancellation and permit suspension.*

a. A financial assurance instrument may be terminated by the owner or operator only if the owner or operator substitutes alternative financial assurance, as specified in ~~567—~~ 101.707(455B), prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this division.

b. A financial assurance instrument shall be continuous in nature until canceled by the financial assurance provider or until the department gives written notification to the owner or operator and the financial assurance provider that the covered site has demonstrated compliance with the sanitary disposal project's applicable closure, post-closure care, and corrective action requirements. The financial assurance provider shall give at least 120 days' notice in writing to the owner or operator and to the department in the event of any intent to cancel a financial assurance instrument.

c. Within 90 days of receipt of a written notice of cancellation of a financial assurance instrument, the owner or operator must provide the department with proof of alternative financial assurance or a notice from the issuing institution of withdrawal of the cancellation. If a means of continued financial assurance is not provided within the 90-day time frame, the department shall suspend the permit and call upon the financial assurance instrument(s) prior to the expiration of the 120-day notice period.

567—101.709(455B) Closure and post-closure care account(s). Except as provided in 101.709(10), the holder of a permit for a sanitary landfill shall maintain the closure and post-closure care account(s) as part of financial assurance pursuant to Iowa Code section 455B.306(9) “b.” The accounts shall be specific to a particular facility.

101.709(1) Money in the accounts shall not be assigned for the benefit of creditors, except the state of Iowa.

101.709(2) Money in the accounts shall not be used to pay any final judgment against a permit holder arising out of the ownership or operation of the site during its active life or after closure.

101.709(3) Withdrawal of funds. Except as provided in 101.709(4), money in the accounts may be withdrawn without departmental approval only for the purpose of funding closure, including partial closure, or post-closure care activities that are in conformance with the sanitary landfill’s approved closure and post-closure plans. Withdrawals for activities not in conformance with the approved closure and post-closure plans must receive prior written approval from the department. Permit holders using a trust fund established pursuant to 101.707(1) to satisfy the requirements of this rule must comply with the requirements of 101.707(1) “g” prior to withdrawal.

101.709(4) Excess funds. If the balance of the closure and post-closure care account(s) exceeds the current cost estimate for closure or post-closure care at any time, the permit holder may withdraw the excess funds so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

101.709(5) Proof of establishment of account. A permit holder shall, on a form prescribed by the department, at the time of permit application and renewal, submit a statement of account signed by the permit holder, which indicates that accounts have been established pursuant to 567—101.709(455B).

101.709(6) An account established pursuant to 101.707(1) for a trust fund or 101.707(9) for a local government dedicated fund satisfies the requirements of rule 567—101.709(455B), and the account must comply with Iowa Code section 455B.306(9) “b.”

101.709(7) Yearly deposits. Unless otherwise authorized by the department or provided for within this division (i.e., trust fund or local government dedicated fund deposit calculation), deposits into the closure and post-closure care account(s) shall be made yearly in the amount specified in this subrule by the close of the permitted facility’s fiscal year. The closure and post-closure care account(s) shall be fully funded at the time of site closure. For active sanitary landfills not using a trust fund or local government dedicated fund as the sole financial assurance instrument, the minimum yearly deposit to the closure and post-closure care account(s) shall be determined using the following formula:

$$\frac{\text{CE} - \text{AB}}{\text{RPC}} \times \text{TR} = \text{Yearly Deposit}$$

Where:

“CE” is the current cost estimate of closure and post-closure care costs.

“AB” is the balance of the closure and post-closure care account(s) at the close of the previous fiscal year.

“RPC” is the remaining permitted capacity, in tons, of the sanitary landfill as of the start of the permit holder’s fiscal year. RPC may include those areas that have yet to be constructed but have received written design approval from the department. Justification for RPC calculations shall be submitted annually pursuant to 567—101.704(455B) and 567—101.705(455B).

“TR” is the number of tons of solid waste disposed of at the site in the permit holder’s prior fiscal year.

For closed landfills, the closure and post-closure care account(s) shall remain fully funded throughout the post-closure period. Any account balance deficiency shall be rectified by the end of the permitted facility's fiscal year in which the account balance deficiency was identified.

101.709(8) The closure and post-closure care account(s) may be commingled with other accounts so long as the amounts credited to each account balance are reported separately, pursuant to 101.704(1) and 101.705(1).

101.709(9) The department shall have full rights of access to all funds existing in a permitted facility's closure and post-closure care account(s), at the sole discretion of the department, if the permit holder fails to undertake closure and post-closure care activities after being directed to do so by a final agency action of the department. These funds shall be used only for the purposes of funding closure and post-closure care activities at the site.

101.709(10) Pursuant to Iowa Code section 455B.306(12), a sanitary landfill owned by an electric generating facility and used exclusively for the disposal of coal combustion residual shall not be required to maintain a closure and post-closure care account(s) but may demonstrate financial assurance in accordance with this division by any of the instruments described in 567—101.707(455B) or by an alternative method acceptable to the department.

101.709(11) Pursuant to Iowa Code section 455B.306(9) "b," industrial sanitary landfills permitted pursuant to Division III of this chapter and non-utility coal combustion residual sanitary landfills permitted pursuant to Division IV of this chapter prior to [the effective date of this rule], and for which closure and post-closure accounts have not been established pursuant to 101.709(5), shall submit proof of establishment within six months of the [the effective date of this rule].

567—101.710(455B) Amount of required financial assurance. A financial assurance instrument established pursuant to and in compliance with 567—101.707(455B) or 567—

101.709(455B), if applicable, shall be in the amount of the third-party cost estimates required by 567—101.703(455B) through 567—101.706(455B). With regard to sanitary landfills, the amount of financial assurance may be reduced by the sum of the cash balance in a trust fund or local government dedicated fund established to comply with 567—101.709(455B), plus the current value of investments held by said trust fund or local government dedicated fund, if invested in one or more of the investments listed in Iowa Code section 12B.10(5).

567—101.711(17A,455A) Waivers. A request for a waiver to this division shall be submitted to the department in writing pursuant to 561—Chapter 10. Some provisions of this division are minimum standards required by federal law (40 CFR Part 258, Subpart G), and waivers to such provisions shall not be granted unless they are as protective as the applicable minimum federal standard.

These rules are intended to implement Iowa Code sections 455B.304(8) and 455B.306(9).

ITEM 2. Rescind and reserve **567—Chapter 106**.

ITEM 3. Rescind and reserve **567—Chapter 113**.

ITEM 4. Rescind and reserve **567—Chapter 114**.

ITEM 5. Rescind and reserve **567—Chapter 115**.

Iowa Department of Natural Resources
Environmental Protection Commission

Decision Item

17. Chapters 102 “Permits and Rules of Practice”; 108, Beneficial Use Determinations: Solid By-Products as Resources and Alternative Cover Material”; 116 “Registration of Waste Tire Haulers”, 117 “Waste Tire Management”, 118 “Discarded Appliance Demanufacturing”, 120 “Landfarming of Petroleum Contaminated Soil”, 121 “Land Application of Wastes”, and 122 “Cathode Ray Tube Recycling” – Amended Notice of Intended Action

The Commission is requested to approve the Amended Notice of Intended Action for Chapters 102, 108, 116, 117, 118, 120, 121, and 122. It proposes to rescind chapters 108, 116, 117, 118, 120, 121, and 122 and to rescind and replace chapter 102 with a new consolidated chapter titled “Solid Waste Management.”

The original Notice of Intended Action for this proposed rulemaking was published on January 7, 2026, as a result of the Land Quality Bureau’s Executive Order 10 rule review, and as approved by the Commission. On internal review of applicable law after public comments were received, the DNR has determined it is not appropriate to have regulations related to the composting of dead animals. As such, the DNR is proposing to remove the provisions related to dead animal composting, except to the extent necessary to ensure effective regulation of other organic materials. The DNR, therefore, requests the Commission amend the Notice of Intended Action to ensure all interested parties have the opportunity to comment on the proposed rules.

Amie Davidson, Division Administrator
Environmental Services Division
Meeting Date: May 20, 2026

Attached: Chapters 102, 108, 116, 117, 118, 120, 121, and 122 – Amended NOIA

ENVIRONMENTAL PROTECTION COMMISSION [567]

Amended Notice of Intended Action

The Environmental Protection Commission (Commission) hereby proposes to rescind Chapter 102, “Permits and Rules of Practice”; to adopt a new Chapter 102, “Solid Waste Management”; and to rescind Chapter 108, “Beneficial Use Determinations: Solid By-Products as Resources and Alternative Cover Material,” Chapter 116, “Registration of Waste Tire Haulers,” Chapter 117, “Waste Tire Management,” Chapter 118, “Discarded Appliance Demanufacturing,” Chapter 120, “Landfarming of Petroleum Contaminated Soil,” Chapter 121, “Land Application of Wastes,” and Chapter 122, “Cathode Ray Tube Recycling,” Iowa Administrative Code.

Legal Authority for Rulemaking

This rulemaking is proposed under the authority provided in Iowa Code sections 455B.173, 455B.304, 455B.383, 455D.6, 455D.9, 455D.11 and 455D.11I.

State or Federal Law Implemented

This rulemaking implements, in whole or in part, Iowa Code chapters 9 and 455D and sections 455B.173, 455B.301A, 455B.304, 455B.383, 455D.6, 455D.11 to 455D.11B and 455D.11I.

Purpose and Summary

Existing Chapters 105, 108, 109, 116, 117, 118, 120, 121, and 122 were reviewed consistent with Executive Order 10 (2023). Proposed Chapter 102 consolidates these nine chapters related to the management of solid waste through means other than sanitary disposal projects. No new programs are being proposed. All content from the original chapters was reviewed consistent with Executive Order 10 and has been revised for clarity. Obsolete, redundant, or unneeded language

was removed. The proposed chapter will contain eight divisions, with summaries and purposes as follows:

Division I—Organic Materials Compost Facilities: This repromulgation of current 567—Chapter 105 ensures that composting is done in a way that produces a usable final product, does not cause a nuisance for neighbors, and prevents contamination to surface and ground water. This new chapter proposes a tiered approach to composting, based on both volume and type of material being composted. This will allow some smaller compost facilities that currently have an individual permit to instead operate under a permit-by-rule. It will also allow some compost facilities to accept limited amounts of food waste that they are currently unable to accept.

Division II—Land Application of Waste: This repromulgation of current 567—Chapter 121 allows for industrial sludge and certain solid wastes to be applied to farmland as a means of disposal. The revised chapter provides clarity and omits unneeded language.

Division III—Landfarming of Petroleum Contaminated Soil: This repromulgation of current 567—Chapter 120 establishes rules for the safe and effective remediation and disposal of petroleum contaminated soil (PCS) through landfarming.

Division IV—Beneficial Use: This repromulgation of current 567—Chapter 108 encourages the use of solid by-products when such utilization improves, or at a minimum does not adversely affect, human health and the environment. Regulations for solid by-products utilized in the manufacture of a commercial product will not be repromulgated since they are considered a raw commodity used in a manufacturing process for which the Commission has no regulatory oversight.

Division V—Waste Tire Management: This repromulgation of current 567—Chapters 116 and 117 establishes guidelines for the proper management of waste tires, including collection,

hauling, storage, processing, disposal, and beneficial reuse of waste tires and processed waste tire materials.

Division VI—Special Waste Authorizations: This repromulgation of current 567—Chapter 109 provides safe and proper management for disposal of wastes that present a threat to human health or the environment or waste with inherent properties that make the disposal of the waste in a municipal solid waste landfill difficult to manage.

Division VII—Discarded Appliance Demanufacturing: This repromulgation of current 567—Chapter 118 ensures that hazardous materials found in appliances are managed in a way that protects human health and the environment when the appliances are recycled or discarded.

Division VIII—Cathode Ray Tube Recycling: This repromulgation of current 567—Chapter 122 implements rules for the recycling of discarded cathode ray tubes (CRTs) and the disassembly and removal of toxic parts from discarded CRTs in a manner that is safe for human health and the environment.

Reason for Amendment of Notice of Intended Action

Notice of Intended Action was published in the Iowa Administrative Bulletin on January 7, 2026, as **ARC 9926C**. During the public comment period, the Department, on behalf of the Commission, received comments questioning the stringency of the proposed rules as they related to the composting of dead animals. These comments prompted a review of the Commission's statutory jurisdiction over the disposal of dead animals. The Commission has determined the legislature did not intend for the Department to regulate the disposal of dead animals as solid waste. See IOWA CODE § 159.6(5) and Iowa Code Chapter 167; see also *Pet Memories vs. DNR*, CVCV035362 (Cedar, 2015). Therefore, the Commission is proposing to remove the provisions of this rule related to the composting of dead animals, except to the extent necessary to ensure the

Department retains regulatory oversight over the composting of other organic matter. The Commission also determined this change is substantial enough from the original proposed rule to amend the Notice and provide additional opportunity for public comment on this proposed amendment.

Fiscal Impact

This rulemaking has no fiscal impact to the State of Iowa.

Jobs Impact

After analysis and review of this rulemaking, no impact on jobs has been found.

Waivers

Any person who believes that the application of the discretionary provisions of this rulemaking would result in hardship or injustice to that person may petition the Commission for a waiver of the discretionary provisions, if any, pursuant to 567—Chapter 13.

Public Comment

Any interested person may submit written comments concerning this proposed rulemaking. Written comments in response to this rulemaking must be received by the Department no later than 4:30 p.m. on July 1, 2026. Comments should be directed to:

Mike Sullivan

Iowa Department of Natural Resources

6200 Park Avenue, Suite 200

Des Moines, Iowa 50321

Email: EO10_solidwaste@dnr.iowa.gov

Free language access: If you speak a non-English language, the Department offers language assistance services free of charge. Contact the Department at EO10_solidwaste@dnr.iowa.gov.

Asistencia lingüística gratuita: Si habla un idioma que no sea el inglés, los servicios de asistencia lingüística están disponibles de forma gratuita, comuníquese con el Departamento al EO10_solidwaste@dnr.iowa.gov.

Public Hearing

A public hearing at which persons may present their views orally or in writing will be held as follows:

June 30, 2026	Virtual Meeting (via Zoom)
1 p.m.	https://us02web.zoom.us/j/84398912479
	Meeting ID: 843 9891 2479
July 1, 2026	Virtual Meeting (via Zoom)
9 a.m.	https://us02web.zoom.us/j/85445302938
	Meeting ID: 854 4530 2938

Additionally, persons who wish to make a public comment may be asked to state their names for the record and to confine their remarks to the subject of this proposed rulemaking. Any persons who intend to attend a hearing and have special requirements, such as those related to hearing or mobility impairments, should contact the Department and advise of specific needs.

Free language assistance: If you need assistance in a language other than English, contact the Department at EO10_solidwaste@dnr.iowa.gov or civilrights@dnr.iowa.gov or by telephone at 515.360.1671 at least seven days before the event.

Asistencia lingüística gratuita: Si necesita ayuda en un idioma que no sea inglés, comuníquese con el Departamento al EO10_solidwaste@dnr.iowa.gov o civilrights@dnr.iowa.gov o por teléfono a 515.360.1671 al menos siete días antes del evento.

Review by Administrative Rules Review Committee

The Administrative Rules Review Committee, a bipartisan legislative committee which oversees rulemaking by executive branch agencies, may, on its own motion or on written request by any individual or group, review this rulemaking at its regular monthly meeting or at a special meeting. The Committee's meetings are open to the public, and interested persons may be heard as provided in Iowa Code section 17A.8(6).

The following rulemaking action is proposed:

ITEM 1. Rescind 567—Chapter 102 and adopt the following **new** chapter in lieu thereof:

CHAPTER 102

SOLID WASTE MANAGEMENT

DIVISION I

ORGANIC MATERIALS COMPOSTING FACILITIES

567—102.1(455D) Applicability; compliance. This division shall apply to the composting of organic material, including yard wastes. Composting facilities may include turned windrows, aerated static piles, aerated in-vessel systems, or other methods approved by the department. This division does not apply to agricultural waste composted under 567—Chapter 65, dead animals and raw rendering material disposed under the authority of the Department of Agriculture and Land Stewardship (IDALS), materials managed under Iowa Code chapter 200A (bulk dry animal nutrient products), or to the sale or distribution of finished compost covered in Iowa Code chapter 200.

102.1(1) Compliance with this division in no way relieves the compost facility of the responsibility of complying with all other local, state, or federal statutes, ordinances, and rules and other applicable requirements.

102.1(2) For purposes of this division, tonnages may be calculated by multiplying cubic yardage by bulk density.

102.1(3) All rules, standards, technical guidance, and other similar legal or technical documents referenced in this division shall be the version of those documents in effect on August 1, 2025, unless otherwise noted in these rules, and except for references to the Iowa Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

567—102.2(455D) Definitions incorporated by reference. The definitions in Iowa Code sections 455B.301 and 455D.9 and in 567—Chapter 100 shall apply to Division I of this chapter.

567—102.3(455D) Feedstock categories. Compost feedstock are categorized as follows.

102.3(1) *Type A feedstocks.* Type A feedstocks include yard waste, clean wood waste, crop residues, and other vegetative materials determined to pose a low level of risk to human health and the environment, including from physical contaminants and human pathogens.

102.3(2) *Type B feedstocks.* Type B feedstocks include source-separated pre- and postconsumer food residuals; food processing residuals; dead animals; raw rendering material; certified compostable products; and animal excreta, manure, animal bedding and litter not regulated under 567—Chapter 65. Type B feedstocks are materials that the department determines pose a moderate level of risk to human health and the environment or have a higher level of risk from physical contaminants and human pathogens compared to Type A feedstocks.

102.3(3) *Type C feedstocks.* Type C feedstocks include industrial process waste, sludges, biosolids, diapers, solid or semi-solid material from composting toilets, and industrial by-products not covered in Type B feedstocks. Type C feedstocks consist of materials the

department determines pose a higher level of risk to human health and the environment from physical and chemical contaminants and human pathogens compared to Type A and B feedstocks.

102.3(4) *Materials prohibited from use as a feedstock.* Materials prohibited from use as a feedstock include asbestos-containing material, biomedical wastes, infectious waste, human remains, petroleum-containing wastes, seed treated with pesticide and industrial waste derived from seed treated with pesticides, toxic wastes as defined in 567—109.3(455B,455D), radiological wastes, hazardous wastes as defined in Iowa Code section 455B.411, materials containing metals that exceed the concentrations listed in 102.9(5) “b,” and materials that have direct process stream contact with or originate from a process that may release petroleum products, organic solvents, pesticides, or polychlorinated biphenyls (PCBs).

567—102.4(455D) Exemptions. The following activities are exempt from this division. These exemptions are not a defense to a nuisance action brought pursuant to Iowa Code chapter 657.

102.4(1) Type A or Type B, or both, feedstocks from a single household composted on site by the owner or tenant for use at the owner’s or tenant’s residence.

102.4(2) Composting of up to two tons per year of Type A feedstock or Type B feedstock, or both, excluding dead animals, singly or in combination, used on the same premises where it was composted. The feedstock may be generated off premises.

102.4(3) Composting of agricultural waste that is subject to 567—Chapter 65 combined with clean wood waste, straw, or cornstalks that is necessary as a bulking agent and that is free of coatings and preservatives. If agricultural waste is mixed with other wastes, for the purpose of composting, then this division shall apply.

102.4(4) Composting of dead animals with necessary amount of clean wood, dry poultry litter, or other bulking agent. If dead animals are mixed with other wastes for the purpose of composting, then this division shall apply.

567—102.5(455D) General requirements for all composting activities not exempt. Any composting facility that is not exempt under 567—102.4(455D) must comply with the following provisions.

102.5(1) *Siting requirements.*

a. The composting facility shall be located:

(1) At least 500 feet from any existing inhabited residence, not including the residence of a person owning or operating the compost facility, at the time the permit application was received by the department.

(2) At least 200 feet from public wells.

(3) At least 100 feet from private wells.

(4) At least 50 feet from property lines.

(5) At least 100 feet from flowing or intermittent streams, lakes, or ponds.

(6) Outside of wetlands.

b. Composting done within a 100-year floodplain shall be in accordance with all local and department regulations, including 567—71.5(455B). Sediment ponds, engineered wetlands, or other constructed waterways for the purpose of pollution control are excluded from this subrule.

102.5(2) *Design requirements.*

a. Water shall be prevented from running onto the composting facility from adjacent land.

b. Management or disposal of contact water and stormwater shall be in accordance with 567—Chapter 60 if applicable.

c. Composting facilities shall be designed, constructed, and maintained so as to minimize ponding of water or liquids. Any ponding that does occur shall be corrected through routine facility maintenance within 48 hours after the termination of the event causing the ponding.

d. Composting not done in-vessel shall be done on a surface that will permit accessibility during periods of inclement weather. The receiving, processing, production, and curing shall take place on a surface of asphalt, concrete, compacted granular aggregate, clay, or similar relatively impermeable material. Composting facilities that only compost Type A feedstocks may have a surface of compacted soil. The surface must be maintained in a condition that prevents infiltration to the groundwater.

e. In-vessel composting shall be done in a container that does not leak, prevents access by vectors, and provides adequate aeration.

f. With the exception of in-vessel composting, the high-water table shall be at least 12 inches below the ground surface.

102.5(3) *Operational requirements.* Composting facilities shall be operated as follows.

a. Aerobic conditions shall be maintained.

b. Composting facilities shall be free of unsecured trash at the end of each operating day.

c. Non-compostable waste shall be removed or stored in a container or containment area and recycled or disposed of at a permitted sanitary disposal project.

d. Organic materials shall be managed to minimize odors, dust, noise, litter, contact water, fire and scavenging by vectors.

e. Composting shall be performed in a manner that minimizes the formation of contact water.

f. Storage of cured compost shall be limited to 18 months unless prior written approval from the department is granted for an extension.

g. Compost shall not be applied to land, sold, or given away unless all of the following conditions are met:

(1) Concentration of human-made inert materials such as glass, metal, and plastic is less than 1.5 percent by dry weight,

(2) The size of any human-made inert materials is less than 13 mm (0.512 inches).

h. Finished compost that contains bones that have not fully decomposed may be applied to cropland.

567—102.6(455D) Tier 1 composting facility. A Tier 1 facility is a compost facility that composts an unlimited amount of Type A, Type B, or both feedstocks generated on the premises and up to a total of 250 tons per year of Type A, Type B, or both feedstocks generated off site.

567—102.7(455D) Tier 2 composting facility. A Tier 2 facility is a compost facility that composts an unlimited amount of Type A feedstock generated on premises, off premises, or both; an unlimited amount of Type B feedstocks generated on the premises; and up to 250 tons per year of Type B feedstocks generated off the premises. Tier 2 facilities are subject to the following provisions.

102.7(1) Before the composting facility commences operation, the facility's operator must notify the department in writing of the following:

- a.* The location of the composting facility.
- b.* The legal description of the property that contains the facility.
- c.* The landowner's name, telephone number, email and mailing address.

d. The name, telephone number, and email and mailing addresses of the facility's operator and responsible official.

e. The maximum throughput and capacity of the facility.

f. The method of composting to be employed at the facility.

g. The source of the feedstock.

h. Aerial photography identifying wells, streams, creeks, rivers, ponds, sinkholes, and drainage wells within one-half mile of the closest portion of the facility.

102.7(2) The facility's feedstock receiving, processing, and storage areas must be clearly defined.

102.7(3) An annual report for the previous fiscal year beginning July 1 and ending June 30 shall be submitted to the department by July 31 of each year. The annual report shall be submitted using a form prescribed by the department. The report shall include:

a. Confirm that the amount and type of feedstock accepted was within the criteria for a Tier 2 facility.

b. Method of composting used.

c. Tons of finished compost sold, given away, or used by the permit holder.

d. Name of certified operator

102.7(4) Beginning [one year following the effective date of this rule], the person responsible for daily operations shall be a certified compost operator as described in 567—102.11(455D).

567—102.8(455D) Tier 3 composting facilities. A Tier 3 composting facility is a compost facility that composts an unlimited amount of Type A feedstock generated on or off the premises, an unlimited amount of type B feedstock generated on the premises, and up to 1,000

tons per year type B feedstock generated off premises. Tier 3 facilities shall comply with the following provisions.

102.8(1) *Notification.* Before the composting facility commences operation, the department shall be notified in writing of the following.

- a. The location of the composting facility.
- b. Legal description of the facility.
- c. Landowner's name, telephone number, email, and mailing address.
- d. Responsible party's name, telephone number, email, and mailing address.
- e. Maximum throughput and capacity.
- f. Method of composting to be employed.
- g. Source of the feedstock.
- h. Aerial photograph identifying wells, streams, creeks, rivers, ponds, sinkholes, and drainage wells within one-half mile of the closest portion of the facility.

102.8(2) *Operational requirements.* In addition to the operational requirements in 102.5(4), Tier 3 composting facilities shall meet the following operational standards:

- a. Tier 3 composting facilities must develop and follow an operations plan that describes operational procedures. This includes the method of composting; measures to control nuisance odors, vectors, fires, contact water, and stormwater; and plans for using or marketing finished compost. The operations plan must be reviewed annually and updated when there is a change to procedures, equipment, or feedstocks being processed. The operations plan shall be available to the department upon request.
- b. The person responsible for daily operation of the facility shall be certified by a department-approved training program.

c. Feedstocks with free liquid shall be mixed with drier feedstocks, bulking material, or compost so that the liquid is promptly absorbed and not allowed to flow as free liquid from the compost piles or windrows. Free liquid that is not absorbed shall be managed as contact water.

d. Contact water shall be directed to a containment, recycling, treatment system, or any combination of the three.

e. By the end of each operating day, all incoming Type B feedstocks must be processed into the active composting pile, transferred to leak-proof containment, or mixed with bulking material and covered in a manner that minimizes nuisance odors and scavenging by vectors.

f. Beginning [one year following the effective date of this rule], the person responsible for daily operations shall be a certified compost operator as described in 567—102.11(455D).

102.8(3) Reporting. An annual report for the previous fiscal year beginning July 1 and ending June 30 shall be submitted to the department by July 31 of each year. The report shall be submitted using a form prescribed by the department. The report shall include:

a. Confirmation that the amount and type of feedstock accepted was within the criteria for a Tier 3 facility.

b. Method of composting used.

c. Tons of finished compost sold, given away or used by the permit holder.

d. Name of certified operator.

567—102.9(455D) Tier 4 composting facility. A Tier 4 composting facility is a compost facility that composts any amount of Type A, B, and C feedstock. Tier 4 facilities shall comply with the provisions of this rule.

102.9(1) Permit required. Tier 4 composting facilities shall not be operated without a permit from the department as described in 567—subrule 100.4(2). A permit application shall

be on a form prescribed by the department and include the following in addition to the requirements in 567—subrule 100.5(1):

- a.* Aerial photography identifying wells, streams, creeks, rivers, ponds, sinkholes, and drainage wells within one-half mile of the closest portion of the facility.
- b.* Design documents prepared by an Iowa-licensed professional engineer that include the following:
 - (1) Dimensions, details, and capacities of the proposed receiving, processing, production, curing, and storage areas, as well as the contact water containment, recycling, or treatment system.
 - (2) Design calculations justifying the size of the composting area for the volume of material to be composted.
 - (3) Design plans showing compliance with design requirements in 102.9(3).
- c.* A stormwater management plan that prevents run-on to the operating base, as well as controls outside of the operating base for a 25-year 24-hour storm event.
- d.* A flow diagram of all steps in the operational procedure.
- e.* An operations plan addressing the following:
 - (1) The method of composting, including description of the aeration method and the aeration frequency to be used to maintain aerobic conditions.
 - (2) The duration of composting with a time frame for receiving, processing, production, curing, and storage.
 - (3) A description of storage of feedstock, including quantity and types.
 - (4) A description of the methods to minimize and manage odors, dust, vectors, noise, and litter.

(5) A description of the specific procedures to be followed in case of equipment breakdown, maintenance downtime, and fire in equipment, composting material, or buildings, including methods to be used to remove or dispose of accumulated waste and burned or damaged material.

(6) Plans for using or marketing the finished compost.

(7) The method(s) of managing collected contact water.

(8) The method(s) of maintaining contact water management systems to maintain design volume.

(9) The description of the monitoring, sampling, and analysis procedures and schedule for testing the composting, including sampling frequency, sample size and number, and sample locations.

f. A closure plan containing a description of the steps necessary to close the facility in compliance with 567—100.10(455B, 455D).

g. Documentation that the person responsible for daily operation of the facility is certified by a department-approved program.

102.9(2) *Design requirements.* In addition to the requirements of 102.5(2), Tier 4 composting facilities shall comply with the following.

a. All operations shall take place on a foundation that will permit accessibility during periods of inclement weather. The foundation shall be maintained and repaired, as needed.

b. A base/foundation used for receiving, processing, and production of feedstock must meet the following minimum design standards.

(1) The base must support the load of the equipment, vehicles, materials, and all operations for the duration of the permit period.

(2) The base must have sufficient slope to prevent surface ponding and to transmit contact water to a containment structure to prevent liquids from entering surface water or groundwater.

(3) The base must be protected with a wearing surface consisting of asphalt, concrete, compacted granular aggregate, or similar relatively impermeable material and underlain by a liner consisting of a minimum of 12 inches of recompacted clay or other approved material with a hydraulic conductivity of 1×10^{-5} cm/sec or less. The bottom of the liner shall be at least 12 inches above the high-water table.

c. The containment structure for contact water shall include a liner system consisting of a minimum of 12 inches of recompacted clay or other approved material with a hydraulic conductivity of 1×10^{-7} cm/sec or less. The bottom of the liner shall be at least five feet above the high-water table.

d. The design of the facility shall include specifications for documentation of quality control and assurance that the construction meets the minimum design standards.

e. Composting facilities permitted by the department prior to [the effective date of this rule] shall submit a compliance plan on or before [one year following the effective date of this rule] that includes a schedule to verify compliance or obtain compliance with this subrule no later than [five years following the effective date of this rule].

f. The department may approve alternatives to these design requirements that provides the same level of environmental protection.

102.9(3) *Operating requirements.* In addition, the requirements of 567—102.4(455D), Tier 4 composting facilities shall comply with the following.

a. Access to the facility shall be limited as follows.

(1) Access to the facility shall be restricted with a lockable gate at the entrance to the facility and perimeter access controlled by a fence or natural barrier approved by the department.

(2) Access to the facility shall be allowed only when an employee, agent, or representative of the facility is on duty.

(3) Emergency access to the facility shall be provided. Fire lanes shall be maintained to provide access for firefighting equipment.

b. All putrescible materials received must be incorporated into the composting process within 24 hours of receipt, unless storage of these materials is specified in the operations plan and authorized in the permit.

c. Compost processing time and temperatures shall meet Process to Further Reduce Pathogens (PFRP) requirements in B.1 of 40 CFR Part 503, Appendix B, and produce compost that meets the stability necessary for the intended use. Unless otherwise proposed in the operating plan and authorized in the permit, the permit holder shall test, at a minimum:

(1) Twice weekly temperature readings of compost piles, batches, and windrows.

(2) Weekly moisture levels of compost piles, batches, and windrows.

d. Contact water shall be directed to a containment, recycling, or treatment system that prevents prohibited discharges to the stormwater system or a surface water. A containment system shall have a minimum of one foot of freeboard at all times.

e. The person responsible for daily operations shall be a certified compost operator as described in 567—102.11(455D). The department may require as a condition in the permit that a facility retain a certified compost operator during all regular operational hours.

f. A visual inspection of the facility shall be conducted and documented on a quarterly basis at a minimum. If deficiencies are discovered during the visual inspection, actions taken to

correct the deficiency shall be documented. The inspection shall at a minimum include the following.

- (1) The condition of the pad. Portions of the pad that are under windrows or piles of curing or finished compost are not required to be inspected.
- (2) Verification that ponding is not occurring on the pad.
- (3) Verification that contact water is being directed to a containment, recycling, or treatment system and not discharging to the stormwater system or to surface water.
- (4) The remaining capacity, amount of freeboard, and general condition of the contact water basin.
- (5) The condition of containers and aeration equipment used for in-vessel composting if applicable.

102.9(4) *Product testing.* Prior to the use or sale, finished compost must be sampled and measurements taken for the purpose of product testing in a manner that is representative of the composting activity and consistent with Test Methods for Examination of Composting and Compost (TMECC) (2026) or other applicable standards approved by the department in the permit. Contaminants within finished compost must comply with the following:

a. The density of fecal coliform bacteria shall be less than 1,000 most probable number (MPN) per gram of total solids (dry weight basis) or the density of *Salmonella* sp. bacteria in compost shall be less than three MPN per four grams of total solids (dry weight basis).

b. The concentrations of all metals shall be less than the following:

Metal	Concentration mg/kg dry weight
Arsenic (As)	41
Cadmium (Cd)	39

Copper (Cu)	1500
Lead (Pb)	300
Mercury (Hg)	17
Nickel (Ni)	420
Selenium (Se)	100
Zinc (Zn)	2800

c. Compost shall be tested for stability using one of the methods listed in TMECC 5.08 (2026), Respirometry, or another method approved by the department in the permit.

102.9(5) Recordkeeping requirements. The following records shall be maintained by the facility for a period of three years, kept at the facility at all times, and submitted to the department upon request:

- a. Analytical results described in 102.9(5).
- b. Types and weight of compostable materials and bulking agent, in tons, accepted at the facility annually.
- c. Weight of compost, in tons, removed from the facility annually.
- d. A copy of the operations plan, the permit and annual reports.
- e. Documentation of the volumes and dates of treatment, recycling, or disposal of unused contact water.
- f. Documentation of visual inspections conducted pursuant to 102.9(4) “f.”

102.9(6) Reporting requirements. An annual report for the previous fiscal year beginning July 1 and ending June 30 shall be submitted to the department by July 31 of each year. The report shall be submitted using a form prescribed by the department and include the following:

- a. Tons of type A feedstock received.
- b. Tons of type B feedstock received.

- c. Tons of type C feedstock received.
- d. Tons of finished compost sold, given away or used by permit holder.
- e. Method of composting.
- f. Name of certified operator.
- g. Copy of the most recent results of the testing required in 102.9(4).

102.9(7) Closure requirements.

a. A schedule to implement the closure plan in 102.9(2) “f” shall be submitted to the department at least 30 days prior to the proposed termination date for the facility. If needed, a request to modify the closure plan may be submitted at the same time.

b. Unless an alternative schedule is approved by the department, within six months of the facility’s ceasing operation, the facility shall properly dispose of all organic material, solid waste, and litter and remove all finished compost from the premises.

567—102.10(455D) Financial assurance. Tier 4 composting facilities must obtain and submit a financial assurance instrument to the department. The financial assurance instrument shall provide monetary funds to properly dispose of any preprocessed and postprocessed materials that remain at a facility due to the owner’s or operator’s failure to properly close the site according to the schedule approved by the department in 102.9(9) “a” or within six months of permit suspension, termination, revocation, or expiration if no alternative schedule is approved.

102.10(1) No permit without financial assurance. The department shall not issue or renew a permit to an owner or operator until a financial assurance instrument has been submitted to and approved by the department.

102.10(2) Proof of compliance. Proof of the establishment of the financial assurance instrument and compliance with this rule, including a current closure cost estimate, shall be

submitted to the department at the time of application for a permit for a new composting facility. The owner or operator must provide continuous coverage for closure and submit proof of compliance, including an updated closure cost estimate, with each permit renewal until released from this requirement by the department.

102.10(3) *Use of one financial assurance instrument for multiple permitted activities.*

Composting facilities required to maintain financial assurance pursuant to any other provisions of 567—Chapters 100 through 102 may satisfy the requirements of this rule by the use of one financial assurance instrument listed in 102.10(5).

102.10(4) *Financial assurance amounts required.* The estimate submitted to the department must be certified by an Iowa-licensed professional engineer and must account for at least the following factors determined by the department to be minimal necessary costs for closure:

a. Transportation costs, which include the cost to load the material, and total tip fees to properly dispose of the maximum tonnage of received materials that could be managed and stockpiled by the compost facility. Also included shall be the costs of properly removing any wastewater held at the facility.

b. The costs for maintaining financial assurance pursuant to any other provisions of 567—Chapters 100 through 123, if any, in accordance with 102.10(3).

102.10(5) *Acceptable financial assurance instruments.* The financial assurance instrument shall be established in an amount equal to the cost estimate prepared in accordance with 102.10(4) and shall not be canceled, revoked, disbursed, released, or allowed to terminate without the approval of the department. The language of the financial assurance instrument

shall meet the criteria in 567—subrule 101.708(3). Financial assurance shall be provided by one of the following options:

- a. Trust fund pursuant to 567—subrule 101.707(1).
- b. Surety bond, pursuant to 567—subrule 101.707(2).
- c. Letter of credit, pursuant to 567—subrule 101.707(3).
- d. Corporate guarantee pursuant to 567—subrule 101.707(7).
- e. Local government guarantee pursuant to 567—subrule 101.707(8).
- f. Local government dedicated fund pursuant to 567—subrule 101.707(9).

567—102.11(455D) Compost operator certification.

102.11(1) *General requirements.* To become a certified compost facility operator, an individual shall complete a compost operator training course that has been approved by the department, then apply for certification by the department. An operator certified by another state may have reciprocity subject to approval by the department.

102.11(2) *Course approval.* To be approved by the department, an operator training course for a certified compost facility operator must have at least 24 contact hours and must address the following areas at a minimum:

- a. Basic principles of composting and decomposition.
- b. Composting methods.
- c. Site design and equipment.
- d. Characteristics of various types of feedstocks and recipe development.
- e. Construction of windrows or piles.
- f. Monitoring and troubleshooting.
- g. Uses and markets for compost.

h. Applicable laws and regulations.

102.11(3) *Form.* Applications for certification shall be made on a form prescribed by the department.

102.11(4) *Duration and renewal of certification.* The department shall issue all compost operator certifications on a three-year cycle. This rule shall take effect relative solely to certifications on July 1, 2026, and a new cycle shall start at that time. The department may issue a certification at any time during a three-year cycle. Certificates are valid through the expiration date listed on the certification, which shall be the end of the most current cycle.

a. An application for renewal is due prior to expiration of certification. If a certificate holder fails to apply for renewal within 30 days following expiration of the certificate, the applicant must then apply for a new certification in accordance with 102.11(1).

b. To renew a certification, a certified operator must earn eight contact hours during each three-year period, except that a first-time certified operator is not required to earn contact hours prior to the first renewal of the certification. The certificates of operators not fulfilling the continuing education requirements will be void 30 days after the expiration date.

c. All activities for which contact hours will be granted must be related to compost and pre-approved by the department.

d. The certified operator is responsible for submitting an application for renewal that includes documentation of the contact hours completed during the renewal period.

e. The department may, in individual cases involving hardship or extenuating circumstances, grant an extension of time of up to three months within which the applicant may fulfill the contact hour requirements. Hardship or extenuating circumstances include documented health-related confinement or other circumstances beyond the control of the certified operator that

prevent attendance at the required activities. All requests for extensions must be made prior to expiration of certification.

f. The deadline to apply for renewal and to fulfill continuing education requirements under this rule shall automatically be extended a length of time equal to any period in which the operator served honorably on active duty in military service within the three-year renewal cycle.

567—102.12(455D) Temporary operation without a certified operator. Notwithstanding any other provision of these rules, the department in its sole discretion may authorize, in writing, a facility to temporarily operate without a certified operator for a period of six months when a certified operator is no longer available to the facility. The facility must make a request in writing to the department, explaining why a temporary authorization is needed and identify the efforts that will be made to obtain a certified operator.

These rules are intended to implement Iowa Code section 455D.9.

567—102.13 to 102.99Reserved.

DIVISION II
LAND APPLICATION OF WASTE

567—102.100(455B,17A) Purpose; applicability; compliance. This division shall apply to the land application of solid waste and industrial sludge, except as follows. It does not apply to sewage or other wastewater regulated by 567—Chapters 60 through 64, domestic septage, sewage sludge, animal manure, animal bedding, crop residue, waste registered as a fertilizer or soil conditioner with the Iowa department of agriculture and land stewardship (IDALS), waste registered as a liming agent with IDALS, or finished compost.

567—102.101(455B) Definitions. The definitions in Iowa Code section 455B.301 and 567—Chapter 100 shall apply to this division.

567—102.102(455B) Land application of water supply sludge.

102.102(1) Sludges generated from water supply treatment may be applied to lawns, gardens, flower beds, or similar areas associated with residential use and crops that may be consumed by humans without prior heating or processing that are commonly available to the public in raw form (e.g., sweetcorn, lettuce, carrots asparagus, squash).

102.102(2) Land application of sludges generated from water supply treatment are exempt from the remainder of this division.

567—102.103(455B) Waste eligible for land application. Material must conform with the following to land applied pursuant to this division.

102.103(1) The material must either meet the definition of solid waste or be a sludge resulting from commercial or industrial wastewater treatment, water supply treatment, or air pollution control facility.

102.103(2) The waste shall not contain constituents in excess of the levels specified below measured on a dry weight basis.

<u>Constituents</u>	<u>Levels</u>	<u>Cumulative Loading Rate</u>	
Arsenic	41 mg/kg	41 kg/ha	36 lb/ac
Cadmium	39 mg/kg	39 kg/ha	34 lb/ac
Chromium	1200 mg/kg	3000 kg/ha	2670 lb/ac
Copper	1500 mg/kg	1500 kg/ha	1335 lb/ac
Lead	300 mg/kg	300 kg/ha	267 lb/ac
Mercury	17 mg/kg	17 kg/ha	15 lb/ac

Molybdenum	75 mg/kg	75 kg/ha	66 lb/ac
Nickel	420 mg/kg	420 kg/ha	373 lb/ac
Selenium	36 mg/kg	100 kg/ha	89 lb/ac
Zinc	2800 mg/kg	2800 kg/ha	2490 lb/ac

102.103(3) If the waste has other toxic constituents, the toxic constituents shall not be in excess of levels where there is a threat to human, animal, or plant life as determined by the department.

102.103(4) The waste does not have a sodium absorption ratio in excess of levels where there is a threat to plant life. If high sodium absorption ratios are suspected, analytical testing may be required.

102.103(5) If the waste contains pathogens, the waste must be treated to reduce pathogen content by methods specified in 567—Chapter 67 prior to land application.

102.103(6) The waste shall not have direct process stream contact with or originate from a process that may release the following organic compounds.

- a.* Petroleum products,
- b.* Organic solvents,
- c.* Pesticides,
- d.* Pharmaceuticals,
- e.* Polychlorinated biphenyls (PCBs).

102.103(7) The waste assimilates and would not be readily present in a visual analysis of a random sample collected two years following application.

567—102.104(455B) Application site restrictions.

102.104(1) The waste shall not be applied to soils classified as sand, loamy sand, or silt on the United States Department of Agriculture (USDA) textural classification chart, 1951 Soil Survey Manual, USDA Handbook No. 18.



USDA textural classification chart. Sand size particles, 2-0.05 mm; silt-sized particles, 0.05-.002 mm; and clay sized particles, less than .002 mm.

102.104(2) Land application sites shall have soil pH maintained above 6.0 unless otherwise specified in a permit. If the soil pH is below these levels, it is acceptable to use agricultural lime to increase the pH to an acceptable level prior to land application of sludge.

102.104(3) The waste shall not be applied to ground having greater than 9 percent slope unless specific permit conditions specify otherwise.

102.104(4) If the waste is applied to land subject to flooding more frequently than once in ten years, the waste shall be injected or shall be applied to the surface and mechanically incorporated into the soil within 48 hours.

102.104(5) Application on frozen or snow-covered ground shall be limited to areas of less than 5 percent slope unless specific permit conditions specify otherwise.

102.104(6) Waste shall not be applied within 200 feet of an occupied residence nor within 500 feet of a well that is part of a public water supply, as defined in 567—subrule 40.2(1), or 200 feet of all other wells.

102.104(7) Waste shall not be applied to land used for growing crops that may be consumed by humans without prior heating or processing or those that are commonly available to the public in raw form unless crops grown on the land are not harvested for at least 14 months following land application.

102.104(8) A site shall not be used for land application of waste from more than one generator in the same growing season or for a spring land application after land application the previous fall.

567—102.105(455B) Operating requirements. All land application projects shall be operated as follows.

102.105(1) If solid waste is applied within 200 feet of a stream, lake, sinkhole, or tile line surface intake located downgradient of the land application site, it shall be injected or applied to the surface and mechanically incorporated into the soil within 48 hours of application.

102.105(2) If waste is applied to land where crops being grown will be grazed by or fed to livestock within two months of waste application, or where cereal grains will be harvested within two months of waste application, the waste shall be injected or shall be applied to the surface and mechanically incorporated into the soil unless specific permit conditions specify otherwise. The general public shall not be given access to the disposal site during waste disposal and for a minimum of two months after waste disposal operations have ceased.

102.105(3) If the waste is putrescible, it shall be injected or mechanically incorporated within 24 hours or otherwise managed to prevent runoff and odor problems.

102.105(4) Land application shall not take place during or immediately preceding expected rains or other occasions when runoff may result unless subsurface injection methods are utilized. Additionally, land application shall not take place during periods of high groundwater conditions or during flooding.

102.105(5) The application of nitrogen available from the waste and any other sources shall not exceed the acceptable agronomic application rates for the vegetation to be grown on the site over the next year. The total application of phosphorus and potassium shall not exceed the acceptable agronomic application rates for the site and crops involved.

102.105(6) Waste may be staged prior to application at the application site pursuant to the following.

- a.* Putrescible waste shall not be staged for more than 48 hours.
- b.* Non-putrescible waste shall not be staged for longer than two weeks.
- c.* Waste shall not be staged within 200 feet of an occupied residence nor within 500 feet of a well that is part of a public water supply, as defined in 567—subrule 40.2(1), or 200 feet of all other wells.
- d.* The waste shall not be staged on soils classified as sand, loamy sand, or silt on the USDA textural classification chart shown in 567—subrule 102.104(6).
- e.* Runoff from the waste must be controlled at all times.
- f.* If weather or extenuating circumstances prevent application from taking place, the generator must notify the department.

102.105(7) When waste is supplied to other persons for land application, the generating facility shall do the following:

- a.* Inform the recipient of the applicable requirements of the waste disposal program.

b. If the generating facility determines that the recipient is not complying with applicable requirements of the waste disposal program or the land application criteria, the generating facility shall work with the recipient to obtain compliance with the requirements. If subsequent compliance cannot be achieved, the generating facility shall not supply additional waste to the person.

c. Inform all persons involved in waste disposal operations of the potential health hazards associated with waste disposal, including informing them of the cautions and recommended practices that should be followed to minimize these hazards.

102.105(8) The generator shall maintain records of the following:

a. Analysis of waste to document compliance with 102.103(2).

b. Records of land application for each site, which shall be maintained for five years; be made available to the department upon request; and include dates of application, application rate, and quantity of waste applied.

567—102.106(455B) General permit. Land application of waste at a rate that does not exceed two dry tons per acre per year and that meets the requirements of 567—102.103(455B), 567—102.104(455B), and 567—102.105(455B) may be land applied in accordance with this rule.

102.106(1) The maximum application rate shall be reduced if analysis of the waste indicates that a two ton per acre per year rate would provide nutrient levels in excess of crop nutrient requirements or would provide heavy metals concentrations in the soil at levels that may be detrimental to crop production or hazardous to human health.

102.106(2) All material must be staged on ground eligible for land application.

102.106(3) Before the initial land application, the applicator must notify the department in writing. This notice shall contain the following:

- a. The name and address of the generator of the waste.
- b. Contact information for the responsible official.
- c. A description of the waste including the process to generate it, chemical analyses showing compliance with 102.103(2), and any additional analysis that the department may require to adequately define the waste. Chemical analysis shall be done by a laboratory certified pursuant to 567—Chapter 83.
- d. Quantities of waste to be land applied.
- e. Application rate.
- f. Legal description of the site.
- g. An aerial photo with the site outlined and any areas ineligible for application marked off.
- h. Number of acres eligible for land application at the site.
- i. The landowner's name and contact information.

567—102.107(455B) Permit Prior to any land application of solid waste not exempted in 567—102.102(455B) or 567—102.106(455B), a solid waste management permit pursuant to 567—subrule 100.4(2) must be obtained by the waste generator.

102.107(1) Permit application. In lieu of the permit application requirements in 567—subrule 100.5(1), all permit applications for land application shall include:

- a. The name, address, email, and telephone number of:
 - (1) The permit applicant (generator of the waste).
 - (2) Official responsible for operation of the project.
 - (3) Agronomist affiliated with the project.
- b. Type, source, and expected volume or weight of waste to be handled per day, week, and year.

- c. Information on the source, quantity, and method of treatment of the waste prior to disposal.
- d. Chemical analyses showing compliance with 102.103(2) and any additional analysis that the department may require to adequately define the waste. Chemical analysis shall be done by a laboratory certified pursuant to 567—Chapter 83.
- e. A detailed description of the land application process to be used, including the method and rate of application, and information indicating how the operational requirements of 567—102.105(455B) will be met.
- f. A table of all application sites that includes the name of the site, legal description, county, acres eligible for land application, and the name of the landowner.
- g. For each land application site, the following:
 - (1) An aerial photograph of sufficient scale to show all homes, buildings, lakes, ponds, watercourses, wetlands, dry runs, roads, and other applicable details.
 - (2) A map or aerial photo showing all wells located within 500 feet of the site.
 - (3) A soil map.
 - (4) Water table levels of the site, including the frequency and duration of any expected high-water table or flooding.
 - (5) Proof of the applicant's ownership of the site or legal entitlement to use the site for the disposal of waste.
- h. Other information as required by the department.

102.107(2) *Reporting requirements.*

- a. A permit holder shall have a certified professional agronomist perform an annual inspection of all sites utilized in the previous year to ensure soil properties and constituents being applied are suitable and will not exceed agronomic rates for the crop that will be produced the following

summer. The agronomist will review soil test results to ensure that the application of the waste will not cause buildup of nutrients in the soil. The results of this inspection shall be submitted to the department's main office by April 1 each year.

b. A permit holder shall submit an annual report summarizing the records required in 102.105(8) "b" to the department's main office on a form provided by the department. The report will be for July through June and is due by October 1 of each year.

c. Sampling and analyses of the permitted waste shall be performed and submitted to the department according to a schedule stipulated in the permit. At a minimum, an analysis shall be submitted with each permit renewal.

102.107(3) *Temporary storage.*

a. The permit may allow for storage of stabilized sludge and solid waste at application sites subject to the following conditions:

(1) Waste shall not be stored within 200 feet of an occupied residence nor within 500 feet of a well that is part of a public water supply, as defined in 567—subrule 40.2(1), or 200 feet of all other wells.

(2) The waste shall not be stored on soils classified as sand, loamy sand, or silt on the USDA textural classification chart shown in 102.104(6).

(3) Amount stored may not exceed the amount needed for the next application window for that site.

(4) All material stored must be land applied the next application season.

(5) If weather or extenuating circumstances prevent application from taking place, the applicant must notify the department.

(6) Runoff shall be controlled at all times.

(7) Financial assurance in accordance with 567—102.108(455B) has been obtained.

b. The permit may allow for storage of stabilized sludge and solid waste at a consolidation point subject to the following conditions:

(1) Waste shall not be stored within 200 feet of an occupied residence nor within 500 feet of a well that is part of a public water supply, as defined in 567—subrule 40.2(1), or 200 feet of all other wells.

(2) The storage surface shall be made of asphalt, concrete, compacted granular aggregate, clay, or similar relatively impermeable material.

(3) All material stored must be land applied the next application season.

(4) If weather or extenuating circumstances prevent application from taking place, the applicant must notify the department.

(5) Runoff from the waste shall be controlled at all times.

(6) Financial assurance in accordance with 567—102.108(455B) has been obtained.

567—102.108(455B) Financial assurance. The holder of a solid waste management permit for the land application of wastes that has received authorization to temporarily store waste at the application site(s) or a consolidation point must obtain and submit a financial assurance instrument to the department. The financial assurance instrument shall provide monetary funds for the purpose of properly disposing of or having a third-party land apply any stored wastes due to the permit holder's failure to properly land apply wastes in accordance with this division and the applicable permit provisions.

102.108(1) Proof of compliance. Proof of the establishment of the financial assurance instrument and compliance with this rule, including a current closure cost estimate, shall be submitted by at the time of application for a permit to land apply solid wastes. The owner or

operator must provide continuous coverage for closure and submit proof of compliance, including an updated closure cost estimate, with each permit renewal thereafter until released from this requirement by the department.

102.108(2) *Financial assurance amounts required.* The estimate submitted to the department must be certified by a professional engineer and account for at least the following factors determined by the department to be minimal necessary costs for closure.

a. Third-party labor and transportation costs and total tip fees to properly dispose of all solid wastes equal to the maximum storage capacity of all approved storage areas, or

b. Third-party labor costs to land apply all solid wastes equal to the maximum storage capacity of all approved storage areas.

102.108(3) *Acceptable financial assurance instruments.* The financial assurance instrument shall be established in an amount equal to the cost estimate prepared in accordance with 102.10(4) and shall not be canceled, revoked, disbursed, released, or allowed to terminate without the approval of the department. The language of the financial assurance instrument shall meet the criteria in 567—subrule 101.708(3). Financial assurance shall be provided by one of the following options.

a. Trust fund pursuant to 567—subrule 101.707(1).

b. Surety bond pursuant to 567—subrule 101.707(2).

c. Letter of credit pursuant to 567—subrule 101.707(3).

d. Corporate guarantee pursuant to 567—subrule 101.707(7).

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

567—102.109 to 102.199Reserved.

LANDFARMING OF PETROLEUM CONTAMINATED SOIL

567—102.200(455B) Purpose. The purpose of this division is to establish rules for the safe and effective remediation and disposal of petroleum-contaminated soil (PCS) through landfarming.

567—102.201(455B) Applicability; compliance.

102.201(1) These rules apply to the landfarming of soils contaminated with biodegradable petroleum products including but not limited to gasoline, diesel fuel, kerosene, jet fuel, motor oil, hydraulic fluid, or some combination thereof. All PCS landfarming activities in which three or more cubic yards of PCS are excavated shall comply with this division. Uncontaminated soil that is excavated during the removal of the PCS shall not be counted toward the three-cubic-yard applicability threshold.

102.201(2) These rules do not apply to PCS that is being disposed of at a sanitary landfill.

102.201(3) The issuance of a landfarm permit by the department in no way relieves the generator or permit holder of the responsibility of complying with all other local, state, or federal statutes, ordinances, and rules and other applicable requirements.

102.201(4) These rules do not apply to hazardous waste.

102.201(5) All rules, standards, technical guidance, and other similar legal or technical documents referenced in this division shall be the version of those documents in effect on August 1, 2025, unless otherwise noted in these rules, and except for references to the Iowa Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

567—102.202(455B) Definitions. The definitions set out in Iowa Code section 455B.301 shall be considered to be incorporated by reference in these rules. For the purposes of this division the definitions found in 567—Chapter 100 shall apply.

567—102.203(455B) Landfarming application permits.

102.203(1) *Permit required.* PCS shall not be landfarmed without a solid waste management permit for landfarm application from the department pursuant to 567—subrule 100.4(2).

102.203(2) *Landfarm application permit.* Upon issuance of a landfarm application permit, the permit holder is authorized to apply PCS to the land to create one or more landfarms. This permit requires that landfarms be used for only one application of a particular source and type of PCS. This permit requires that no other PCS be applied within 15 feet of the area of land used as a landfarm until the landfarm is closed pursuant to 567—102.211(455B).

102.203(3) *Construction and operation.* Landfarms shall be constructed and operated according to these rules, any plans and specifications approved by the department, and the conditions of the permit. Any approved plans and specifications shall constitute a condition of the permit.

102.203(4) *Duration of permits.* Landfarm application permits shall be issued and may be renewed for a three-year term.

567—102.204(455B) Application information. To apply for a landfarm application permit, the applicant shall submit the following information to the department in addition to the requirements of 567—subrule 100.5(1):

102.204(1) The name, address, and telephone number of:

- a. Owner(s) of the agency.
- b. Individual responsible for recordkeeping and reporting.
- c. An emergency contact person.

102.204(2) A plan of operations that complies with the requirements of 567—102.208(455B) and 567—102.210(455B).

102.204(3) An emergency response and remedial action plan (ERRAP) pursuant to 567—102.209(455B).

567—102.205(455B) PCS analysis and characterization.

102.205(1) *Source identification.* The name and address of the contaminated site from which the PCS originated and the spill or underground storage tank (UST) registration number shall be recorded.

102.205(2) *Type classification.* The PCS shall be classified by type according to the petroleum product's trade name (e.g., gasoline, diesel fuel) or according to the trade names if there is a mixture of petroleum products.

102.205(3) *Chemical testing.* The following analyses shall be performed.

a. Benzene, toluene, ethylbenzene, and xylene (BTEX) testing. The PCS shall be tested for BTEX.

b. Total extractable hydrocarbons as diesel (TEH-diesel) testing. The PCS shall be tested for TEH-diesel.

c. Total metals testing. If the history of the petroleum-contaminated site is known to have included solvents, batteries, leaded fuel, waste oil, or a gas station in operation prior to 1985, then the PCS shall be tested for total Resource Conservation and Recovery Act (RCRA) metals.

102.205(4) *Department-supervised emergency cleanups.* PCS originating from the cleanup of a spill or expedited over-excavation at a tank closure or upgrade under department jurisdiction shall be characterized and tested as follows before being landfarmed. Such PCS may be landfarmed prior to chemical testing, pursuant to the application rate in 120.9(6) and reporting requirements of 567—120.11(455B), if permission is obtained from department emergency response personnel or the department field office with jurisdiction over the landfarm site.

102.205(5) *Other cleanups.* PCS not originating from a department-supervised emergency cleanup pursuant to 102.205(1) shall be characterized and tested as follows before being landfarmed. PCS originating from a cleanup pursuant to 567—Chapter 135 may utilize those test results as applicable.

102.205(6) *Tar balls.* PCS that has the potential to produce tar balls shall not be landfarmed. Such PCS may be disposed of in a sanitary landfill.

102.205(7) *Other tests.* The department may require testing of the PCS for other chemicals of concern.

567—102.206(455B) Site exploration and suitability requirements for landfarms. All landfarms shall meet the following site exploration and suitability requirements.

102.206(1) *Previous use.* The landfarm applicator shall obtain written confirmation from the site owner of one of the following requirements:

a. That any other landfarm created in the past three years within 15 feet of the proposed landfarm plot has been closed pursuant to 567—102.211(455B).

b. That no area within 15 feet of the proposed landfarm plot has been used as a landfarm in the past three years.

102.206(2) *Wells.* PCS shall not be landfarmed or stored within 500 feet of a well that is being used or could be used for human or livestock consumption. The department may also exempt from this requirement extraction wells utilized as part of a remediation system. PCS shall not be landfarmed or stored within 500 feet of an agricultural drainage well.

102.206(3) *Sinkholes.* PCS shall not be landfarmed or stored within 500 feet of a sinkhole.

102.206(4) *Surface waters of the state.* PCS shall not be landfarmed or stored within 200 feet of a stream, lake, pond, wetland, or other surface water of the state. The department may waive

the setback requirement for surface waters that have been constructed for pollution control purposes.

102.206(5) *Tile lines.* PCS shall not be landfarmed or stored within 200 feet of a tile line surface intake.

102.206(6) *Housing and sensitive populations.* PCS shall not be landfarmed or stored within 200 feet of an occupied residence, recreational area, child care facility, educational facility, or health care facility.

102.206(7) *Floodplains.* PCS shall not be landfarmed or stored within a 100-year floodplain.

102.206(8) *Slope.* PCS shall not be landfarmed or stored on slopes greater than 5 percent. This requirement may be satisfied by utilizing USDA soil maps.

102.206(9) *Soil properties for landfarm plot.* All soils in the landfarm plot of the landfarm shall comply with the following requirements.

a. USDA textural soil classification. Soils in the landfarm plot of landfarms shall be clay, sandy clay, sandy clay loam, sandy loam, silty clay, silty clay loam, clay loam, loam, or silt loam as classified by the USDA Textural Classification Chart for soils.

b. Stones and debris. Soils in the landfarm plot shall be free of stones and debris larger than four inches in diameter.

c. Soil pH. Soils in the landfarm plot shall have a pH greater than or equal to 6 and less than or equal to 9.

d. Bedrock separation. The landfarm plot shall have a minimum of six feet of soil over bedrock.

567—102.207(455B) PCS storage areas. PCS shall be stored on an impervious surface, under a roof of tarp to minimize the infiltration of precipitation, or in an area with minimal potential for stormwater run-on.

567—102.208(455B) Landfarm operating requirements. All landfarms shall comply with the following operating requirements.

102.208(1) *Standard PCS.* Only standard PCS may be land applied or stored at a landfarm without a permit amendment from the department.

102.208(2) *Nonstandard PCS.* A permit amendment from the department, pursuant to 567—subrule 100.5(4) shall be obtained for each particular source and type of nonstandard PCS before that PCS may be land applied or stored at a landfarm. The permit amendment application shall include a justification of how the PCS can be safely and effectively remediated by landfarming.

102.208(3) *Saturated or slurry PCS.* PCS in a saturated or slurry condition shall not be applied to the land or stored at a landfarm. PCS in such a condition shall be bulked with other biodegradable materials (e.g., compost, mulch) until it is no longer saturated or in a slurry before it is applied to the land or stored at a landfarm.

102.208(4) *Storage.* PCS shall be stored during the non-landfarm season, except as allowed by 102.208(4). PCS may be stored for up to seven days during landfarm season.

102.208(5) *Non-landfarm season.*

a. PCS shall only be applied to the land during non-landfarm season if the PCS must be applied to the land as part of an emergency cleanup supervised by the department pursuant to 120.6(1) or all of the following conditions exist:

- (1) The landfarm plot is free of snow.
- (2) The slope of the landfarm plot is less than 3 percent.

(3) The PCS is incorporated into the soil as soon as site conditions allow.

b. There is no precipitation.

102.208(6) *PCS plot requirements.* One application of a particular source and type of PCS may be applied to a landfarm plot. A landfarm may only apply a subsequent application of PCS to a previously utilized landfarm plot if such application is in compliance with the following:

a. The plot has been tested pursuant to 102.205(2) “c”(1), “c”(2), and “c”(3), and the results demonstrate that petroleum constituent concentrations are less than 0.54 mg/kg for benzene, 42 mg/kg for toluene, 15 mg/kg for ethylbenzene, 3800 mg/kg for TEH-diesel, and 0.02 mg/kg for MTBE.

b. A subsequent application of a particular source and type of PCS may not be applied within 15 feet of an area used as a single-use landfarm until the single-use landfarm is closed pursuant to 567—subrule 120.12(2).

102.208(7) *PCS application rates.* PCS shall be land applied at a rate that is as uniform as practical over an area sufficient to satisfy the greater of the following area requirements. However, PCS from an emergency cleanup supervised by the department pursuant to 102.205(1) may instead be land applied at a rate of 162 ft² of landfarm area per cubic yard (yd³) of PCS, that is as uniform as practical, and in which no layer of unincorporated PCS is thicker than two inches.

a. *Petroleum constituents.* PCS shall be land applied over the largest area required by the following:

(1) PCS contaminated with benzene shall be land applied in accordance with Table 1. The average concentration of benzene in the PCS shall be used to determine the landfarm area (ft²) required per cubic yard (yd³) of PCS to be land applied. The average concentration of benzene

shall be calculated from all soil boring test results that are within the PCS excavation area. The application shall be as uniform as practical over the area required.

0 < mg/kg ≤ 10	81 ft ²	4 inches	537 yd ³
10 < mg/kg ≤ 20	162 ft ²	2 inches	268 yd ³
20 < mg/kg	324 ft ²	1 inch	134 yd ³

(2) PCS that is not contaminated with benzene or MTBE, but is contaminated with toluene, ethylbenzene, xylene, TEH-diesel, or some combination thereof, shall be land applied at a rate of 81 ft² of landfarm area per cubic yard (yd³) of PCS. The application shall be as uniform as practical, and no layer of unincorporated PCS shall be thicker than four inches.

b. Total RCRA metals. PCS that has been tested for heavy metals pursuant to 102.205(1)“c”(3) shall be applied at a rate that is as uniform as practical, that results in no layer of PCS thicker than four inches, and that upon incorporation produces a landfarm soil that satisfies the following requirements. This analysis requires prior testing of background levels of RCRA metals at the proposed landfarm site.

(1) Total RCRA metals are less than 2,500 milligrams per kilogram (mg/kg).

(2) Any particular concentration of a RCRA metal is less than the appropriate statewide standard for soil developed pursuant to 567—Chapter 105, Division III.

102.208(8) *Flagging.* The landfarm plot(s) upon which PCS is land applied shall be delineated with flags for one year after land application or until the landfarm is closed pursuant to 567—102.211(455B), whichever is shorter.

102.208(9) *Removal of solid waste and rubble.* All solid waste that is not PCS shall be removed and properly disposed of prior to the landfarming of PCS. All rubble, stones, and debris

larger than four inches in diameter, or that interfere with incorporating and turning the PCS, shall also be removed and properly disposed of.

102.208(10) *PCS incorporation.* PCS shall be incorporated into the soil by tilling, disking, or other suitable means within 48 hours of being land applied or before the next precipitation event, whichever is sooner. PCS shall not be incorporated deeper than 12 inches.

102.208(11) *Turning the PCS.* After incorporation, the PCS shall be turned by tilling, disking, or other suitable means at least once per month for the first three months during landfarm season.

102.208(12) *No crops for consumption.* Landfarms shall not grow crops within 15 feet of a landfarm plot that is flagged pursuant to 102.208(7). Crops for human and livestock consumption may be grown at a single-use landfarm after the landfarm plot is no longer required to be flagged pursuant to 102.208(7).

102.208(13) *Removal of PCS from a landfarm.* PCS shall not be removed from a landfarm until the landfarm is closed pursuant to 567—120.12(455B) or the following conditions are met:

a. One sample from each 2,500 ft² (e.g., 50-foot × 50-foot area) of landfarm plot is analyzed pursuant to 102.205(2) “c”(1), “c”(2), and “c”(3). A minimum of one sample per landfarm plot shall be obtained. All samples shall be obtained from between the top two to six inches of soil.

b. The results of the tests in 102.211(2) “a” demonstrate that petroleum constituent concentrations for benzene, toluene, ethylbenzene, TEH-diesel, and MTBE are below the detection limits required by 567—Chapter 135.

c. Records of the lab results, amount of PCS removed, and the exact final location of the PCS shall be maintained by the landfarm.

567—102.209(455B) Emergency response and remedial action plans.

102.209(1) *ERRAP.* An ERRAP as described in 567—100.14(455B) shall be maintained as part of the landfarming application permit.

102.209(2) *Access.* ERRAP documents shall be readily available. Landfarm applicators shall ensure that employees have either physical or digital access to the ERRAP document when conducting landfarm operations.

102.209(3) *Employee training.* At a minimum, all employees shall receive annual training sufficient to understand and utilize ERRAP documents.

567—102.210(455B) Reporting and recordkeeping requirements.

102.210(1) *Reporting.* The following information shall be submitted to the department on a form provided by the department. All reporting submissions shall include the name, address, and telephone number of the landfarm and permit holder, as well as the permit number.

a. Storage notification. Landfarms shall submit the following information to the department and department field office with jurisdiction over the landfarm before receipt of the PCS for storage; however, at least 30 days' notification is encouraged. PCS storage information from an emergency cleanup supervised by the department pursuant to 102.205(1), however, shall be reported within seven days of the emergency cleanup.

(1) The date the PCS is expected to be delivered for storage at the landfarm.

(2) Where the PCS will be stored at the landfarm.

(3) The spill number, UST registration number, and leaking UST (LUST) number, as applicable.

b. Land application notification. Landfarms shall submit the following information to the department and department field office with jurisdiction over the landfarm before land application; however, at least 30 days' notification is encouraged. PCS information from an

emergency cleanup supervised by the department pursuant to 102.205(1), however, shall be reported within seven days of the emergency cleanup.

(1) The date the PCS is expected to be applied to the land. If the PCS is not applied on this date, the department shall be informed of the actual application date.

(2) A physical address or parcel identification number for the landfarm location, a legible topographic map or aerial photo, a USDA soil map with key, and a map of the 100-year floodplain illustrating and labeling where the PCS is to be applied.

(3) Application rate calculations pursuant to 102.208(6).

(4) The spill number, UST registration number, and LUST number, as applicable.

c. PCS analysis and characterization. Information on the analysis and characterization of the PCS pursuant to 567—102.205(455B) shall be submitted to the department before receipt of the PCS for storage or land application; however, at least 30 days' notification is encouraged. PCS analysis and characterization information from an emergency cleanup supervised by the department pursuant to 567—subrule 120.6(1), however, shall be reported within 60 days of the emergency cleanup.

102.210(2) Recordkeeping. All landfarm applicators shall maintain records of all information related to compliance with this division and the permit throughout the life of the landfarm and for three years after landfarm closure pursuant to 567—102.211(455B). This information shall be available to the department upon request. Applicable information includes but is not limited to the following material.

a. Permit application information pursuant to 567—102.204(455B).

b. PCS analysis and characterization pursuant to 567—102.205(455B).

c. Site suitability information pursuant to 567—102.206(455B).

- d.* Specific design requirements pursuant to 567—102.207(455B).
- e.* Operations information pursuant to 567—102.208(455B), in particular, application rate calculations pursuant to 102.208(6).
- f.* ERRAP documents pursuant to 567—102.209(455B).
- g.* Reports submitted pursuant to 102.210(1).
- h.* Closure information pursuant to 567—102.211(455B).

567—102.211(455B) Landfarm closure.

102.211(1) A landfarm shall be closed three years after the application of PCS unless otherwise authorized or required by this rule.

102.211(2) A landfarm may be closed if, at least six months after the application of PCS, documentation has been submitted and acknowledged in writing by the department that each landfarm plot has been tested as follows.

a. One sample from each 10,000 ft² (e.g., 100-foot × 100-foot area) of landfarm plot is analyzed pursuant to 102.205(2) “*c*”(1), “*c*”(2), and “*c*”(3). A minimum of one sample per landfarm plot shall be obtained. All samples shall be obtained from between the top two to six inches of soil.

b. The results of the tests in 102.211(2) “*a*” demonstrate that petroleum constituent concentrations are less than 0.54 mg/kg for benzene, 42 mg/kg for toluene, 15 mg/kg for ethylbenzene, 3800 mg/kg for TEH-diesel and 0.02 mg/kg for MTBE.

567—102.212(455B) Financial assurance requirements for landfarms. The holder of a sanitary disposal project permit for a landfarm must obtain and submit a financial assurance instrument to the department in accordance with this rule. The financial assurance instrument shall provide monetary funds for the purpose of conducting closure activities at the landfarm

plot(s) due to the permit holder's failure to properly close the site as required in accordance with 567—102.211(455B) within 30 days of permit suspension, termination, revocation, or expiration.

102.212(1) *No permit without financial assurance.* The department shall not issue or renew a permit to an owner or operator of a landfarm until a financial assurance instrument has been submitted to and approved by the department.

102.212(2) *Proof of compliance.* Proof of the establishment of the financial assurance instrument and compliance with this rule, including a current closure cost estimate, shall be submitted at the time of application for a permit for a landfarm application permit. The owner or operator must provide continuous coverage for closure and submit proof of compliance, including an updated closure cost estimate, with each permit renewal thereafter until released from this requirement by the department.

102.212(3) *Financial assurance amounts required.* The estimate submitted to the department must be certified by a professional engineer and account for at least the following factors determined by the department to be minimal necessary costs for closure pursuant to 567—102.211(455B):

a. Third-party costs to conduct soil sampling and properly clean all equipment and storage areas at the landfarm plot(s).

b. If PCS is temporarily stored on site prior to incorporation, then this estimate shall include third-party labor and transportation costs and total tip fees to properly dispose of all PCS equal to the maximum storage capacity on site.

102.212(4) *Acceptable financial assurance instruments.* The financial assurance instrument shall be established in an amount equal to the cost estimate prepared in accordance with 102.212(3) and shall not be canceled, revoked, disbursed, released, or allowed to terminate

without the approval of the department. Financial assurance may be provided by one of the following options:

- a.* Trust fund pursuant to 567—subrule 101.707(1).
- b.* Surety bond pursuant to 567—subrule 101.707(2).
- c.* Letter of credit pursuant to 567—subrule 101.707(3).
- d.* Corporate guarantee pursuant to 567—subrule 101.707(7).
- e.* Local government guarantee pursuant to 567—subrule 101.707(8).
- f.* Local government dedicated fund pursuant to 567—subrule 101.707(9).

These rules are intended to implement Iowa Code sections 455B.301A, 455B.304, and 455B.383.

567—102.213 to 102.299Reserved.

DIVISION IV
BENEFICIAL USE

567—102.300(455B) Purpose. The purpose of this division is to establish rules for determining when the utilization of a solid by-product constitutes beneficial use rather than the disposal of solid waste. Solid by-products determined by the department not to be a solid waste through a beneficial use determination will not be subject to regulation as disposal of solid waste. This division encourages the utilization of solid by-products, consistent with accepted engineering practices, when such utilization improves, or at a minimum does not adversely affect, human health and the environment.

567—102.301(455B) Applicability and compliance.

102.301(1) These rules establish a method for predetermination by the department that a proposed utilization of a solid by-product will not be regulated as solid waste disposal when utilized in the manner approved by the department. These rules apply to industrial, commercial,

and institutional generators and users or proposed users of solid by-products that before receiving a beneficial use determination by the department were disposing of solid by-products as solid waste. These rules encourage environmentally sound materials management practices to maximize the use of recoverable materials and to foster resource recovery. The department reserves the authority to modify or revoke any beneficial use determination authorized under these regulations.

102.301(2) These rules do not pertain to organic materials composting. Division I of this chapter contains rules pertaining to organic materials composting.

102.301(3) These rules do not pertain to the land application of solid waste. Division II of this chapter contains rules pertaining to the land application of solid waste.

102.301(4) These rules do not pertain to the beneficial use of waste tires. Division V of this chapter contains rules pertaining to the beneficial use of waste tires.

102.301(5) These rules do not pertain to alternative cover material. 567—Chapter 101, Division II, contains rules pertaining to sanitary landfills utilizing or desiring to utilize solid by-products as alternative cover material.

102.301(6) These rules do not apply to solid by-products that are directly incorporated into a manufacturing process to make a commercial product unless the use of a solid by-product as an ingredient in an industrial process or as a substitute for a commercial product may present a threat of harm to human health and the environment that is similar to the harm that would occur from the improper disposal of the solid by-product.

102.301(7) Beneficial use determinations granted by the department before [the effective date of this rule] shall remain in effect unless specifically addressed by these rules or by written notification pursuant to 567—102.307(455B).

102.301(8) The issuance of a beneficial use determination by the department affirms that the proposed use is not subject to regulation as solid waste disposal to the extent the use and solid by-product conforms to the beneficial use application and determination. The issuance of a beneficial use determination by the department in no way relieves the generator or user of the responsibility of complying with all other local, state, and federal statutes, ordinances, and rules or other applicable requirements.

102.301(9) Respondents in actions to enforce these regulations who raise a claim that a certain solid by-product is not a solid waste or is conditionally exempt from regulation shall demonstrate that there is a known market or disposition for the solid by-product and that they meet the terms of the exemption. Documentation (such as contracts showing that a second person or entity utilizes the solid by-product as an ingredient in a production process) is needed to demonstrate that the solid by-product is not a solid waste or is exempt from regulation.

102.301(10) To ensure that all solid by-product applications do not pose a threat to human health and the environment, the department has the authority to determine if a proposed use is beneficial and to approve or deny applications if such a benefit is not evident. Proposed beneficial uses in which the primary purpose is as a land disposal mechanism, and any beneficial use would be incidental in nature, will be denied in accordance with 567—102.308(455B).

102.301(11) All rules, standards, technical guidance, and other similar legal or technical documents referenced in this division shall be the version of those documents in effect on August 1, 2025, unless otherwise noted in these rules, and except for references to the Iowa Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

567—102.302(455B) Definitions. For the purposes of this division, the definitions in 567—Chapter 100 and Iowa Code section 455B.301 shall apply.

567—102.303(455B) Universally approved beneficial use determinations. The following solid by-products are hereby approved as the beneficial use of a solid by-product when utilized in the specific manners listed provided that such utilization is in compliance with 567—102.305(455B) and 567—102.306(455B). Unless an entity is otherwise notified by the department pursuant to 567—102.307(455B), such utilization does not require further approval from the department.

102.303(1) Asphalt shingles. Asphalt shingles that are certified, consistent with federal regulations (Reference: Appendix E, Subpart E, 40 CFR Part 763, Section 1, Polarized Light Microscopy), as not containing more than 1 percent asbestos may be used as follows:

- a. Subbase for hard-surface pavement construction.
- b. Road surfacing granular material.
- c. Asphalt pavement material.

102.303(2) Cement kiln dust. Cement kiln dust may be used as follows:

- a. Subbase for hard-surface pavement construction.
- b. A soil amendment pursuant to 21—Chapter 44 and other IDALS rules.
- c. A stabilizer for manure and waste sludge.
- d. For soil stabilization purposes.
- e. Structural fill or fill material.

102.303(3) Coal combustion residual.

- a. Coal combustion fly ash, bottom ash, or boiler slag may be used as follows:
 - (1) Subbase for hard-surface pavement construction.

(2) For soil stabilization purposes.

(3) Structural fill or fill material.

b. Coal combustion bottom ash or boiler slag may also be used as follows:

(1) Sandblasting or other abrasive.

(2) Granules for roofing shingles.

c. Coal combustion flue gas desulfurization, flue gas pollution control by-products, including but not limited to lime, activated carbon and synthetic gypsum, may be used as follows:

(1) For soil stabilization purposes.

(2) Soil amendment pursuant to 21—Chapter 44 or an agricultural liming material pursuant to 21—Chapter 43 and other IDALS rules.

102.303(4) *Foundry sand.* Foundry sand from steel and ferrous casting may be used as follows:

a. Leachate control drainage material at a sanitary landfill.

b. Subbase for hard-surface pavement construction.

c. Structural fill or fill material.

d. Emergency flood control use for sandbags.

e. Sandblasting or other abrasive.

102.303(5) *Glass.* Uncontaminated, unleaded glass may be used as follows:

a. Leachate control drainage material at a sanitary landfill.

b. Subbase for hard-surface pavement construction.

c. Structural fill or fill material.

d. Sandblasting or other abrasive.

e. Filter media.

102.303(6) *Gypsum and gypsum wallboard.* Gypsum and gypsum wallboard that have not been treated to be water-resistant or flame-retardant may be used as a soil amendment pursuant to 21—Chapter 44 and other IDALS rules.

102.303(7) *Lime.* Lime produced as a by-product of public water supplies may be used as a soil amendment pursuant to 21—Chapter 44 or an agricultural liming material pursuant to 21—Chapter 43 and other IDALS rules.

102.303(8) *Lime kiln dust.* Lime kiln dust may be used as follows:

a. Subbase for hard-surface pavement construction.

b. A soil amendment pursuant to 21—Chapter 44 or an agricultural liming material pursuant to 21—Chapter 43 and other IDALS rules.

c. A stabilizer for manure and waste sludge.

d. For soil stabilization purposes.

e. Structural fill or fill material.

102.303(9) *Paper mill sludge.* Uncontaminated, dewatered paper mill sludge may be used as follows:

a. A fuel or energy source.

b. Bulking agent or carbon source for composting.

c. Animal bedding.

102.303(10) *Rubble.* Uncontaminated rubble such as dirt, stone, brick, or similar inorganic materials may be used for beneficial fill, landscaping, excavation, or grading or as a substitute for conventional aggregate at places other than a sanitary disposal project. Asphalt, however, shall not be approved for any of these uses if such use will cause the asphalt to be placed in a waterway or wetland, in any waters of the state, or within a floodplain.

102.303(11) *Sandblasting abrasives.* Sandblasting abrasives that do not contain heavy metal-based paint may be used as follows:

- a. Subbase for hard-surface pavement construction.
- b. Structural fill or fill material.

102.303(12) *Wastewater filter sand.* Wastewater filter sand free of pathogens may be used as follows:

- a. Subbase for hard-surface pavement construction.
- b. Leachate control drainage material at a sanitary landfill.
- c. Structural fill or fill material.

567—102.304(455B) Application requirements for beneficial use determinations. Unless the beneficial use is approved pursuant to 567—102.303(455B), applicants will need to submit the following information on a form prescribed by the department. The department may request that additional information be submitted in order to make a beneficial use determination. The department may also require specific conditions on a beneficial use determination and issue a temporary determination on a trial basis.

A generator, user, or proposed user of a solid by-product may apply to the department in writing for a beneficial use determination. If the department finds the application information to be incomplete, then it shall notify the applicant in writing of that fact and of the specific deficiencies and return the application materials to the applicant within 30 days of such notification. The applicant may reapply without prejudice.

102.304(1) The name, address, email, and telephone number of:

- a. Owner of the site where the project will be located.
- b. Applicant for the beneficial use determination.

c. Official responsible for the operation of the project.

d. Professional engineer (P.E.) licensed by the state of Iowa and retained for the project, if any. The department may, at its sole discretion, require the applicant to retain a professional engineer for the project or specific parts thereof in order to obtain a beneficial use determination.

e. Agency to be served by the project, if any.

f. Responsible official of agency to be served, if any.

102.304(2) Scaled map or aerial photograph locating the boundaries of the proposed beneficial use site, if applicable, and identifying:

a. North and other principal compass points.

b. Section lines and other legal boundaries.

c. Zoning and land use within 750 feet.

d. Homes and buildings within 750 feet.

e. Haul routes to and from the site, including load limits or other restrictions on those routes.

102.304(3) A description of the solid by-product under review and its proposed use, including the process that will be used to transport and handle the solid by-product, including any equipment.

102.304(4) The chemical and physical characteristics of the solid by-product under review.

102.304(5) A demonstration that there is a known or reasonably probable market for the intended use of the solid by-product under review by providing one or more of the following:

a. A contract to purchase or utilize the solid by-product for the use proposed.

b. A description of how the solid by-product will be used.

c. A demonstration that the solid by-product complies with industry standards and specifications for that product.

d. Applications submitted by persons other than the generator must be accompanied by written consent for the proposed use from the generator.

e. Other documentation that a market for the solid by-product exists.

102.304(6) A demonstration that the proposed use of the solid by-product will not adversely affect human health and the environment. On a form prescribed by the department, the demonstration may include but is not limited to a toxicity characteristics leaching procedure analysis and total metals testing of a representative sample of the solid by-product.

102.304(7) A solid by-product management plan pursuant to 102.305(3).

567—102.305(455B) Requirements for beneficial use determinations.

102.305(1) *Solid by-products applied to land.* Unless otherwise approved by the department, all beneficial uses, including those listed in 567—102.303(455B) other than uncontaminated rubble and soil, shall meet the following requirements if the beneficial use entails the solid by-product being used as a fill material, structural fill, or subbase for hard-surface pavement construction or for soil stabilization purposes:

a. Leachate characteristics of the solid by-product to be measured by the toxicity characteristics leaching procedure (TCLP, Environmental Protection Agency (EPA) Method 1311) and be consistent with federal regulations (Reference: Table 1, Subpart C, 40 CFR 261, Maximum Concentration of Contaminants for the Toxicity Characteristic).

b. Leachate characteristics of the solid by-product to be measured by the synthetic precipitation leaching procedure (SPLP, EPA Method 1312) and shall be less than or equal to ten times the maximum contaminant levels (MCL) for drinking water (Reference: Subpart G, 40 CFR 141, National Primary Drinking Water Regulations). Applicants may limit the SPLP analytes to total metals for drinking water.

c. Total metals testing of the solid by-product (Total Metals, EPA Method 6010) shall comply with the department's current statewide standards for soil (reported on dry weight basis) pursuant to 567—Chapter 105, Division III. Levels shall be consistent with the statewide standards for soil or the naturally occurring (i.e., background) levels of the soil, whichever are greater.

d. The department may establish additional constituent standards from those outlined in this rule for a solid by-product. The department will review regulatory limits on a quarterly basis and post updates to the department website. It is the responsibility of each generator, applicant and end user to ensure solid by-products comply with the most current regulatory limits.

e. The solid by-product shall produce a material that has a pH:

(1) Greater than or equal to 5 and less than or equal to 8 if the solid by-product may be used as growing media either now or in the future.

(2) Greater than or equal to 5 and less than 12 if the solid by-product is specifically intended not to be used as growing media either now or in the future. In this category, solid by-products with a pH equal to or greater than 10 but less than 12 shall be used only in areas where direct physical contact by humans for long periods of time is not expected to occur.

(3) For applications where only the surface may serve as growing media either now or in the future, then at a minimum the top three feet shall have a pH greater than or equal to 5 and less than or equal to 8. Solid by-products below the top three feet shall have a pH greater than or equal to 5 and less than or equal to 12.

f. The solid by-product shall not be placed in a waterway or wetland or any waters of the state or extend below or within five feet of the high water table.

g. The solid by-product shall not be placed within a 100-year floodplain unless in accordance with all local and department regulations, including 567—Chapter 71.

h. The solid by-product shall not be placed closer than 200 feet to a sinkhole or to a well that is being used or could be used for human or livestock water consumption.

i. The solid by-product shall not be placed closer than 100 feet of any property line unless written consent is obtained from the adjacent landowner(s).

j. The solid by-product shall not be putrescible.

k. Any project utilizing a solid by-product being applied to land, not including uncontaminated rubble and soil, that has not received a beneficial use determination shall be presumed to constitute the illegal disposal of solid waste.

102.305(2) *Determination.* The department may make a determination that a solid by-product that has received approval to be used beneficially ceases to be a solid waste if it is used in accordance with the terms and conditions of the beneficial use determination. Unless otherwise determined for the particular solid by-product under review, the point at which a solid by-product ceases to be a solid waste occurs when it is used in a manufacturing process to make a product, used as an effective substitute for a commercial product, or used as a fuel for energy recovery.

102.305(3) *Solid by-product management plans.* Recipients of beneficial use determinations granted pursuant to 567—102.304(455B) and those beneficial uses listed in 102.305(1) shall develop and maintain a solid by-product management plan (SBMP) that satisfies the following:

a. Lists the source(s) of the solid by-product.

b. Outlines procedures for periodic testing (not less than semiannually) of the solid by-product to confirm the proposed use continues to be adequately protective of human health and the environment and that the solid by-product continues to possess the physical characteristics and chemical properties that make it suitable for the approved beneficial use. Testing results from a

certified laboratory pursuant to 567—Chapter 83 are to be submitted as part of the SBMP on a form prescribed by the department.

c. Provides a description of storage procedures including:

(1) Storage location(s).

(2) Maximum anticipated inventory, including dimensions of any stockpiles.

(3) Run-on and runoff controls, which may include a storm water National Pollutant Discharge Elimination System (NPDES) permit.

(4) Management practices to minimize uncontrolled dispersion of the solid by-product.

(5) Maximum storage time, not to exceed six months unless authorized in writing by the department.

567—102.306(455B) Recordkeeping and reporting requirements. Recipients of beneficial use determinations granted pursuant to 567—102.304(455B) and those beneficial uses listed in 102.305(1) shall comply with the following recordkeeping and reporting requirements.

102.306(1) *Recordkeeping.* An entity subject to this rule must maintain all records related to the solid by-product management plan for a minimum duration of five years after project completion.

102.306(2) *Reporting.* Unless otherwise directed by the department, solid by-product management plans are to be filed with the department's central office as follows:

a. An entity subject to this rule shall submit to the department a copy of the solid by-product management plan prior to reuse of the solid by-product, whenever that plan is revised, and within 60 days of the end of the calendar year, whichever is earlier.

b. An entity subject to this rule whose solid by-product is being applied to land pursuant to 102.305(1) shall also submit to the department the following information for each beneficial use project or activity:

- (1) The location of the project.
- (2) The tons of solid by-product utilized for the project.

567—102.307(455B) Revocation of beneficial use determinations. The department may revoke any beneficial use determination if it finds one or more of the following.

102.307(1) The matters serving as the basis for the department's determination were incomplete or incorrect or are no longer valid.

102.307(2) The department finds that there has been a violation of any law, rule, permit, or other authorization in its jurisdiction.

102.307(3) The department has reasonable cause to suspect, based upon information not previously considered or available as part of the application, demonstrating that management of the solid by-product under the approved beneficial use determination may present a significant risk to or adverse effect on human health and the environment.

102.307(4) The solid by-product is used in a manner inconsistent with the terms under which it was determined to no longer be a solid waste. The department may consider the placement, dumping, or other use of a solid by-product in a manner inconsistent with the beneficial use determination to be illegal disposal of solid waste, and the applicant, generator, distributor, or end user may be subject to enforcement action by the department pursuant to Iowa Code section 455B.307.

102.307(5) The applicant has requested the revocation of the determination or other legal grounds exist for such revocation.

567—102.308(455B) Denial of beneficial use determination applications. For applications that are found to be inconsistent with these regulations by the department, the following conditions apply.

102.308(1) The department will notify the applicant in writing of the denial, including supporting rationale, within 90 days of receipt of application.

102.308(2) Solid by-products for which a beneficial use determination is denied by the department are considered solid waste and remain subject to all applicable state and federal statutes, ordinances, and regulations.

102.308(3) Applicants may appeal the denial of a beneficial use determination to the department within 60 days of notification of denial. Such appeal shall be made in a manner consistent with 561—7.4(17A,455A).

567—102.309 to 102.399Reserved.

These rules are intended to implement Iowa Code section 455B.304(19).

DIVISION V

WASTE TIRE MANAGEMENT

567—102.400(455D) Purpose. The purpose of this division is to establish guidelines for the proper management of waste tires, including collection, hauling, storage, processing, disposal, and beneficial reuse of waste tires and processed waste tire materials. This division shall not be construed to exempt a waste tire stockpile site, processing facility, or waste tire hauler from compliance with more stringent local ordinances, fire codes, or other applicable statutes. All rules, standards, technical guidance, and other similar legal or technical documents referenced in this division shall be the version of those documents in effect on August 1, 2025, unless otherwise

noted in these rules, and except for references to the Iowa Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

567—102.401(455D) Definitions. For the purposes of this division, the definitions in 567—Chapter 100 and Iowa Code sections 455D.11 and 455D.11I shall apply. In addition, “stockpile” as used in this division shall mean the storage or collection of waste tires in anticipation of final disposal.

567—102.402(455D) Registration of waste tire haulers. A waste tire hauler shall register with and obtain a certificate of registration from the department in accordance with this division before hauling waste tires in Iowa. Waste tire haulers that pick up tires within Iowa or that bring waste tires to Iowa for disposal, stockpiling, or processing shall be required to register.

102.402(1) *Registration exemption.* A waste tire hauler shall not be required to register under the following circumstances:

a. The waste tire hauler only travels through the state with waste tires as a part of interstate commerce and does not pick up, deposit, transfer, store, or dispose of any waste tires in Iowa.

b. The waste tire hauler is a municipal, county, state, or other public agency; the vehicles used for transport of the waste tires are owned and licensed by the public agency; and the agency hauls no more than 10,000 waste tires within a 12-month period.

102.402(2) *Annual registration.*

a. A waste tire hauler registration shall be valid for one year, and the waste tire hauler must annually renew the waste tire hauler registration in order to continue to provide waste tire hauling services within the state.

b. Initial registration of a waste tire hauler shall be valid upon the date of issuance by the department and shall be effective for a minimum 12-month period thereafter, with expiration of

the initial registration to occur on either January 1 or July 1, whichever date occurs most closely after the initial 12-month registration period.

c. Subsequent annual renewal of the waste tire hauler's registration shall then occur on either January 1 or July 1, subject to the date of the original expiration as referenced in 102.402(2) "b."

102.402(3) *Registration form.* A waste tire hauler shall submit the following information on a form prescribed by the department for application for or renewal of registration as a waste tire hauler.

a. The name of the waste tire hauler and any other names under which the waste tire hauler may do business.

b. The principal address of the waste tire hauler and any other address at which the waste tire hauler may do business.

c. A business telephone number.

d. The name and address of the principal officer of a corporate waste tire hauler or the principal owner or owners of a waste tire hauler operating a proprietorship or partnership.

e. The following information for each motor vehicle used by the waste tire hauler for hauling waste tires:

(1) The name and address of the owner of the vehicle.

(2) The vehicle identification number of the vehicle.

(3) The year, make, and model of the vehicle.

(4) The license plate number of the vehicle.

(5) The name of the state in which the vehicle is registered.

f. A statement that the waste tire hauler agrees to comply with the vehicle identification requirements contained in this division.

g. The name of the permitted facility for waste tire disposal, stockpiling, or processing or of another site of end use where the waste tires will be transported.

h. A statement that the waste tire hauler shall pay all amounts due to any individual or group of individuals when due for damages caused by improper disposal of waste tires by the waste tire hauler or the waste tire hauler's employee while acting within the scope of employment.

i. A statement that the waste tire hauler agrees to notify the department within 30 days of any change in the information contained in the registration form.

j. The signature of the waste tire hauler.

102.402(4) *Waste tire hauler registration fee.* An application for initial registration or renewal shall be accompanied by a fee of \$50.

567—102.403(455D) Waste tire hauler bond.

102.403(1) An application for registration or renewal shall not be approved by the department until the waste tire hauler has provided a surety bond in the sum of a minimum of \$150,000, as provided for in Iowa Code section 455D.11I(6).

102.403(2) Bond requirements.

a. The bond shall be on a form prescribed by the department, and executed by a surety company authorized by the commissioner of insurance to do business in Iowa. The bond provided to the department shall be an original, or copy thereof.

b. The surety shall name the state of Iowa as the obligee for the bond.

c. The bond shall be continuous in nature until canceled by the surety. The surety shall provide at least 30 days' notice in writing to the waste tire hauler and the department in the event of any intent to cancel the bond and the effective date of the cancellation.

d. The waste tire hauler shall provide the department with a statement from the surety with each waste tire hauler registration renewal application, noting that the bond is paid and current for the annual period for which the waste tire hauler has applied for registration renewal.

567—102.404(455D) Marking of equipment. The following information shall be displayed on each side of equipment used by a registered waste tire hauler for the hauling of waste tires in letters and figures large enough to be read easily at a distance of 50 feet and in a color in contrast to the background.

1. The name of the registered waste tire hauler under whose authority the equipment is being operated.
2. The address of the registered waste tire hauler (city and state).
3. The registration number of the waste tire hauler, as assigned by the department. The hauler shall apply the letters and symbol “IA TH#” preceding the assigned registration number.

567—102.405(455D) Disposition of waste tires collected.

102.405(1) All tires collected by a waste tire hauler for which a fee has been collected or is to be charged shall be defined as solid waste and shall be regulated as such.

102.405(2) Upon receipt of waste tires from a person or business, the waste tire hauler shall handle the waste tires as follows:

- a.* The waste tires shall be directly transported to a tire collector, tire processor, or waste tire stockpile site as permitted and approved by the department or applicable local or state agencies.
- b.* The waste tires must be transported to a permitted site within 72 hours of initial pickup from the generator of the waste tires.
- c.* The waste tire hauler may not establish or operate any intermediate stockpiling, waste sorting, transfer, or processing activities regarding the waste tires collected unless such activities

occur at a facility or site for which a waste tire stockpile permit or processing permit has been issued in accordance with Iowa Code section 455D.11, 567—102.407(455D), and 567—102.409(455D).

567—102.406(455D) Waste tire hauler reporting requirements. A registered waste tire hauler shall submit a semiannual report to the department on a form prescribed by the department. The report shall provide the department with appropriate information to ensure that waste tires recovered by the waste tire hauler have been handled properly for disposal or processing. Failure of a registered waste tire hauler to submit a timely report will result in denial of the waste tire hauler's renewal of registration.

102.406(1) Reporting period. A waste tire hauler shall submit semiannual reports to the department according to the following schedule:

a. For waste tires collected during the six-month period beginning January 1 through June 30, the hauler shall submit a report by the following September 1.

b. For waste tires collected during the six-month period beginning July 1 through December 31, the hauler shall submit a report by March 1 of the following year.

102.406(2) Information required. The semiannual report shall include the following information. All waste tire quantities determined by count or weight shall be reported in passenger tire equivalents.

a. Quantity of waste tires collected by the waste tire hauler from within Iowa for the reporting period.

b. Quantity of waste tires that are brought to Iowa by the waste tire hauler from out-of-state sources for the reporting period.

c. Final disposition of all the waste tires collected during the reporting period by listing each tire collector, tire processor, waste tire stockpile site, or other beneficial site of end use, as approved by the department, and the total quantities of waste tires that the hauler has delivered to each.

102.406(3) *Documentation and recordkeeping.* A waste tire hauler shall keep appropriate records, including but not limited to receipts, invoices, or manifests, to document all quantities of waste tires hauled and disposed of by the waste tire hauler for the reporting period. These records shall be kept by the waste tire hauler for a minimum of three years and shall be available for audit or inspection at the request of the department.

567—102.407(455D) Waste tire stockpiling.

102.407(1) *Quantity limitations.*

a. No business or individual shall stockpile more than 500 passenger tire equivalents without obtaining a permit for a waste tire stockpile pursuant to 102.407(2).

b. Businesses or individuals may temporarily stockpile up to 1,500 passenger tire equivalents without obtaining a waste tire stockpile permit, subject to the following requirements:

(1) The waste tires are stockpiled only in a mobile container, truck, or trailer provided or serviced by a registered waste tire hauler.

(2) The waste tires are removed by a registered waste tire hauler or delivered to a permitted waste tire processor at least every 60 days.

(3) The waste tire generator has a written copy of a contract or service agreement for waste tire disposal services from a registered waste tire hauler.

c. A permitted sanitary disposal project shall be allowed to stockpile up to 1,500 passenger tire equivalents without a permit if the waste tires are removed at least every 120 days and are stockpiled in a manner to minimize the collection of water.

d. Persons who use waste tires for an approved beneficial use shall not be required to obtain a waste tire stockpile permit, subject to their compliance with the provisions of 567—102.411(455D).

102.407(2) *Waste tire stockpile permits.*

a. Any tire collector, business, or individual stockpiling more than 500 passenger tire equivalents on any one site must obtain a waste tire stockpile permit. An authorized vehicle recycler, as licensed by the Iowa department of transportation, may store up to 3,500 passenger tire equivalents without a waste tire stockpile permit; any storage beyond this amount shall require full compliance with this subrule. This subrule is applicable to the indoor, outdoor, and underground storage of waste tires. If the site cannot meet the conditions to obtain a waste tire stockpile permit, all waste tires must be removed from the site and properly disposed of within 30 days of notification by the department.

b. Any tire collector, business, or individual seeking to construct a waste tire stockpile under this subrule must obtain a permit from the department prior to initiating operations. The permit shall be issued to the owner of the site or the designated tire collector that will be operating the stockpile.

c. Waste tire stockpile permits shall have an annual fee of \$850, payable to the department upon the application for a permit, and due annually beginning each July 1 thereafter at the rate of \$850. Permit fees shall not be prorated. The permit shall be valid for a period of three years from

date of issuance. Failure to remit the annual renewal fee to the department shall be cause for revocation pursuant to 567—100.13(455B,455D).

d. Application for a permit shall be on a form prescribed by the department and include, at a minimum, the following:

(1) The name, address, and telephone number of the individual who directly owns the stockpile site.

(2) The name, address, and telephone number of the tire collector at the stockpile site, if different from the owner.

(3) A scaled map showing all areas proposed to be used for the stockpiling of waste tires, all property boundaries of the site, and the location of all buildings and major improvements on the site and within 300 feet of the property boundary.

(4) A vector control plan to prevent infestations of mosquitoes and rodents for aboveground storage. The plan shall be prepared by a firm that provides professional vector management services. Upon request, the permittee must provide documentation to show implementation and monitoring of the approved vector control plan.

(5) A site closure plan describing the actions that would be taken to properly dispose of all waste tire materials at the site 30 days prior to any intent to discontinue operations, so that upon discontinuance of operations, no violation of waste tire or solid waste disposal laws will exist.

(6) An emergency response and remedial action plan, developed and implemented according to 567—100.14(455B). The applicant shall provide documentation that an opportunity for input and review of the plan was extended to the local fire department and local emergency management coordinator.

(7) A financial assurance instrument in compliance with 567—102.410(455D).

(8) A certified check for \$850 made payable to the Iowa department of natural resources.

102.407(3) *Permitted stockpiling requirements.*

a. A permitted waste tire stockpile site in an open area shall meet the following minimum permit conditions:

(1) The site shall not contain more than 250,000 passenger tire equivalents.

(2) A single waste tire pile shall not contain more than 50,000 cubic feet of waste tires.

(3) The vertical dimension of a waste tire pile shall not exceed ten feet.

(4) A single waste tire pile shall not be more than 100 feet in length.

(5) The surface area covered by a waste tire pile shall not exceed 5,000 square feet; the pile may not be constructed upon any waste tire materials or other flammable materials.

(6) A 50-foot fire lane must be maintained between any two waste tire piles.

(7) All waste tire piles shall be located at least 50 feet from any building.

(8) Trees and brush shall be cleared within 50 feet of any waste tire pile.

(9) Combustible materials or volatile chemicals shall not be stored within 50 feet of any waste tire pile unless stored in approved fire-resistant containers or cabinets.

(10) A 20-pound Class ABC dry chemical fire extinguisher shall be available within 100 feet of any one portion of the waste tire stockpile area.

(11) The site must be graded to prevent any standing pools of water and to limit the runoff and run-on of precipitation in all areas where waste tires are stockpiled.

(12) A waste tire pile must be at least 200 feet from any well, lake, pond, river, stream, sinkhole, or tile line surface intake unless appropriate grading, or the construction of a barrier, dike, or berm, is completed to intercept surface water flows that may impact such interceptors. This distance may then be reduced to 50 feet.

(13) The stockpile site must be secured by a fence or barrier of a minimum of six feet in height to impede unauthorized vehicle and personal access. All gates and entry points shall be secured and locked when site personnel are not present.

(14) No open burning of any type shall be allowed at the permitted stockpile site. All fueling of vehicles and equipment and any other work or activity that may release sparks or flame shall be conducted at least 50 feet from any waste tire stockpiling area.

(15) Signs shall be posted every 100 feet on site, placed for visibility of personnel on site, that state: "Open burning on-site prohibited." The perimeter of the site shall be posted with signs every 100 feet, placed for visibility to those offsite, that state: "Highly flammable materials on-site. Burning in area not recommended."

(16) All waste tire piles shall be located at least 300 feet from any property line, street, or public right-of-way.

b. A permitted waste tire stockpile site in an enclosed area shall meet the minimum permit conditions in 102.407(3) "a"(2) through "a"(6), as well as the following:

(1) To qualify as an enclosed area, the area must be enclosed in a structure with a permanent roof and lateral protection to prevent precipitation from accumulating within the waste tires.

(2) An enclosed stockpiling structure shall not contain more than 50,000 passenger tire equivalents.

(3) Combustible materials other than waste tires or volatile chemicals shall not be stored in a structure permitted for waste tire stockpiling unless stored in approved fire-resistant containers or cabinets.

(4) A 20-pound Class ABC dry chemical fire extinguisher shall be available within 50 feet of any one portion of the waste tire stockpiling area.

(5) The structure must be secured from unauthorized access.

(6) No open burning of any type shall be allowed at the permitted stockpile site. All fueling of vehicles and equipment and any other work or activity that may release sparks or flame shall be conducted at least 50 feet from any waste tire stockpiling area. The exterior of the enclosed stockpiling area shall be posted with signs, placed every 100 feet, that state: “Highly flammable materials stored inside. Burning on-site prohibited.”

102.407(4) *Reporting requirements.* The holder of a permit for a waste tire stockpile facility shall submit a semiannual report to the department on a form prescribed by the department. The report shall state the following:

a. Quantity of waste tires stockpiled at the facility at the time of reporting determined by count or weight and reported in passenger tire equivalents.

b. Quantity of waste tires received from in-state sources for the reporting period.

c. Quantity of waste tires received from out-of-state sources for the reporting period.

d. For any waste tires removed from the permitted waste tire stockpile facility during the reporting period, quantity given by equivalent count or weight of such waste tires removed. Documentation shall be provided to denote how the reported quantity of tires were disposed of at a permitted facility, processed, or reused.

567—102.408(455D) Used tires.

102.408(1) *Used tire storage.* A used tire other than a waste tire shall be stored in a manner that provides for the following:

a. Prevention of the collection of water, dirt, or debris within the tire.

b. Organized storage through stacking, rows, and sorting that provides for accurate descriptions and counts of the types and sizes of tires.

c. Storage conforms to applicable local and state fire codes.

102.408(2) *Quantity limitations.* Used tires stored for more than one year without documentation of active resale or reuse, of tire inventory in a proportion equal to 75 percent of the amount stored, shall be considered waste tires and shall be subject to the applicable waste tire stockpiling and disposal rules of this division.

567—102.409(455D) Waste tire processing.

102.409(1) *Waste tire processing permits.*

a. Any business or individual operating a tire processing facility shall obtain a waste tire processing permit prior to initiating operations. The permit shall be issued to the owner of the site or the individual that will be operating the waste tire processing facility.

b. A permitted sanitary disposal project that accepts waste tires to cut, grind, or compact only for final disposal shall not be required to obtain a waste tire processing permit. Such facilities shall not store any cut or shredded waste tire materials for more than 30 days prior to final disposal.

c. Businesses or individuals operating mobile waste tire processing equipment shall be required to obtain a waste tire processing permit. The permit shall authorize the operator to provide waste tire processing services statewide; however, mobile operations shall not be allowed to store any processed or whole waste tires at any facility or site owned or operated by the permittee unless specifically authorized in writing by the department.

d. Businesses or individuals who cut, grind, or compact for disposal waste tires generated directly from operations at their own on-site manufacturing operation or vehicle or equipment service facility shall not be required to obtain a waste tire processing permit provided all waste tire materials processed on site are disposed of at least every 30 days at a permitted facility.

e. Processing permits shall have an annual fee of \$850, payable to the department upon the application for a permit, and due annually beginning each July 1 thereafter at the rate of \$850. Permit fees shall not be prorated. The permit shall be valid for a period of three years from date of issuance. Failure to remit the annual renewal fee shall be cause for revocation pursuant to 567—100.13(455B,455D).

f. A permitted waste tire processing facility shall have a site closure plan. The plan shall describe the actions that would be taken to properly dispose of all waste tire materials, in whole or processed form, at the site 30 days prior to any intent to discontinue operations so that, upon discontinuance of operations, no violation of waste tire or solid waste disposal laws exist.

g. A permitted processing facility shall have an emergency response and remedial action plan, developed and implemented according to 567—100.14(455B). The applicant shall provide documentation that an opportunity for input and review of the plan was extended to the local fire department and local emergency management coordinator.

h. A permitted waste tire processing facility shall obtain financial assurance in accordance with 567—102.410(455D), as necessary.

i. Application for a permit shall be on a form prescribed by the department and include, at a minimum, the following:

(1) The name, address, and telephone number of the individual who directly owns the tire processing facility.

(2) The name, address, and telephone number of the operator of the waste tire processing facility, if different from the owner.

(3) The type of processing operations to be conducted, including descriptions of processing equipment and its hourly capacity, operating hours of the facility, and types of processed tire materials to be produced.

(4) A scaled map showing all areas proposed for waste tire stockpiling and processing operations, all property boundaries of the site, and the location of all buildings and major improvements on the site and within 300 feet of the property boundary.

(5) A site closure plan as referenced in 102.409(1) “f.”

(6) An emergency response and remedial action plan as referenced in 102.409(1) “g.”

(7) A certified check for \$850 made payable to the Iowa Department of Natural Resources.

(8) A financial assurance instrument as referenced in 102.409(1) “h.”

102.409(2) *Permitted processing requirements.* A permitted waste tire processing facility shall meet the following minimum permit requirements.

a. The site must be graded to prevent any standing pools of water and to limit the runoff and run-on of precipitation in all areas where waste tires are stockpiled or processed tire material is staged prior to sale.

b. The processing facility site must be secured by a fence or barrier of a minimum of six feet in height to impede unauthorized vehicle and personal access. All gates and entry points shall be secured and locked when site personnel are not present.

c. No open burning of any type shall be allowed at the permitted waste tire processing facility. All fueling of vehicles and equipment and any other work or activity that may release sparks or flame shall be conducted at least 50 feet from any waste tire stockpiling area.

d. Signs shall be posted every 100 feet on site, placed for visibility of personnel on site, and state: “Open burning on-site prohibited.” The perimeter of the site shall be posted with signs

every 100 feet, placed for visibility to those offsite, that state: “Highly flammable materials on-site. Burning in area not recommended.”

102.409(3) *Preprocessed whole waste tire stockpiling.*

a. Permitted stockpiling of whole waste tires on site prior to processing shall be limited to the quantity of waste tires that the facility has the ability to process within a three-day period. This quantity shall be determined by multiplying the actual number of working hours that processing is normally to occur during a typical three-day period by 80 percent of the manufacturer’s specifications of hourly capacity of the processing equipment. After one year of the facility’s operation, documented actual hourly production shall be used for this permit determination in lieu of the manufacturer’s equipment specifications.

b. A permitted waste tire processor may stockpile an additional three-day capacity of preprocessed whole waste tires, above the initial three-day capacity, using the same quantity determination as stated in 102.409(3)“a,” subject to the tire processor’s obtaining and maintaining financial assurance for these additional waste tires to be stockpiled prior to processing in accordance with 567—102.410(455D).

c. Under no circumstance shall a permitted waste tire processor be allowed to stockpile more than 75,000 preprocessed whole waste tires, measured as passenger tire equivalents, through any combination of processing performance or financial assurance. All waste tires on site, including those stored indoors or outdoors or in trucks, trailers, or mobile cages, shall be counted in determining compliance with this subrule.

d. Any single waste tire shall not be stockpiled at the processing facility for more than 30 days before the tire is processed.

e. Preprocessed whole waste tires stockpiled outdoors shall comply with 102.407(3)“a”(2) through “a”(16), and any waste tires stockpiled in trucks, trailers, or mobile containers must be at least ten feet from any property line or building.

f. Indoor stockpiling of whole waste tires shall not be allowed within 20 feet of any waste tire processing or handling equipment. All waste tires being actively unloaded and fed into processing equipment, including those being off-loaded from trucks, trailers, or mobile containers, shall be cleared at least 20 feet away from the processing equipment by the end of the last working shift of the day. Any remaining indoor stockpiling shall comply with the requirements of 102.407(3)“b”(3) through “b”(6) and the following:

(1) No more than 25,000 passenger tire equivalents shall be stockpiled indoors.

(2) Combustible materials or volatile chemicals shall not be stored within 25 feet of any waste tire stockpile area unless they are stored in approved containers pursuant to applicable fire codes.

(3) A 20-pound Class ABC dry chemical fire extinguisher shall be available within 50 feet of any one portion of indoor tire stockpile area.

(4) The stockpiling structure must be secured from unauthorized access.

102.409(4) *Processed waste tire storage.*

a. Storage of processed waste tire materials at a waste tire processing facility shall be limited to the volume of material in aggregate that the processor manufactures within a consecutive 60-day period, using the facility’s daily average capacity for processing whole waste tires as determined in 102.409(3)“a.” The department shall have the final authority for determining the allowable quantities of processed tire materials to be stored.

b. Under no circumstances shall the equivalent of more than 500,000 processed tires, or 5,000 tons of material, be stored at the permitted waste tire processing site.

c. All processed waste tire material at the site of processing shall be stored as follows:

(1) Processed tires shall be stored in piles no more than 15 feet in height, 100 feet in length, and 50 feet in width and shall contain no more than 75,000 cubic feet of product by volume.

(2) A 50-foot fire lane must be maintained between piles of processed tire material, with the base of the lane kept free from the accumulation of waste tire-derived residuals or materials or other debris.

(3) All processed waste tire material shall be stored at least 50 feet from any property line, street, public right-of-way, or building.

(4) Trees and brush shall be cleared within 50 feet of the storage of all processed waste tire material.

(5) A 20-pound Class ABC dry chemical fire extinguisher shall be available within 100 feet of any one portion of processed waste tire stockpile area.

d. For indoor storage of more than 5,000 cubic feet of processed waste tire material, the material shall be stored on concrete floors and all retaining walls, bins, barriers, and roofing material for the material storage shall be constructed of nonflammable materials.

e. The processor must demonstrate a reasonable market demand for all types and quantities of processed product stored at the waste tire processing facility. Market demand for processed waste tire products shall be demonstrated by the processor through at least one of the following criteria:

(1) Active contracts, purchase orders, or supply agreements with an end user, noting quantities of material required by the end user, specifications of the quality of the product required by the end user, and monthly or annual demand of product by the end user from the processor. This information shall be made available for review by the department as required to determine compliance with this subrule.

(2) Historic, ongoing demand for product by an end user or type of end user within the state or surrounding region.

(3) Information and evidence that any proposed new product or use for processed waste tires produced by the tire processor will be marketed in a timely fashion, with sufficient demand and consumption by end user markets.

f. The department shall have the final authority in determining storage limitations, including prohibition, for processed waste tire products when active markets are not evident from information provided by the waste tire processor.

102.409(5) *Reporting requirements.* The holder of a permit for a waste tire processing facility shall submit a semiannual report to the department on a form prescribed by the department. The report shall state the following:

- a.* Quantity of waste tires received by the facility during the reporting period.
- b.* Quantity of waste tires received by the facility from in-state sources.
- c.* Quantity of waste tires received by the facility from out-of-state sources.
- d.* Quantity of unprocessed waste tires on hand at the facility at the time of reporting.
- e.* Quantity of waste tires processed and delivered to end users during the reporting period, by product type, with determinations of quantities of product delivered to identified in-state and out-of-state markets or sites.
- f.* Quantity of processed tire material currently stored at the facility, by product type.

102.409(6) *Disposal of solid wastes.*

a. All waste materials, residuals, and scraps derived from waste tire processing operations shall be regulated as solid waste. These materials include but are not limited to tire bead rings, metal wire, synthetic fibers, and cording.

b. All of these solid wastes must be disposed of at least every 60 days at a permitted sanitary disposal project, scrap recycler, or location, as approved by the department.

c. Documentation of the disposal of these solid wastes must be kept at the waste tire processing facility for a period of three years and shall be available for audit or inspection at the request of the department.

567—102.410(455D) Financial assurance requirements. Permitted waste tire processing sites and waste tire stockpile sites must obtain and submit a financial assurance instrument to the department in accordance with Iowa Code section 455D.11A and this rule.

102.410(1) *No permit without financial assurance.* The department shall not issue or renew a permit to an owner or operator of a waste tire processing or stockpile site until a financial assurance instrument(s) has been submitted to and approved by the department, as necessary.

102.410(2) *Financial assurance amounts required.*

a. Waste tire stockpile sites shall have financial assurance coverage equal to \$2.50 per passenger tire equivalent collected and stockpiled.

b. Waste tire processing sites shall have financial assurance coverage equal to \$2.50 per passenger tire equivalent stockpiled above the permitted three-day processing capacity, in accordance with 102.409(3) “b.”

102.410(3) *Allowable financial assurance instruments.* The instruments used to demonstrate financial assurance must ensure that the funds necessary to properly dispose of any waste tires that may remain at a permitted waste tire stockpile or waste tire processing site due to the owner’s or operator’s failure to properly close the site within 30 days of permit termination, revocation, or expiration. The financial assurance instrument must be legally valid, binding, and enforceable under Iowa law and shall not be canceled, revoked, disbursed, released, or allowed to terminate

without the approval of the department. Owners or operators must choose from options in 102.410(3)“a” through “e,” as provided for in Iowa Code section 455D.11A(3).

a. Cash. Cash payments shall be provided by a certified check, made payable to the Iowa Department of Natural Resources.

b. Surety bond. An owner or operator may demonstrate financial assurance for closure by obtaining a payment or performance surety bond, which conforms to the requirements of this paragraph. The surety bond agreement shall be on a form prescribed by the department and executed by a surety company authorized by the commissioner of insurance to do business in Iowa. The owner or operator shall provide the department with a statement from the surety with each permit renewal application, noting that the bond is paid and current for the period for which the applicant has applied for permit renewal. The executed surety bond provided to the department shall be an original, or copy thereof, that addresses the following:

(1) The penal sum of the bond must be in an amount at least equal to the amount specified in 102.410(2).

(2) Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond and upon notice from the department pursuant to 102.410(8)“e.”

(3) The owner or operator must also establish a standby trust fund. The standby trust fund must meet the requirements of 102.410(3)“d.”

(4) Payments made under the terms of the letter of credit will be deposited by the issuing institution directly into the standby trust fund. Payments from the trust fund must be authorized by the trustee pursuant to 102.410(3)“d”(3).

c. Letter of credit. An owner or operator may demonstrate financial assurance for closure by obtaining an irrevocable standby letter of credit, which conforms to the requirements of this paragraph. The letter of credit agreement shall be on a form prescribed by the department, and the issuing institution must be an entity that has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency. The owner or operator shall provide the department with a statement from the issuing institution with each permit renewal application, noting that the letter of credit is paid and current for the period for which the applicant has applied for permit renewal. The executed letter of credit provided to the department shall be an original, or copy thereof, that addresses the following:

(1) The letter of credit must be irrevocable and issued for a period of at least one year in an amount at least equal to the amount specified in 102.410(2).

(2) The provision of funds by the issuer of the letter of credit shall be considered an issuance of a loan to the owner or operator, and the terms of that loan shall be governed by the letter of credit or subsequent agreement between those parties.

(3) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date; providing the name and address of the facility; and providing the amount of funds assured must be included with the letter of credit submitted to the department.

(4) The owner or operator must also establish a standby trust fund. The standby trust fund must meet the requirements of 102.410(3) “d.”

(5) Payments made under the terms of the letter of credit will be deposited by the issuing institution directly into the standby trust fund. Payments from the trust fund must be authorized by the trustee pursuant to 102.410(3) “d”(3).

d. Trust fund. An owner or operator may demonstrate financial assurance for closure by establishing a trust fund that conforms to the requirements of this paragraph. The trust fund agreement shall be on a form prescribed by the department, and the trustee must be an entity that has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency. The executed trust fund provided to the department shall be an original, or copy thereof, that addresses the following:

(1) The trust fund shall be in an amount least equal to the amount specified in 102.410(2).

(2) The owner or operator shall provide the department with a statement from the trustee with each permit renewal application, documenting the current value of the trust fund complies with 102.410(2).

(3) The owner or operator, department, or other person authorized to conduct closure may request reimbursement from the trustee for these expenditures as they are incurred. Requests for reimbursement will be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of proper site closure. The owner or operator, or other person authorized to conduct closure, must submit to the department documentation of the justification for reimbursement and verification that reimbursement has been received.

e. Corporate guarantee. An owner or operator that satisfies the requirements of this paragraph may demonstrate financial assurance for closure by obtaining a written guarantee.

(1) *Affiliation.* The guarantor must be the direct or higher-tier parent corporation of the owner or operator, a firm whose parent corporation is also the parent corporation of the owner or operator, or a firm with a substantial business relationship with the owner or operator. A certified copy of the executed guarantee must be placed in the facility's operating record along with copies of the letter from the guarantor's chief financial officer and the independent certified public

accountant's opinion(s). If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter from the guarantor's chief financial officer must describe the value received in consideration of the guarantee. If the guarantor is a firm with a substantial business relationship with the owner or operator, this letter must describe this substantial business relationship and the value received in consideration of the guarantee.

(2) Terms of the written guarantee. The guarantee must be effective and all required submissions made to the department prior to the initial receipt of waste tires or before the cancellation of an alternative financial assurance instrument, in the case of closure. The guarantee must provide that:

1. If the owner or operator fails to perform proper closure of a site covered by the guarantee, or fails to obtain alternative financial assurance within 90 days of notice of intent to cancel pursuant to 102.410(8), the guarantor will:

- Perform, or pay a third party to perform, proper closure as required (performance guarantee); or
- Establish a fully funded trust fund as specified in 102.410(3) "d" in the name of the owner or operator (payment guarantee);

2. The guarantee will remain in force for as long as the owner or operator must comply with the applicable financial assurance requirements of this rule unless the guarantor sends prior notice of cancellation by certified mail to the owner or operator and to the department pursuant to 102.410(8).

(3) The department may, based on a reasonable belief that the corporate guarantor may no longer assure the funds of the written guarantee, require at any time the corporate guarantor to provide reports of its financial condition. If a corporate guarantor can no longer assure the funds

of the written guarantee, the owner or operator must submit to the department proof of alternative financial assurance within 90-days of written notification by the department.

102.410(4) *Use of multiple financial assurance instruments.* An owner or operator may satisfy the requirements of 567—102.410(455D) by establishing more than one financial assurance instrument per site, except that instruments guaranteeing performance rather than payment may not be combined with other instruments. The instruments must be a combination of those instruments outlined in 102.410(3) and must provide financial assurance for an amount sufficient to satisfy the requirements of 102.410(2).

102.410(5) *Exemption.* The requirement for financial assurance shall not apply to waste tire stockpiling or processing sites operated by a city or county or operated in conjunction with a permitted sanitary landfill.

102.410(6) *Benefit of creditors; final judgment.* The financial assurance instrument shall not be assigned for the benefit of creditors with the exception of the state and shall not be used to pay any final judgment against a permit holder arising out of the ownership or operation of the site.

102.410(7) *Failure to undertake closure activities.* The department shall have full rights of access to all funds existing in a permitted facility's financial assurance instrument(s), at the sole discretion of the department, if the permit holder fails to undertake closure activities after being directed to do so by a final agency action of the department. These funds shall be used only for the purposes of funding closure activities at the site.

102.410(8) *Financial assurance cancellation and permit suspension.*

a. A financial assurance instrument may be terminated by the owner or operator only if the owner or operator substitutes alternative financial assurance prior to cancellation or if the owner

or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

b. A financial assurance instrument shall be continuous in nature until canceled by the financial assurance provider, or until the department gives written notification to the owner or operator and the financial assurance provider, that the covered site has demonstrated compliance with the applicable closure requirements. The financial assurance provider shall give at least 90 days' notice in writing to the owner or operator and to the department in the event of any intent to cancel a financial assurance instrument, as evidenced by the return receipts.

c. Within 30 days of receipt of a written notice of cancellation of a financial assurance instrument, the owner or operator must provide the department with proof of alternative financial assurance or notice from the issuing institution of withdrawal of the cancellation. If a means of continued financial assurance is not provided within the 30-day time frame, the department shall suspend the permit.

d. The owner or operator shall perform proper closure within 30 days of the permit suspension, termination, revocation, or expiration. For the purpose of this subrule, proper closure means removal of all waste tires and related products from the site or facility through acceptable disposal or processing options.

e. If the owner or operator does not properly close the site within the 30-day period allowed, this shall constitute a failure to perform and the department shall file a claim with the financial assurance instrument provider to collect the amount of funds necessary to properly close the site prior to the expiration of the 90-day notice period.

f. Any financial assurance instrument provided to the department must remain in continuous effect until the department gives written notification to the owner, operator, and financial

assurance provider that the covered site has been properly closed. An owner or operator who elects to terminate a permitted activity, whose renewal application has been denied, or whose permit has been suspended or revoked for cause must submit within 30 days of the termination of the permit a schedule for completing proper closure of the terminated activity. Closure completion cannot exceed 180 days from the date of termination of the permit.

g. The department may request payment from any financial assurance provider for the purpose of completing proper site closure when the owner or operator declares an economic inability to comply with this rule either by sending written notification to the department or through an action such as but not limited to filing for bankruptcy.

567—102.411(455D) Beneficial use of waste tires.

102.411(1) *Role of the department.* In order to ensure that proposed uses of whole or processed waste tires do not pose a threat to the environment or to the public health, welfare, and safety, the department shall have the authority to determine if a proposed use is beneficial and shall have the authority to approve or deny applications if such a benefit is not evident. Proposed beneficial uses in which the primary purpose of the project is as a land disposal mechanism shall not be approved.

102.411(2) *Beneficial uses for whole waste tires.* The following applications shall be considered acceptable beneficial uses for whole waste tires:

- a. Tire swings, sandboxes, or other equipment for child play areas on residential lots or at schools, care centers, and recreational areas;
- b. Dock bumpers at vehicle loading/unloading docks or marine docks;
- c. Crash barriers at racetracks;

d. Agricultural uses to hold down covers over hay, silage, and other agricultural commodities.

When not in use, the tires should be neatly stacked.

102.411(3) *Required notifications and approval for whole waste tire uses.* Prior to the installation or placement of waste tires for a beneficial use as allowed in 102.411(2), the owner or operator of the site of end use shall properly notify or seek approval from the department for the proposed beneficial use under the following circumstances. These circumstances apply to the total combined amount of waste tire material that already is, or is intended to be, used at the site:

a. For applications of less than 250 whole waste tires, notification to the department is not required.

b. For applications of 250 to 500 whole waste tires, the department shall be notified in writing no less than 30 days prior to the construction or placement of waste tires for a proposed beneficial use, with the following information provided:

(1) The name, address, and telephone number of the owner, operator, or individual responsible for the beneficial use application at the site of end use;

(2) The address of the site of beneficial end use;

(3) The estimated total number of waste tires to be used;

(4) A description of the beneficial use application;

(5) A project timeline, including proposed project start and end dates; and

(6) A statement that explains how the site owner shall properly dispose of such waste tires in the event that the beneficial use is discontinued or dismantled.

c. For applications of more than 500 waste tires, approval by the department shall be obtained prior to any such applications. Approval requests shall be made to the department in writing and shall contain all information as requested in 102.411(3) "b," as well as a scaled plan of the site of

end use with areas noted where whole waste tires are to be placed, including locations of the site of end use property lines and the location of any structures within 300 feet of the site of end use.

102.411(4) *Prevention of public health risks for whole waste tire uses.* All beneficial uses of whole waste tires as approved in this rule shall have incorporated into their design and construction measures to prevent the retention and stagnation of water in the event that such conditions are likely to exist. These measures shall include, at a minimum, the piercing or drilling of holes in whole waste tires to allow for water drainage. Such measures shall be designed to minimize risks to public health and safety caused by the breeding of disease-carrying insects and rodents.

102.411(5) *Beneficial uses for processed waste tires.* This subrule establishes acceptable beneficial uses for waste tires that have been processed and required design criteria that shall be observed in the placement of processed waste tires at the site of end use. The following applications shall be considered acceptable beneficial uses for processed waste tires:

a. On-site wastewater treatment and disposal system construction, to include use of processed waste tires in lateral trenches and as fill to cover distribution pipes under the following conditions:

(1) The on-site wastewater treatment and disposal system is constructed and permitted according to the requirements of 567—Chapter 69;

(2) Processed waste tires used in the system have a minimum dimension of one inch on any one side and a maximum dimension of three inches on any one side; and

(3) The administrative authority responsible for issuance of the permit approves the beneficial use. The authority shall have the sole discretion to deny use of processed waste tires in system construction based on any engineering or design principle concerns.

b. Lightweight fill in public roads, public road embankment construction, and other public civil engineering applications if all of the following conditions are met:

(1) The waste tire pieces are of uniform composition and sizing;

(2) The waste tire pieces are not mixed with other solid wastes, vegetation, composted materials, or other processed waste tire products, including separated tire bead wire, steel cording, or nylon fibers;

(3) The waste tires are not placed in direct contact with surface water or groundwater;

(4) The processed waste tires are isolated from overburden materials by a protective membrane or liner to prevent intrusion and settling of overburden; and

(5) An Iowa-licensed professional engineer designs and supervises the incorporation of processed waste tires.

c. Structural foundation drainage material used in a project as approved through a local building permit.

d. A bulking agent for composting operations at permitted composting facilities, with processed waste tire pieces no larger than three inches on any one side.

e. Leachate drainage medium at a permitted sanitary landfill, provided that the medium meets engineering and design requirements for the landfill's operating permit pursuant to 567—Chapter 101, Divisions I through IV.

f. Agricultural uses to hold down covers over hay, silage, and other agricultural commodities.

g. Traffic control devices for use in public roadway construction projects.

h. Portable surfaces manufactured from tire sidewalls or tread.

i. Tire sidewalls used for underturf water conservation and turf growth enhancement systems at golf courses.

102.411(6) *Requests for approval of other beneficial use applications.* The department shall have the authority to approve or deny requests for beneficial use applications for waste tires and waste tire material not specifically addressed within this rule. Requests for such use determinations shall be made to the department on a form prescribed by the department. The department may request project descriptions and supporting scientific and engineering data to determine if a request for a beneficial use determination is warranted. The department shall have the sole authority to deny a beneficial use request if the department determines that any one of the following conditions exists:

- a.* The requested beneficial use application poses a risk to the environment or to the public health, welfare, and safety;
- b.* The requested beneficial use application is determined to have the primary purpose as a land disposal mechanism, and any beneficial use would be incidental in nature; or
- c.* The requested beneficial use application would not be in accordance with other applicable federal, state, or local laws, regulations, and ordinances.

102.411(7) *Storage of waste tires prior to beneficial use.* Waste tires to be used for a beneficial use may be stored at the site of end use, subject to the following requirements:

- a.* Such waste tire materials shall be stored for no longer than 60 days prior to the date of application, except for whole waste tires for agricultural uses as specified in 102.411(2) “*d.*”
- b.* All storage of such waste tire materials shall be conducted in accordance with the uniform fire code and the requirements of 102.409(3) and 102.409(4) “*c*” as applicable.
- c.* Any storage of waste tires associated with a proposed beneficial reuse project at a site of end use for longer than 60 days without implementation of completion of a beneficial reuse

project shall be subject to the waste tire storage permitting requirements as contained in 567—102.407(455D).

These rules are intended to implement Iowa Code sections 455D.11, 455D.11A, 455D.11B, and 455D.11I.

567—102.412 to 102.499Reserved.

DIVISION VI
SPECIAL WASTE AUTHORIZATIONS

567—102.500(455B,455D) Purpose. The purpose of this division is to implement Iowa Code section 455B.304 by providing rules for the disposal of special waste.

567—102.501(455B,455D) Applicability.

102.501(1) This division shall apply to generators of special waste and municipal solid waste landfills that accept special waste. No special wastes shall be delivered to or accepted by a MSWLF unless disposal is authorized by a special waste authorization (SWA) issued by the department or is general special waste pursuant to 567—102.508(455B,455D). Wastes for which an SWA has been issued shall be disposed of in accordance with the instructions, conditions, and limitations contained in the SWA. Any amendment requests shall be handled under these rules.

102.501(2) All rules, standards, technical guidance, and other similar legal or technical documents referenced in this division shall be the version of those documents in effect on August 1, 2025, unless otherwise noted in these rules, and except for references to the Iowa Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

567—102.502(455B,455D) Definitions. The definitions in Iowa Code section 455B.301 and 567—Chapter 100 shall apply to Division VI of this chapter.

567—102.503(455B,455D) Restrictions. Special wastes regulated by this division shall comply with the following provisions.

102.503(1) The waste shall not contain free liquids.

102.503(2) The waste shall not be a listed hazardous waste or meet the criteria for characteristic hazardous waste pursuant to the federal Resource Conservation and Recovery Act (RCRA).

102.503(3) Wastes with PCB concentrations equal to or greater than 50 ppm shall not be authorized for disposal at an MSWLF unless the waste is defined as PCB bulk product waste in 40 CFR 761.3.

102.503(4) Wastes that are used beneficially at an MSWLF are not special wastes.

567—102.504(455B,455D) Issuance of SWA.

102.504(1) Generators of special waste shall initiate an application for a SWA by providing the following to the receiving MSWLF.

- a.* Appropriate chemical analysis of the waste,
- b.* Description of the process that generates the waste and verification that no RCRA listings in 40 CFR 261 apply,
- c.* Toxicity characteristic leaching procedure (TCLP) test results when appropriate, which show that none of the federal limits in 40 CFR Part 261 are exceeded,
- d.* Physical form of the waste,
- e.* Weight or volume of the waste,

f. Safety data sheet (SDS) for the waste or for the materials from which the waste is generated, if applicable,

g. A description of the review of the alternatives to landfilling for each waste for which an SWA is requested, including details as to the extent the waste could be recycled, reduced, or reused so that landfilling is not necessary, and

h. Any other information requested by the department or the MSWLF.

102.504(2) The receiving MSWLF shall review the submitted materials. If after review it is determined that the waste is a special waste and the MSWLF is willing to accept the waste, the MSWLF shall develop a special waste acceptance criteria (SWAC) that includes instructions for disposal of waste. The MSWLF shall submit the SWAC and materials provided by the waste generator to the department for approval.

102.504(3) An SWA may be issued for a period not to exceed three years.

102.504(4) The holder of an SWA must apply for a renewal prior to the expiration of the SWA.

102.504(5) The department may revoke an SWA for cause at any time. Such cause may include but is not limited to evidence that indicates that the characteristics of the authorized quality of the waste vary from the authorized values, evidence that the continued disposal of the waste as authorized may pose a threat to the public health or the environment, or failure to comply with any condition in the SWA or the MSWLF's SWAC.

102.504(6) The issuance of an SWA does not obligate any waste disposal facility to accept the waste nor does it preclude the facility from imposing conditions or restrictions other than those listed in the SWA.

102.504(7) The issuance of an SWA does not exempt the waste generator or the MSWLF from any local, state, or federal laws or regulations.

567—102.505(455B,455D) MSWLF responsibilities.

102.505(1) MSWLFs shall submit special waste acceptance criteria to the department with each special waste request.

102.505(2) MSWLFs are required to ensure that special wastes delivered to the facility conform to the SWAC on file with the department.

102.505(3) Each MSWLF shall provide to the department, on a quarterly basis, a report of SWA activity including each SWA number and the quantities of waste disposed of during the reporting period. This information shall be submitted on a form prescribed by the department.

567—102.506(455B,455D) Special waste generator responsibilities. Special waste generator responsibilities shall include the following in addition to any requirements in the SWA or SWAC.

102.506(1) The generator shall adhere to the solid waste management hierarchy unless otherwise approved in an SWA. Alternatives include volume reduction at the source; recycling and reuse, including composting and land application; and other approved techniques of solid waste management including but not limited to combustion with energy recovery and combustion for waste disposal.

102.506(2) The generator shall ensure that waste regulated by a SWA arrives at the receiving MSWLF as a separate load and is not commingled with any other waste.

102.506(3) The generator shall make a waste determination as required by federal regulations and submit it and analytical results supporting an SWA to the MSWLF at a frequency to be determined by the MSWLF.

102.506(4) The generator must contact the designated MSWLF for instructions on delivering the waste and instructions for adhering to the MSWLF's SWAC.

102.506(5) The generator shall notify the department and MSWLF, prior to disposal, of any change in the characteristics of the special wastes being disposed.

102.506(6) Generators shall notify the MSWLF in writing when a one-time disposal under an SWA has been completed. This requirement is for one-time disposals only.

567—102.507(455B,455D) Additional requirements for specific types of special wastes.

102.507(1) *Sewage sludge.* Sewage sludge, including stabilized septic tank pumpings, shall not be disposed of in a MSWLF if it meets the criteria for Class I or II sewage sludge in 567—Chapter 67, except for use in daily, interim, or final cover according to the approved plan for the landfill. Class III sewage sludge may be disposed of at a MSWLF if stabilized according to 567—Chapter 67.

102.507(2) *Infectious waste.* Infectious waste may be placed with municipal solid waste if it is rendered nonpathological; it does not contain free liquids; and sharps are shredded, blunted, granulated, incinerated, or mechanically destroyed. The generator of the infectious waste must notify the waste hauler and the MSWLF that infectious waste is being placed with the regular municipal solid waste and, with the notice, certify that the infectious waste is properly treated in accordance with the requirements of this rule.

567—102.508(455B,455D) Conditions and requirements for the disposal of general special wastes. Disposal of general special waste shall be in accordance this rule. An SWA is not required for general special wastes. The following wastes are approved as general special wastes: asbestos-containing material (ACM), stabilized grit, bar screenings, and grease skimmings.

102.508(1) *Asbestos-containing material.* The MSWLF permit holder shall comply with the following conditions and requirements whenever asbestos-containing waste materials are accepted and disposed of in an MSWLF.

a. ACM wastes with 1 percent or less asbestos can be disposed of at the working face.

b. ACM wastes that contain greater than 1 percent asbestos are regulated under federal asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) and shall be managed in accordance with federal regulations defined in 40 CFR Part 61, Subpart M. Testing to determine asbestos content shall utilize the method specified in 40 CFR Part 763, Section 1, Subpart F, Appendix A.

c. Upon arrival at the MSWLF, the transporter shall present to the landfill operator the ACM waste shipment records, which shall include a determination whether the ACM waste is friable or nonfriable, if known. The landfill operator must through visual inspection or testing verify whether the ACM waste is friable or nonfriable. If the waste is friable or the inspection or testing cannot verify that the ACM is nonfriable, the waste must be handled as friable ACM waste.

d. Any federal NESHAP-regulated ACM waste shipments that show evidence of visible dust emissions or that are not properly containerized, wrapped, wetted, and covered shall be rejected upon arrival at the landfill.

e. ACM wastes with greater than 1 percent asbestos content that are nonfriable when received at the landfill may be disposed of at the working face. Care shall be taken when unloading and covering the waste so that it does not become friable at the working face.

f. ACM wastes with greater than 1 percent asbestos content that are confirmed as friable when received at the landfill shall be disposed of in an area separate from the regular working face. The wastes shall be covered carefully with a minimum of six inches of soil cover and compacted by

no later than the end of the operating day. Care shall be taken at all times during disposal and covering to prevent rupture of asbestos-containing containers and wrapped waste systems. Covered ACM waste areas shall be protected from erosion at all times.

g. Upon delivery, friable ACM wastes must be wet and contained in labeled, leak-tight containers or wrapping that prevents asbestos from becoming airborne. Bulk demolition wastes with friable ACM need not be placed in leak-tight containers but must remain wet at all times and be properly labeled and wrapped to prevent asbestos from becoming airborne during transport and disposal and covering at the landfill.

h. Care shall be taken at all times when transporting, depositing, and covering federal NESHAP-regulated ACM waste to control the evolution of dust and airborne asbestos fibers and to not allow the rupture of asbestos containers and wraps.

i. After landfill acceptance, if any federal NESHAP-regulated ACM waste becomes dry prior to disposal, rewetting or an approved alternative means of dust emissions control is mandatory. When disposed of, the wet ACM waste must be properly covered before it can dry again.

j. In the event that any visible dust emissions from federal NESHAP-regulated ACM waste occur, protective safety equipment, consistent with federal NESHAP and OSHA regulations, shall be immediately utilized by landfill operating staff.

k. Daily records of the acceptance and disposal of all ACM wastes shall be maintained. Landfill records for each NESHAP-regulated ACM waste shipment shall include the following:

- (1) The date of ACM waste receipt.
- (2) The names, addresses, and telephone numbers of the originating waste generation site, facility owner, agent responsible for performing removal and the waste transporter.

(3) The description of ACM wastes, quantity in cubic yards, weight and the number and type of containers or systems received.

(4) The waste shipment record and any accompanying asbestos content laboratory test and friable status documentation.

(5) The operational log notation relative to the landfill operator's visual confirmation of waste type compared to waste shipment records and the friable or nonfriable status for each federal NESHAP-regulated ACM waste shipment.

(6) The operational log notation of any rejected ACM waste and the reasons for rejection by landfill staff.

(7) The site operational area, coordinates location, and vertical elevation keyed to site mapping and the quantity of buried waste in cubic yards for each federal NESHAP-regulated waste shipment disposed of within the disposal site.

l. Records for all federal NESHAP-regulated ACM wastes accepted at the landfill in accordance with 40 CFR Part 61, including required federal and state asbestos NESHAP program operational and site closure reports, shall be maintained. All records, except for waste shipment records, shall be maintained through site closure. Waste shipment records shall be retained for at least two years.

m. A copy of an Affidavit Explanatory of Title that has been file stamped by the county recorder shall be submitted to the department within 60 days of site closure. The affidavit shall appear at part of the property deed record and shall indicate that:

(1) The landfill has been used for the disposal of ACM waste.

(2) The survey plot and all records of the location and quantity of regulated ACM wastes have been filed with federal and state NESHAP program officials. Such documentation must be filed with the department, along with the notification.

(3) The site is subject to the regulations under 40 CFR Part 61, Subpart M, and the site closure permit requirements issued by the department.

n. Strict adherence to federal NESHAP asbestos regulations under 40 CFR Part 61 is mandatory for all federal regulated ACM wastes.

102.508(2) *Stabilized grit, bar screenings, and grease skimmings.* The MSWLF operator, the generator, and the hauler shall comply with the following conditions and requirements whenever stabilized grit, bar screenings, or grease skimmings are disposed of in a MSWLF.

a. The generator shall stabilize the grit, bar screenings, and grease skimmings prior to their disposal at the landfill in order to destroy any pathogenic organisms. Stabilization shall be done by addition of lime to raise the pH to at least 12 for two hours. In lieu of stabilization for bar screenings, a system that flushes organic matter then dewateres and bags the screenings may be utilized.

b. The generator shall prearrange a delivery schedule with the landfill operator.

c. Upon arrival at the landfill, the hauler shall identify the waste to the landfill attendant.

d. The landfill operator shall direct the hauler to the working face.

e. The waste shall be deposited at the working face, covered with regular refuse or soil and compacted.

These rules are intended to implement Iowa Code section 455B.304.

567—102.509 to 102.599Reserved.

DISCARDED APPLIANCE DEMANUFACTURING

567—102.600(455D) Purpose; applicability; compliance. This division is to ensure the proper removal and disposal of electrical parts containing polychlorinated biphenyls (PCBs), components containing mercury, and refrigerants (e.g., CFCs and HCFCs) from discarded appliances.

102.600(1) All discarded appliances must be demanufactured pursuant to this division before being disposed of or recycled. This division does not apply to the service, repair, reuse, or rebuilding of appliances or components for their original purpose. These rules do not apply to the removal of capacitors, refrigerants, or components containing mercury during the maintenance or service of equipment containing such items.

102.600(2) Compliance with this division in no way relieves the appliance demanufacturer of the responsibility of complying with all other local, state, or federal statutes, ordinances, and rules and other applicable requirements.

102.600(3) All rules, standards, technical guidance, and other similar legal or technical documents referenced in this division shall be the version of those documents in effect on August 1, 2025, unless otherwise noted in these rules, and except for references to the Iowa Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

567—102.601(455B,455D) Definitions. The definitions in Iowa Code section 455B.301 and 567—Chapter 100 apply to this division.

567—102.602(455D) Storage and handling of appliances prior to demanufacturing.

102.602(1) Any person collecting and storing discarded appliances must store the appliances so as to prevent electrical capacitors, refrigerant lines and compressors, and mercury-containing components from being damaged and allowing a release into the environment.

102.602(2) No method of handling discarded appliances may be used that in any way damages, cuts, or breaks refrigerant lines; crushes compressors, capacitors, or mercury-containing components; or may cause a release of refrigerant, PCBs, or mercury into the environment.

102.602(3) No more than 1,000 discarded appliances may be stored at a location prior to demanufacturing.

102.602(4) Discarded appliances may not be stored for more than 270 days before being demanufactured.

567—102.603(455D) Appliance demanufacturing permits.

102.603(1) *Permit required.* A person must obtain a Solid Waste Management permit pursuant to 567—subrule 100.4(2) for appliance demanufacturing from the department before conducting any demanufacturing activities.

102.603(2) *Types of permits.*

a. A person may request a permit that excludes appliances that contain a particular type of material (e.g., refrigerants, sodium chromate, PCBs, or mercury switches). Persons may not demanufacture or place their unique mark on an appliance that once contained a material that is excluded from their permit. An appliance demanufacturing facility must clearly post the types of appliances the facility does not accept.

b. Permits may be issued for both fixed facilities and mobile operations.

102.603(3) *Factors in permit issuance decisions.* The department may request that additional information be submitted for review to make a permit issuance decision. The department may review and inspect the facility, its agents and operators, and compliance history. The department may review whether a good-faith effort to maintain compliance and protect human health and the environment is being made and whether a compliance schedule is being followed. The department may issue a permit on a trial basis. After review of the permit application or a trial period, the department may require financial assurance as a condition of a permit. Any such condition will be consistent with those types detailed in Iowa Code section 455B.301(9).

567—102.604(455D) **Appliance demanufacturing permit application requirements.** In addition to the permit application requirements in 567—100.5(455B,455D), the applicant shall submit the following:

1. Type, source and expected number or weight of appliances to be handled per year.
2. For a fixed facility, schematic site plans of the facility, including the schematic floor plans of any buildings showing where activities will take place and where waste is stored.
3. For mobile operations, schematic plans, or a description and photographs of the mobile van or trailer.
4. The EPA-approved refrigerant removal equipment that will be used.
5. Operation plan: a detailed summary of the activities that will be performed on each type of appliance considered for demanufacturing. This summary must include step-by-step activities of the demanufacturing process.
6. A contingency plan detailing the specific procedures to be used in case of equipment breakdown or fire, including methods to be used to remove or dispose of accumulated waste.
7. A copy of the NPDES Stormwater General Permit Authorization number, if applicable.

8. A copy of EPA Notification of PCB Activity Form 7710-53 and a return response from EPA.

9. Documentation showing compliance with 567—102.606(455D).

10. A copy of the unique mark to be applied to each discarded appliance after demanufacturing.

11. Documentation that a permanent appliance demanufacturing facility meets local zoning requirements.

567—102.605(455D) Operations. The following removal and disposal requirements must be met by both fixed facilities and mobile operations.

102.605(1) Demanufacturing of appliances must take place on an impervious floor, including but not limited to concrete, ceramic tile, or metal, but not including wood. Any spills must be contained and picked up with proper equipment and procedures and be disposed of properly.

102.605(2) The point of demanufacturing must be located at least 50 feet from a well and any water of the state.

102.605(3) The facility must be located above the 100-year floodwater elevation.

102.605(4) A permanent facility must meet local zoning requirements.

102.605(5) Every operation must have a unique mark that signifies all refrigerants, PCB-containing articles, and mercury-containing components have been removed. The unique mark must be a minimum of nine inches by nine inches. The unique mark must be applied to appliances after demanufacturing.

567—102.606(455D) Training.

102.606(1) At least one owner or employee of an appliance demanufacturing facility must have a training certificate from a department-approved demanufacturer training course. A person

who has completed the department-approved training course must be on site at all times when discarded appliances are being demanufactured.

102.606(2) To be approved by the department, the training must, at a minimum, cover the following topics.

a. State and federal regulations for the removal, storage, transportation, and disposal of refrigerant, PCB-containing articles, and mercury-containing components from appliances.

b. Recordkeeping requirements.

c. Safety precautions for handling appliances and hazardous materials.

d. Spill prevention and cleanup procedures appropriate for appliance demanufacturing.

e. The proper methods of loading and unloading discarded appliances.

f. General demanufacturing procedures.

567—102.607(455D) Refrigerant removal requirements.

102.607(1) All demanufacturers of refrigerant containing appliances shall comply with 40 CFR 82.155 as amended March 7, 2025.

102.607(2) The removal of refrigerant from refrigeration appliances must take place in an area where the temperature of the surrounding air and of the appliance being demanufactured is 45°F or greater.

102.607(3) Facilities that are not EPA-certified refrigerant reclaimers must transport recovered refrigerant to an EPA-certified reclamation facility or properly dispose of the refrigerant at an EPA-permitted facility. Reclamation may take place on site only if the appliance demanufacturing facility is certified as a reclaimer by the EPA.

102.607(4) The following rules apply to the demanufacturing of appliances containing compressor oil.

a. Compressor oil from refrigeration unit compressors may be removed during the demanufacturing process, and any oil removed must be stored in accordance with 40 CFR 279.22 as amended March 3, 2025.

b. Compressor oil is not hazardous and may be burned in used oil-fired space heaters, provided the heaters have a capacity of 0.5 British thermal units (BTUs) per hour or more.

c. Compressor oil may be sold to a marketer of used oil.

102.607(5) The following rules apply to the demanufacturing of ammonia gas-operated refrigerators and air conditioners.

a. Ammonia gas must be vented into water.

b. Sodium chromate must be removed from refrigeration equipment containing sodium chromate.

c. Sodium chromate liquid is a hazardous waste and must be disposed of at an EPA-permitted facility.

d. Removal of sodium chromate liquid must take place on an impervious surface. In case of a spill, the spilled liquid and the material used as absorbent must be handled as a hazardous waste and disposed of as a hazardous waste.

e. Sodium chromate must be stored in a department of transportation-approved (DOT-approved) container that shows no sign of damage. The container must be labeled with a proper EPA-approved chromium label stating “chromium” or “hazardous waste” as required by 40 CFR 262.32 as amended March 3, 2025, and 49 CFR 172.304 as amended March 3, 2025, in both English and the predominant language of any non-English-reading workers.

f. Prior to shipment, sodium chromate must be packaged to prevent leakage and all containers must be sealed.

g. A person generating sodium chromate waste must maintain records to determine if the person is a very small quantity generator (VSQG), small quantity generator (SQG), or large quantity generator (LQG) of hazardous waste.

567—102.608(455D) Mercury-containing component removal and disposal requirements.

102.608(1) All components containing mercury shall be removed from appliances. Precautions shall be taken to prevent breakage of the mercury-containing components and the release of mercury.

102.608(2) All mercury-containing component storage containers must be labeled with the proper EPA-approved mercury label stating: “Universal Waste—Mercury Containing Equipment” or “Waste Mercury-Containing Equipment” or “Used Mercury-Containing Equipment” in both English and the predominant language of any non-English-reading workers.

102.608(3) The date when the first mercury-containing component was placed in the container shall be affixed to the container.

102.608(4) Mercury-containing components may be stored for no longer than one year.

102.608(5) Accumulation of mercury-containing components shall not exceed 5,000 kg (11,025 lbs) at any time.

102.608(6) All mercury containers must be sealed prior to shipment.

102.608(7) All components containing mercury must be disposed of at an EPA-approved mercury recycling/recovery facility.

102.608(8) Fluorescent tubes, lamps, bulbs, and similar items must be placed in a container and packaged to prevent breakage for shipment to an EPA-approved recycler or must be processed in a manner that complies with state and federal regulations.

102.608(9) All mercury-containing components must be managed in accordance with 40 CFR 273 as amended March 3, 2025, and all state and federal regulations.

567—102.609(455D) Capacitor removal requirements.

102.609(1) All capacitors must be removed from discarded appliances unless the appliance manufacturer certifies in writing that no PCBs were used in the manufacture of the appliance.

102.609(2) Capacitors that meet one or more of the following criteria may be disposed of or recycled as solid waste. The capacitor:

- a.* Is proven to be free of PCBs by an approved laboratory.
- b.* Is imprinted by the manufacturer with the words “No PCBs” on the body of the capacitor.
- c.* Is certified in writing by the manufacturer of the capacitor not to contain PCBs.
- d.* Does not contain dielectric fluid.

102.609(3) The following rules apply to the storage and disposal of PCB-containing items. PCB-containing items must be stored and transported according to the Toxic Substances Control Act (TSCA) and 40 CFR 761 as amended March 3, 2025, and disposed of at a TSCA-permitted disposal facility. Facilities used for the storage of PCB-containing items designated for disposal must meet the following storage requirements:

- a.* Facilities shall register with the EPA and receive an EPA identification number.
- b.* PCB-containing items must be stored in a manner that provides adequate protection from the elements and adequate secondary containment. This storage must take place on an impervious material above the 100-year floodwater elevation.
- c.* The point of demanufacturing must be located above the 100-year floodwater elevation.

d. All capacitors containing or suspected of containing PCBs must be placed in a DOT-approved container that shows no signs of damage. The bottom of the container must be filled to a depth of two inches with absorbent material such as sand, oil-dry, or kitty litter.

e. All DOT-approved containers must be affixed with the large PCB mark as described in 40 CFR 761.45 as amended March 3, 2025.

f. The date when the first PCB-containing item was placed in the container shall be placed on the container.

g. Nonleaking small PCB capacitors may be stored for up to 30 days from the date of removal in an area that does not comply with the requirements in 102.609(4) “*a*” through “*f*” provided a notation is placed on the PCB capacitor indicating the date the item was removed from the appliance.

h. PCB-containing items may be stored for no more than 270 days. The storage area must be labeled with the PCB M₁mark. The storage area must be inspected every 30 days, and the inspection must be documented.

i. If a demanufacturer stores more than 45 kg (99.4 lbs) at any one time, the demanufacturer must maintain annual written records and the annual document log as required by 40 CFR 761.180 as amended March 3, 2025.

102.609(4) All capacitors not meeting the criteria in 102.609(2) must be disposed of as follows:

a. Appliance demanufacturers may dispose of PCB capacitors by one of two means. If the facility is a VSQG, the demanufacturer may send the properly marked and dated container of capacitors to a regional collection center (RCC) licensed under 567—Chapter 103 for disposal.

If the facility is not a VSQG, the capacitors must be manifested and shipped for disposal in accordance with 40 CFR 761.65 as amended March 3, 2025.

b. Disposal through an RCC. Shipments from a VSQG to an RCC shall be considered equivalent to disposal as municipal solid waste for the purposes of 40 CFR 761.60(b)(2)(iii) as amended March 3, 2025; capacitors may not be disposed of in a landfill. An RCC may accept PCB capacitors without having to provide a certificate of disposal. The RCC shall provide the appliance demanufacturer with a receipt specifying the name of the RCC, the appliance demanufacturer from which the capacitors were received, the weight or number of capacitors, and the date the capacitors were received. Copies of this document must be retained for three years at both locations. The date that capacitors are received shall be considered the date the capacitors are determined to be PCB-containing waste for the purposes of 40 CFR 761.65(a)(1) as amended March 3, 2025. Capacitors may be consolidated in DOT-approved shipping containers for transport for disposal.

c. Disposal through EPA-approved facility for the disposal of PCB waste. The labeled and dated DOT-approved container must be transported by a transporter with a valid EPA identification number, using an EPA Uniform Hazardous Waste Manifest Form. All containers must be sealed prior to shipment. The demanufacturer has one year from the date the first PCB-containing item is placed in the container to properly dispose of the contents by incineration, recycling, or another approved method pursuant to 40 CFR 761.60(b) as amended March 3, 2025, or 761.60(c) as amended March 3, 2025. Disposal must be documented and the record kept by the demanufacturer for three years from the date the PCB-containing waste was accepted by the initial transporter.

d. PCB-containing items shall be properly disposed of within one year of removal from the appliance. The generator shall obtain a certificate of disposal within 30 days of the date that disposal of the PCB-containing items was completed at a PCB disposal facility. If a certificate of disposal is not obtained within 30 days, the EPA regional administrator must be notified pursuant to 40 CFR 761.218(d) as amended March 3, 2025.

567—102.610(455D) Spills.

102.610(1) Any spills from leaking or cracked capacitors must be handled by placing the capacitor and any contaminated rags, clothing, and soil into a container for shipment to an EPA-approved waste disposal facility. Spills of liquid PCBs that occur outside a DOT-approved container must be cleaned and the cleanup verified by sampling as described at 40 CFR 761.130 as amended March 3, 2025. Detailed records of such cleanups and sampling must be maintained as described at 40 CFR 761.180 as amended March 3, 2025.

102.610(2) Mercury spill kits (with a mercury absorbent in the kits) must be on hand and used in the event of a mercury spill. Any waste from the cleanup of a mercury spill must be disposed of as a hazardous waste.

102.610(3) In the event a spill results in a hazardous condition, the facility must follow the requirements in 567—Chapter 105, Division I.

567—102.611(455D) Recordkeeping and reporting.

102.611(1) Annual reports with the information required in 102.611(2) are:

- a.* To be submitted to the solid waste and contaminated sites section of the department's main office;
- b.* Due January 31 each year for the activities of the previous calendar year;
- c.* To be submitted on forms provided by the department; and

d. To be retained by the permit holder for at least three years.

102.611(2) Annual reports shall contain the following information for the previous calendar year.

a. Number of appliances demanufactured in each of the following categories:

(1) Refrigerators and freezers.

(2) Commercial coolers.

(3) Air-conditioning units.

(4) Dehumidifiers.

(5) Gas water heaters.

(6) Furnaces.

(7) Clothes washers and clothes dryers.

(8) Dishwashers.

(9) Microwave ovens.

(10) Other items containing mercury, refrigerant or PCB-containing articles.

b. Number of mercury switches removed from appliances.

c. Number of mercury thermocouples removed from appliances.

d. Date the first item was placed in the mercury storage drum that is in use on December 31.

e. Number of fluorescent tubes removed from appliances.

f. Number of sodium chromate-containing appliances shipped to another demanufacturer.

g. Amount of refrigerant removed.

h. Number of PCB capacitors removed.

i. Number of PCB ballasts removed.

j. Date the first PCB-containing item was placed in the storage drum that is in use on December 31.

102.611(3) A permitted appliance demanufacturing facility shall retain the following records on site for a minimum of three years.

a. All hazardous waste manifests and bills of lading for shipments of refrigerant, mercury switches, PCB-containing materials, and any hazardous waste.

b. Receipts for any sodium chromate-containing units that were sent to another facility for processing.

c. Documentation of destruction or receipt from a regional collection center for all PCB materials shipped.

d. Documentation of inspections of the PCB storage area as required by 102.607 “*h.*”

e. Annual written records and annual document log if required by 102.607(4) “*i.*”

f. Copy of the annual report as required in 102.609(1).

567—102.612(455D) Appliance demanufacturing facility closure requirements. In addition to the requirements in 567—100.10(455B), an appliance demanufacturing facility shall do the following prior to closure:

1. Remove all appliances that have not been demanufactured.
2. Properly dispose of all refrigerant, PCBs, mercury, and all hazardous materials.
3. Submit an annual report covering January 1, through the last disposal of hazardous materials, PCBs, and refrigerant.

567—102.613(455D) Shredding of appliances.

102.613(1) Facilities shredding demanufactured appliances shall sample the fluff from the shredding of demanufactured appliances at least quarterly and analyze the fluff for the presence

of PCBs, and according to the TCLP for arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. The waste shall be sampled once a day for seven consecutive working days to make a composite sample. If the concentrations of heavy metals do not exceed concentrations listed in 40 CFR 261.24 as amended March 3, 2025, the fluff may be landfilled in Iowa. Results must be retained on site for a minimum of three years and be submitted to the department within 30 days of the end of each quarter.

102.613(2) Fluff from the shredding of demanufactured appliances may be sampled and tested by the department at any time.

102.613(3) A person or facility engaged in demanufacturing in the state may not shred, crush, or bale any appliances that have not been demanufactured. A person or facility located in Iowa that does not engage in demanufacturing but accepts appliances from demanufacturers for recycling or disposal may shred, crush, or bale only appliances that have been demanufactured in accordance with federal regulations and the laws of the state from which the appliances are received.

These rules are intended to implement Iowa Code section 455D.6(4).

567—102.614 to 102.699Reserved.

DIVISION VIII
CATHODE RAY TUBE RECYCLING

567—102.700(455D) Purpose. The purpose of this division is to implement rules for the recycling of discarded CRTs and the disassembly and removal of toxic parts from discarded CRTs in a manner that is safe for human health and the environment.

567—102.701(455D) Applicability and compliance. This division applies to discarded CRTs that are collected for recycling and to CRT glass processed for recycling. This division does not apply to CRTs collected for disposal.

102.701(1) This division applies to facilities and short-term CRT collection events that perform CRT recycling functions including but not limited to the collection, demanufacturing, and processing of discarded CRTs.

102.701(2) This division does not apply to CRT reuse activities, CRT service and repair activities, or CRT refurbishing activities that do not otherwise qualify as CRT recycling.

102.701(3) The issuance of a permit or registration by the department in no way relieves the applicant of the responsibility of complying with all other local, state, or federal statutes, ordinances, and rules or other requirements applicable to the construction, operation, and closure of a CRT collection facility or CRT recycling facility.

102.701(4) All discarded CRTs collected for recycling, including those generated by a household, once collected by a CRT collection facility or CRT recycling facility, shall be managed in accordance with 40 CFR 261.39 and this division. If there is a conflict, the more stringent regulation applies.

102.701(5) All rules, standards, technical guidance, and other similar legal or technical documents referenced in this division shall be the version of those documents in effect on August 1, 2025, unless otherwise noted in these rules, and except for references to the Iowa Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

567—102.702(455D) Definitions. For the purposes of this division, the definitions in 567—Chapter 100 and Iowa Code section 455B.301 and chapter 455D shall apply.

567—102.703(455D) Short-term CRT collection events. All short-term CRT collection events shall be conducted in a manner that complies with this rule. Short-term CRT collection event organizers are not required to register the event as a CRT collection facility.

102.703(1) Within one week of collection, all discarded CRTs and CRT glass shall be transported to a properly permitted CRT recycling facility or registered CRT collection facility.

102.703(2) During the period between collection and transport, all broken CRTs and CRT glass shall be stored in one of the following ways:

- a.* In a fully enclosed building with a roof, floor, and walls, or
- b.* In a container that is constructed, filled, and closed to minimize releases to the environment of CRT glass (including fine solid materials).

102.703(3) During the period between collection and transport, intact discarded CRTs shall be stored in one of the following ways:

- a.* In a fully enclosed building with a roof, floor, and walls, or
- b.* In a secure container (e.g., package or vehicle) that is constructed and maintained to minimize breakage of electronic waste and to prevent releases of hazardous materials to the environment.

567—102.704(455D) Registration for CRT collection facilities. A CRT collection facility shall register with the department using a form provided by the department.

102.704(1) The registration application shall include proof of the applicant's ownership of the property or legal entitlement to use the property for CRT collection. If the facility is leased, the application shall also include a statement, signed by the property owner, stating that the property owner is aware that CRT collection is taking place at the site and that the property owner may be held liable for wastes abandoned at the property.

102.704(2) Registration will expire March 1 of each year if renewal has not been made and approved.

102.704(3) Annual registration renewal occurs by complying with the reporting requirements in 567—102.710(455D). Once a complete report is received and confirmed complete in writing by the department, the facility's registration will be renewed until March 1 of the following year.

102.704(4) The department may deny or revoke CRT collection facility registration if one or more of the following is determined by the department:

- a.* The registration application is incomplete.
- b.* There is a violation of a requirement of this division, including but not limited to failing to submit accurate and timely reports as required in 567—102.710(455D).
- c.* There is or was a misrepresentation made in obtaining a registration or registration renewal under this division.
- d.* The registrant fails to correct a condition as agreed to in an agreed order with the department or fails to come into compliance with this division within the time frame established in the agreed order.
- e.* The permittee has lost legal entitlement to use the property identified in the registration.
- f.* Upon notice to the department by the permittee that the permittee no longer wishes to retain the registration for future operation.

567—102.705(455D) CRT recycling facility permits.

102.705(1) *Permit required.* A CRT recycling facility shall not be operated without a solid waste management permit for CRT recycling from the department as per 567—subrule 100.4(2).

102.705(2) *Notification of change in status.* CRT recycling facilities must notify the department 30 days prior to any significant change of status of the operation, including any change in the ownership or operation of the facility or location of the facility.

102.705(3) *Denial or revocation of permit.* The department may deny, revoke, or limit the length of a permit if one or more of the following is determined:

- a. The department has revoked the applicant's previous permit under this division.
- b. There is a violation of a requirement of this division or a condition of the permit.
- c. There is a failure to disclose all relevant facts in obtaining a permit under this division.
- d. There is a misrepresentation made in obtaining a permit under this division.
- e. There is a misrepresentation in the annual report required in 567—102.710(455D).
- f. The permittee fails to meet the requirements for a permit.
- g. The permittee fails to correct a condition as agreed to in an agreed order with the department or fails to come into compliance with the permit or this division within the time frame established in the agreed order.
- h. The permittee has lost legal entitlement to use the property identified in the permit.
- i. Upon notice to the department by the permittee that the permittee no longer wishes to retain the permit for future operation.

102.705(4) *Permit conditions.* The department may place conditions on any permit deemed necessary by the department to ensure compliance with this division and to protect human health and the environment.

102.705(5) *Effect of revocation.* If a permit held by any public or private agency is revoked by the director, then no new permit shall be issued to that agency for that CRT recycling facility

for a period of one year from the date of revocation. Such revocation shall not prohibit the issuance of a permit for the facility to another public or private agency.

102.705(6) *Permits without expiration date.* CRT recycling permits that were issued prior to [the effective date of these rules] that do not have an expiration date will expire [five years following the effective date of these rules]. The permit holder shall file an application for renewal as per 567—paragraph 100.4(2) “a.”

567—102.706(455D) CRT recycling facility permit application requirements. In addition to the requirements in 567—subrule 100.5(1), a CRT recycling facility permit applicant shall submit the following information to the department.

102.706(1) The physical location of any collection sites if separate from the main facility.

102.706(2) If the facility is leased, a signed statement from the property owner stating that the property owner is aware that CRT collection or recycling is taking place at the property and that the property owner may be held liable for wastes left at the property.

102.706(3) A brief description of the facility and the CRT processing that will take place.

567—102.707(455D) Discarded CRT management requirements. CRT collection facilities and CRT recycling facilities shall manage all discarded CRTs in accordance with 40 CFR 261.39 and 40 CFR 40 CFR 260.43.

102.707(1) Discarded CRTs and processed CRT glass shall not be speculatively accumulated pursuant to 40 CFR 261.1(c)(8).

102.707(2) Broken CRTs and processed CRT glass shall be stored either:

a. In a building with a roof, floor, and walls, or

b. In a container (e.g., a package or a vehicle) that is constructed, filled, and closed to minimize releases to the environment of CRT glass (including fine solid materials).

102.707(3) Intact discarded CRTs shall be stored either:

a. In a building with a roof, floor, and walls, or

b. In a secure container (e.g., package or vehicle) that is constructed and maintained to minimize breakage of electronic waste and to prevent releases of hazardous materials to the environment.

102.707(4) Each container of broken CRTs or CRT glass must be labeled or marked clearly with one of the following phrases: “Used cathode ray tube(s)-contains leaded glass. Do not mix with other glass materials” or “Leaded glass from televisions or computers. Do not mix with other glass materials.” Each container shall also be labeled with the first date that material began to be accumulated in the container.

102.707(5) Each container or pallet of intact discarded CRTs shall be labeled with the first date that any material began to accumulate in the container or on the pallet.

102.707(6) Broken CRTs must be transported in a container meeting the requirements of 122.8(2).

102.707(7) CRT collection facilities or CRT recycling facilities that export broken CRTs shall also comply with 40 CFR 261.39(a)(5).

102.707(8) All processing of CRTs shall be processed according to 40 CFR 261.39(b).

102.707(9) Failure to comply with this rule and the referenced CFR sections is grounds for termination of any permit or registration authorized by this rule.

567—102.708(455D) Recordkeeping requirements for CRT collection facilities.

102.708(1) All CRT collection facilities shall maintain the following records on a calendar year basis:

a. The name and address of the facility receiving a shipment that left the CRT collection facility and contact information for the receiving facility.

b. The type of service the receiving facility will provide to the CRT collection facility.

c. A description of the shipment contents.

d. All bills of lading.

e. All hazardous waste manifests.

102.708(2) Records must be maintained at the facility, must be submitted to the department upon request, and may be destroyed after three years.

567—102.709(455D) Recordkeeping requirements for CRT recycling facilities.

102.709(1) All CRT recycling facilities shall maintain the following records on a calendar year basis:

a. The total aggregate weight and receipt date of each shipment of discarded CRTs received from businesses, institutions, CRT collection facilities, short-term CRT collection events, and other permitted CRT recycling facilities.

b. The name, address, and contact information for shipments reported pursuant to 102.710(2).

c. The total aggregate weight and date of each shipment leaving the CRT recycling facility.

d. The name and address of the facility receiving a shipment that left the CRT recycling facility, contact information for the receiving facility, and a description of the shipment contents including all applicable bills of lading.

e. The type of service the receiving facility will provide to the CRT recycling facility.

f. All hazardous waste manifests.

102.709(2) Records must be maintained at the facility, must be available for review by the department on demand, and may be destroyed after three years.

567—102.710(455D) Reporting requirements. CRT collection facilities and CRT recycling facilities shall report the following information, on a form provided by the department, to the department by February 1 of each year for the previous calendar year.

102.710(1) The amount, either by weight or volume, of discarded CRTs and processed CRT glass on site on January 1.

102.710(2) The amount, either by weight or by volume, of discarded CRTs and CRT glass recycled or transferred for recycling during the calendar year.

102.710(3) The amount, either by weight or by volume, of discarded CRTs and processed CRT glass on site on December 31.

102.710(4) Indication of whether the CRTs received over the past year were generated by households, businesses, or both households and businesses.

These rules are intended to implement Iowa Code section 455D.6(5).

ITEM 2. Rescind and reserve **567—Chapter 108**.

ITEM 3. Rescind and reserve **567—Chapter 116**.

ITEM 4. Rescind and reserve **567—Chapter 117**.

ITEM 5. Rescind and reserve **567—Chapter 118**.

ITEM 6. Rescind and reserve **567—Chapter 120**.

ITEM 7. Rescind and reserve **567—Chapter 121**.

ITEM 8. Rescind and reserve **567—Chapter 122**.

Iowa Department of Natural Resources
Environmental Protection Commission

Decision Item

18. Chapter 135 “Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks” – Amended Notice of Intended Action

The Commission is requested to approve the Amended Notice of Intended Action for Chapter 135. It is proposed to rescind and replace in full Chapter 135, “Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks.”

The original Notice of Intended Action for this proposed rulemaking was published on January 7, 2026, as a result of the Land Quality Bureau’s Executive Order 10 rule review, and as approved by the Commission. The DNR received multiple public comments from interested stakeholders. Notably, the DNR received comments on better procedures to expedite the closure of leaking underground storage tank (LUST) sites, particularly those which have been in closure proceedings for over a decade. On review of these comments, the DNR is proposing to adopt various components of ASTM's new “Moving Sites to Closure” (MStC) process, which is now an encouraged process by the US Environmental Protection Agency. Because adoption of this process was not anticipated during EO10 rulemaking, the DNR is requesting the Commission amend the notice of intended action to ensure all interested parties have sufficient opportunity to comment.

Keith Wilken, Supervisor, UST Section
Environmental Services Division
Meeting Date: May 20, 2026

Attached: Chapter 135 – Amended NOIA

ENVIRONMENTAL PROTECTION COMMISSION[567]**Amended Notice of Intended Action**

The Environmental Protection Commission (Commission) hereby proposes to rescind Chapter 135, “Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks,” Iowa Administrative Code, and to adopt a new Chapter 135 with the same title.

Legal Authority for Rulemaking

This rulemaking is proposed under the authority provided in Iowa Code section 455B.474.

State or Federal Law Implemented

This rulemaking implements, in whole or in part, Iowa Code section 455B.474 and 40 CFR parts 280 and 281.

Purpose and Summary

Proposed Chapter 135 establishes the requirements to regulate underground storage tanks (USTs) used for storage of regulated substances and includes rules relating to detection, prevention, and correction of releases of regulated substances from such USTs; maintenance of financial responsibility by owners or operators of USTs; new UST performance standards; notice and reporting requirements; and designation of regulated substances. The purpose of these rules is to protect the public health and safety and the natural resources of Iowa by the timely and appropriate detection, prevention, and correction of releases of regulated substances from USTs. Proposed Chapter 135 has been reviewed consistent with Executive Order 10 (2023). Unnecessary and obsolete rules have been removed, and updates and clarification have been made. Iowa’s UST rules have been approved by the U.S. Environmental Protection Agency into Iowa’s required State Program Approval.

Reason for Amendment of Notice of Intended Action

The Notice of Intended Action for these proposed rules was published in the Iowa Administrative Bulletin on January 7, 2026, as **ARC 9933C**. During the public comment period, the Department of Natural Resources (Department), on behalf of the Commission, received a variety of comments from the public, many of which have been incorporated in whole or in part. Notably, the Department received comments on better procedures to expedite the closure of Leaking USTs (LUST) sites, particularly those which have been in closure proceedings for well over a decade. On review of these comments, the Department has determined that ASTM's new “Moving Sites to Closure” (MStC) process, which is now an encouraged process by the US Environmental Protection Agency, is an effective tool to address many of the comments and has incorporated the process into the proposed rules. Because the MStC process is novel and was not foreseeable as part of the original Notice, the Commission has determined this amended Notice is necessary to provide sufficient opportunity for public comment.

Fiscal Impact

This rulemaking has no fiscal impact to the state of Iowa.

Jobs Impact

After analysis and review of this rulemaking, no impact on jobs has been found.

Waivers

Any person who believes that the application of the discretionary provisions of this rulemaking would result in hardship or injustice to that person may petition the Commission for a waiver of the discretionary provisions, if any, pursuant to 567—Chapter 13.

Public Comment

Any interested person may submit written comments concerning this proposed rulemaking. Written comments in response to this rulemaking must be received by the Department no later than 4:30 p.m. on June 30, 2026. Comments should be directed to:

Keith Wilken
Department of Natural Resources
6200 Park Avenue, Suite 200
Des Moines, Iowa 50321
Phone: 515.681.0794
Email: USTEO10@dnr.iowa.gov
Free Language Access: If you speak a non-English language, the Department offers

language assistance services free of charge. Contact the Department at

USTEO10@dnr.iowa.gov.

Servicios gratuitos de asistencia lingüística: Si habla un idioma que no sea el inglés, los servicios de asistencia lingüística están disponibles de forma gratuita. Comuníquese con el Departamento al USTEO10@dnr.iowa.gov.

Public Hearing

A public hearing at which persons may present their views orally or in writing will be held as follows:

June 30, 2026	Wildcat Den Conference Room
1 p.m. to 2 p.m.	6200 Park Avenue, Suite 200
	Des Moines, Iowa

Persons who wish to make oral comments at the public hearing may be asked to state their names for the record and to confine their remarks to the subject of the proposed rulemaking.

Persons who wish to attend a public hearing should contact Keith Wilken at USTEO10@dnr.iowa.gov. A link will be provided prior to the hearing. Persons who wish to make oral comments at the public hearing must submit a request to Keith Wilken prior to the hearing to facilitate an orderly hearing.

Any persons who intend to attend the and have special requirements, such as those related to hearing or mobility impairments, should contact the Department and advise of specific needs.

Free Language Assistance: If you need assistance in a language other than English, contact the Department at USTEO10@dnr.iowa.gov or civilrights@dnr.iowa.gov or by telephone at 515.681.0794 at least seven days before the event.

Asistencia lingüística gratuita: Si necesita ayuda en un idioma que no sea inglés, comuníquese con el DNR al USTEO10@dnr.iowa.gov o civilrights@dnr.iowa.gov o por teléfono a 515.681.0794 al menos siete días antes del evento.

Review by Administrative Rules Review Committee

The Administrative Rules Review Committee, a bipartisan legislative committee which oversees rulemaking by executive branch agencies, may, on its own motion or on written request by any individual or group, review this rulemaking at its regular monthly meeting or at a special meeting. The Committee's meetings are open to the public, and interested persons may be heard as provided in Iowa Code section 17A.8(6).

The following rulemaking action is proposed:

ITEM 1. Rescind 567—Chapter 135 and adopt the following **new** chapter in lieu thereof:

CHAPTER 135

TECHNICAL STANDARDS AND CORRECTIVE ACTION REQUIREMENTS FOR OWNERS AND
OPERATORS OF UNDERGROUND STORAGE TANKS

567—135.1(455B) Authority, purpose and applicability.

135.1(1) Authority. Iowa Code chapter 455B, subchapter IV, part 8, authorizes the department to regulate underground tanks used for storage of regulated substances, and to adopt 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.

135.1(2) Purpose. The purpose of these rules is to protect the public health and safety and the natural resources of Iowa by timely and appropriate detection, prevention and correction of releases of regulated substances from underground storage tanks (UST).

135.1(3) Applicability.

a. In conjunction with the requirements of Iowa Code chapter 455B, subchapter IV, part 8, the requirements of this chapter apply to all owners and operators of a UST system as defined in 567—135.2(455B) except as otherwise provided in 135.1(3) “*b*” and “*c*.”

(1) Previously deferred UST systems. Airport hydrant fuel distribution systems, UST systems with field-constructed tanks, and UST systems that store fuel solely for use by emergency power generators must meet the requirements of these rules as follows:

1. Airport hydrant fuel distribution systems and UST systems with field-constructed tanks must meet the requirements in 567—135.20(455B).

2. UST systems that store fuel solely for use by emergency power generators installed on or before November 28, 2007, must meet the requirements in 567—135.5(455B) by October 13, 2021.

3. UST systems that store fuel solely for use by emergency power generators installed after November 28, 2007, must meet all applicable requirements of this chapter at installation.

(2) Any UST system listed in 135.1(3) “*c*” must meet the requirements of 135.1(4).

b. Exclusions. The following UST systems are excluded from the requirements of this chapter:

(1) Any UST system 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.

(2) Any wastewater treatment tank system that is part of a wastewater treatment facility regulated under Section 402 or 307(b) of the federal Clean Water Act.

(3) Equipment or machinery that contains regulated substances for operational purposes such as hydraulic lift tanks and electrical equipment tanks.

(4) Any UST system whose capacity is 110 gallons or less.

(5) Any UST system that contains a de minimis concentration of regulated substances.

(6) Any emergency spill or overflow containment UST system that is expeditiously emptied after use.

c. Partial exclusions. Rules 567—135.3(455B), 567—135.4(455B), 567—135.5(455B), 567—135.6(455B), 567—135.15(455B) and 567—135.20(455B) do not apply to any of the following types of UST systems:

(1) Wastewater treatment tank systems;

(2) Any UST systems containing radioactive material that are regulated under the federal Atomic Energy Act of 1954 (42 U.S.C. 2011 and following);

(3) 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;

(4) Aboveground storage tanks associated with:

1. Airport hydrant fuel distribution systems regulated under 567—135.20(455B); and

2. UST systems with field-constructed tanks regulated under 567—135.20(455B).

d. Nonpetroleum underground storage tank systems. Rules 567—135.8(455B) through 567—135.12(455B) do not apply to any nonpetroleum underground storage tank system, except as otherwise provided for by the department.

135.1(4) *Installation requirements for partially excluded UST systems.*

a. Owners and operators must install a UST system listed in 135.1(3) “*c*”(1) through “*c*”(3) storing regulated substances (whether of single- or double-wall construction) that meets the following requirements:

(1) Will prevent releases due to corrosion or structural failure for the operational life of the UST system;

(2) 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; and

(3) Is constructed or lined with material that is compatible with the stored substance.

b. Notwithstanding 135.1(4) “*a*,” a UST system without corrosion protection may be installed at a site that is determined by a corrosion expert not to be corrosive enough to cause it to have a release due to corrosion during its operating life. Owners and operators must maintain records that demonstrate compliance with the requirements of this paragraph for the remaining life of the tank.

NOTE: The codes of practice referenced in 40 CFR 280.11(b) may be used as guidance for complying with this subrule.

135.1(5) All rules, standards, technical guidance, and other similar legal or technical documents that are referenced in this chapter shall be the version of those documents in effect on May 27, 2026, unless otherwise noted in these rules, and except for references to the Iowa Code and Iowa Administrative Code, which shall always be the most recent version unless otherwise noted in these rules.

567—135.2(455B) Definitions.

“Aboveground release” means 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 a UST system and aboveground releases associated with overfills and transfer operations as the regulated substance moves to or from a UST system.

“Active remediation” means corrective action undertaken to reduce contaminant concentrations by other than passive remediation or monitoring.

“Airport hydrant fuel distribution system” or *“airport hydrant system”* means a UST system that fuels aircraft and operates under high pressure with large diameter piping that typically terminates into one or more hydrants (fill stands). The airport hydrant system begins where fuel enters one or more tanks from an external source such as a pipeline, barge, rail car, or other motor fuel carrier.

“Ancillary equipment” means 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.

“Appurtenances” means devices such as piping, fittings, flanges, valves, dispensers and pumps used to distribute, meter, or control the flow of regulated substances to or from an underground storage tank.

“Asbestos-cement pipe” (AC refers to asbestos-cement) means a pipe or conduit constructed of asbestos fiber and Portland cement, which can be used to transport water.

“ASTM” means the American Society of Testing and Materials.

“Backflow preventer” means a check valve used to ensure water flows in one direction and designed to prevent contamination from an end user, such as a home, from getting into the general water supply. An approved backflow preventer shall be a reduced-pressure backflow preventer

or an antisiphon device that complies with the standards of the American Water Works Association and has been approved by the Foundation for Cross-Connection Control and Hydraulic Research.

“Bedrock” means the rock, usually solid, underlying soil or any other unconsolidated surficial cover.

“Below-ground release” means any release to the subsurface of the land and to groundwater. This includes but is not limited to releases from the below-ground portions of an underground storage tank system and below-ground releases associated with overfills and transfer operations as the regulated substance moves to or from an underground storage tank.

“Beneath the surface of the ground” means beneath the ground surface or otherwise covered with earthen materials.

“Best available technology” means those practices that most appropriately remove, treat, or isolate contaminants from groundwater, soil or associated environment, as determined through professional judgment considering actual equipment or techniques 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.

“Best management practices” means maintenance procedures, schedule of activities, prohibition of practices, and other management practices, or a combination thereof, that, after problem assessment, is determined to be the most effective means of monitoring and preventing additional contamination of the groundwater and soil.

“Biodiesel” means a renewable fuel comprised of mono-alkyl esters of long-chain fatty acids derived from vegetable oils or animal fats that is blended with petroleum-based diesel fuel that meets the standards provided in Iowa Code section 214A.2.

“Carcinogenic risk” means the incremental risk of a person developing cancer over a lifetime as a result of exposure to a chemical, expressed as a probability such as one in a million (10^{-6}). For carcinogenic chemicals of concern, probability is derived from application of certain designated exposure assumptions and a slope factor.

“Cast iron pipe” means a pipe or conduit used as a pressure pipe for transmission of water, gas, or sewage or as a water drainage pipe. It comprises predominantly a gray cast iron tube historically used uncoated, with newer types having various coatings and linings to reduce corrosion and improve hydraulics.

“Cathodic protection” is 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.

“Cathodic protection tester” means 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.

“CERCLA” means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended on October 17, 1986.

“Certified company” means a person or company that employs a person who meets all of the qualifications to install, upgrade, repair, test or line underground storage tank systems.

“*Certified individual*” means an individual who has received a certification to perform any of the activities regulated under this chapter.

“*Change-in-service*” means changing the use of a tank system from a regulated to a nonregulated use.

“*Chemicals of concern*” means the compounds derived from petroleum-regulated substances that 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. (NOTE: Concentration values for these last four constituents are determined by a conversion method from total extractable hydrocarbons, see 135.8(3).)

“*Child support recovery unit*” means the child support recovery unit created by Iowa Code section 252B.2.

“*Class A operator*” means the individual who has primary responsibility to operate and maintain the UST system in accordance with applicable requirements. The Class A operator typically manages resources and personnel, such as establishing work assignments, to achieve and maintain compliance with regulatory requirements under this chapter.

“*Class B operator*” means the individual who has day-to-day responsibility for implementing applicable regulatory requirements established by the department. The Class B operator typically implements in-field aspects of operation, maintenance, and associated recordkeeping for the UST systems.

“*Class C operator*” means the individual responsible for initially addressing emergencies presented by a spill or release from a UST system. The Class C operator typically controls or monitors the dispensing or sale of regulated substances.

“*Code of Federal Regulation*” or “*CFR*” means the federal administrative rules adopted by the United States as amended through August 1, 2025.

“*Compatible*” means 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.

“*Conduit*” means underground structures that act as pathways and receptors for chemicals of concern, including but not limited to gravity drain lines and sanitary or storm sewers.

“*Connected piping*” means 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.

“*Consumptive use*” with respect to heating oil means consumed on the premises.

“*Containment sump*” means a liquid-tight container that protects the environment by containing leaks and spills of regulated substances from piping, dispensers, pumps and related components in the containment area. Containment sumps may be single-walled or secondarily contained and located at the top of the tank (tank top or submersible turbine sump pump), underneath the dispenser (under-dispenser containment sump), or at other points in the piping run (transition or intermediate sump).

“*Corrective action*” means an action taken to reduce, minimize, eliminate, clean up, 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 underground storage tank for the purpose of repairing a leak or removal of a tank, removal of contaminated soil, disposal or processing of contaminated soil, cleansing of groundwaters or surface waters, natural biodegradation,

institutional controls, technological controls and site management practices. Corrective action does not include replacement of an underground storage tank. Corrective action specifically excludes third-party liability.

“Corrective action meeting process” means a series of meetings organized by department staff with owners or operators and other interested parties such as certified groundwater professionals, funding source representatives, and affected property owners. The purpose of the meeting process is to develop and agree on a corrective action plan and the terms for implementation of the plan.

“Corrective action plan” means a plan that specifies the corrective action to be undertaken by the owner or operator in order to comply with requirements in this chapter and that is incorporated into a memorandum of agreement or other written agreement between the department and the owner or operator. The plan may include but is not limited to provisions for additional site assessment, site monitoring, Tier 2 revisions, Tier 3 assessment, excavation, and other soil and groundwater remedial action.

“Corrosion expert” means 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 metal tanks.

“Department” means Iowa department of natural resources.

“Dielectric material” means 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).

“Dispenser” means equipment located above ground that dispenses regulated substances from the UST system.

“Dispenser system” means the dispenser and the equipment necessary to connect the dispenser to the underground storage tank system.

“Drinking water well” means any groundwater well used as a source for drinking water by humans and groundwater wells used primarily for the final production of food or medicine for human consumption.

“Ductile iron pipe” means a pipe or conduit commonly used for potable water distribution and for the pumping of sewage. The predominant wall material is ductile iron, a spheroidized graphite cast iron, and commonly has an internal cement mortar lining to inhibit corrosion from the carried water and various types of external coatings to inhibit corrosion from the environment.

“Electrical equipment” means underground equipment that contains dielectric fluid that is necessary for the operation of equipment such as transformers and buried electrical cable.

“Enclosed space” means space that can act as a receptor or pathway capable of creating a risk of explosion or inhalation hazard to humans and includes “explosive receptors” and “confined spaces.” Explosive receptors means those receptors designated in these rules that are evaluated for explosive risk. Confined spaces means those receptors designated in these rules for evaluation of vapor inhalation risks.

“Ethanol” means ethyl alcohol that is to be blended with gasoline if it meets the standards provided in Iowa Code section 214A.2.

“Excavation zone” means the volume containing the tank system and backfill material bounded by the ground surface, walls, and floor of the pit and trenches into which the UST system is placed at the time of installation.

“Existing tank system” means a tank system used to contain an accumulation of regulated substances or for which installation has commenced on or before January 14, 1987. Installation is considered to have commenced if:

1. 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
2. Either:
 - A continuous on-site physical construction or installation program has begun; or
 - 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 a reasonable time.

“Farm tank” is 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. “Farm” includes fish hatcheries, rangeland and nurseries with growing operations.

“Field-constructed tank” means a tank constructed in the field. For example, a tank constructed of concrete that is poured in the field or a steel or fiberglass tank primarily fabricated in the field is considered field-constructed.

“Flow-through process tank” is a tank that forms an integral part of a production process through which there is a steady, variable, recurring, 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.

“Free product” refers to a regulated substance that is present as a light nonaqueous phase liquid (e.g., liquid not dissolved in water).

“Gasket” means any type of pipe seals made of a variety of rubbers including but not necessarily limited to styrene-butadiene rubber (SBR), nitrile-butadiene rubber (NBR or nitrile), ethylene propylene diene monomer (EPDM), neoprene (CR), and fluoroelastomer rubber (FKM), which are used to seal pipe connections.

“Gathering lines” means any pipeline, equipment, facility, or building used in the transportation of oil or gas during oil or gas production or gathering operations.

“Groundwater ingestion pathway” means a pathway through groundwater by which chemicals of concern may result in exposure to a human receptor as specified in rules applicable to Tier 1, Tier 2 and Tier 3.

“Groundwater plume” means the extent of groundwater impacted by the release of chemicals of concern.

“Groundwater professional” is a person who provides subsurface soil contamination and groundwater consulting services, or who contracts to perform or who supervises remediation or corrective action services at leaking underground storage tank sites. Refer to Iowa Code section 455B.474.

“Groundwater to water line pathway” means a pathway through groundwater that leads to a water line.

“Groundwater vapor to enclosed space pathway” means a pathway through groundwater by which vapors from chemicals of concern may lead to a receptor creating an inhalation or explosive risk hazard.

“Hazardous substance UST system” means an underground storage tank 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 that is not a petroleum UST system.

“Hazard quotient” means the ratio of the level of exposure of a chemical of concern over a specified time period to a reference dose for that chemical of concern derived for a similar exposure period. Unless otherwise specified, the hazard quotient designated in these rules is one.

“Heating oil” means 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.

“Highly permeable soils” means for the purpose of UST closures: fractured bedrock, any soils with a hydraulic conductivity rate greater than 0.3 meters per day, or any soil material classified by the Unified Soil Classification System as published by the United States Department of the Interior or ASTM designation as (1) GW - well graded gravel, gravel-sand mixtures, little or no fines, (2) GP - poorly graded gravel, gravel-sand mixtures, little or no fines, (3) SW - well graded sands, gravelly sands, little or no fines, or (4) SP - poorly graded sands, gravelly sands, little or no fines.

“Hydraulic conductivity” means 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 American Society of Testing and Materials (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.

“Hydraulic lift tank” means a tank holding hydraulic fluid for a closed-loop mechanical system that uses compressed air or hydraulic fluid to operate lifts, elevators, and other similar devices.

“Install” or *“installation”* means the physical construction of a UST system including but not limited to activities such as excavating, backfilling, testing, placement of the tank, underground piping, release detection devices, corrosion protection systems, spill and overfill devices and any associated administrative activities such as notifications, recordkeeping and record submissions.

“Installation inspector” means a certified individual who is engaged in the inspection and approval of the installation of new or upgraded underground storage tank systems.

“Installer” means a certified individual or certified company engaged in the installation of a new underground storage tank system or the upgrading of underground storage tank systems.

“Institutional controls” means 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 that are embodied in a covenant running with the land that:
 - Contains a legal description of the real estate in a manner that satisfies Iowa Code section 558.1 et seq.;
 - Is properly executed in a manner that satisfies Iowa Code section 558.1 et seq.;
 - Is recorded in the appropriate office of the county in which the real estate is located;
 - Adequately and accurately describes the institutional control; and
 - 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 that will reduce the risk from a release throughout the period necessary to ensure that no applicable target risk is likely to be exceeded.

“In the aggregate” means for all claims or suits in a single policy year seeking damages.

“Light, nonaqueous-phase liquid” or *“LNAPL”* means a light non-aqueous phase liquid (e.g., petroleum oil, gasoline, diesel fuel) that has a density less than water and is immiscible with water.

“*Liner*” means a certified company or an individual who provides services to install underground storage tank lining and to repair underground storage tanks.

“*Liquid trap*” means 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 liquids. 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. “*Maintenance*” means the normal operational upkeep to prevent an underground storage tank system from releasing product.

“*MCLs*” means the drinking water primary maximum contaminant levels set out in 567—41.3(455B).

“*Memorandum of agreement*” means a written agreement between the department and the owner or operator that specifies the corrective action that will be undertaken by the owner or operator in order to comply with requirements in this chapter and the terms for implementation of the plan. The plan may include but is not limited to provisions for additional site assessment, site monitoring, Tier 2 revisions, Tier 3 assessment, excavation, and other soil and groundwater remedial action.

“*Migrate*” or “*migrating*” means a LNAPL body that is expanding laterally into areas previously not impacted by LNAPL.

“*Mobile LNAPL*” means LNAPL that exists above residual saturation levels such that it can accumulate in monitoring wells constructed within its footprint or smear vertically with a rising or falling water table but will not migrate or spread from its current footprint (i.e., move into monitoring wells beyond its current footprint).

“Modification” means to change a UST system currently in use by the installation of new UST system components. “Modification” includes but is not limited to the addition of corrosion protection to a previously lined tank, installation of new underground piping or replacement of existing underground piping, changing the primary release detection method, or adding secondary containment. “Modification” does not include those activities defined in this rule as “repair” or “replacement.”

“Motor fuel” means a complex blend of hydrocarbons typically used in the operation of a motor engine, such as motor gasoline, aviation gasoline, No. 1 or No. 2 diesel fuel, or any blend containing one or more of these substances (for example, motor gasoline blended with alcohol).

“New tank system” means a tank system that will be used to contain an accumulation of regulated substances and for which installation has commenced after January 14, 1987. (See also “Existing Tank System.”)

“Noncarcinogenic risk” means the potential for adverse systemic or toxic effects caused by exposure to noncarcinogenic chemicals of concern, expressed as the hazard quotient.

“Noncommercial purposes” with respect to motor fuel means not for resale.

“Non-drinking water well” means any groundwater well (except an extraction well used as part of a remediation system) not defined as a drinking water well including a groundwater well that is not properly plugged in accordance with department rules in 567—Chapters 39 and 49.

“Nonresidential area” means land that is not currently used as a residential area and that is zoned for nonresidential uses.

“Obligor” means a natural person as defined in Iowa Code section 252B.1 who has been ordered by a court or administrative agency to pay support.

“On the premises where stored” with respect to heating oil means UST systems located on the same property where the stored heating oil is used.

“Operational life” refers to the period beginning when installation of the tank system has commenced until the time the tank system is properly closed under 567—135.15(455B).

“OSHA” means the Occupational Safety and Health Administration.

“Overexcavation” refers to the excavation of subsurface materials outside the excavation zone for the purpose of removing contaminated substances.

“Overfill release” is a release that occurs when a tank is filled beyond its capacity, resulting in a discharge of the regulated substance to the environment.

“Pathway” means a transport mechanism by which chemicals of concern may reach a receptor(s) or the location(s) of a potential receptor.

“Permanent closure” means 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.

“Person who conveys or deposits a regulated substance” means a person who sells or supplies the owner or operator with the regulated substance and the person who transports or actually deposits the regulated substance in the underground tank.

“Petroleum UST system” means an underground storage tank system that contains petroleum or a mixture of petroleum with de minimis 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.

“Pipe” or *“piping”* means a hollow cylinder or tubular conduit that is constructed of nonearthen materials and that routinely contains and conveys regulated substances.

“Pipeline facilities (including gathering lines)” are new and existing pipe rights-of-way and any associated equipment, facilities, or buildings.

“Point of compliance” means the location(s) at the source(s) of contamination or at the location(s) between the source(s) and the point(s) of exposure where concentrations of chemicals of concern must meet applicable risk-based screening levels at Tier 1 or other target level(s) at Tier 2 or Tier 3.

“Point of exposure” means the location(s) at which an actual or potential receptor may be exposed to chemicals of concern via a pathway.

“Polybutylene pipe” (PB refers to polybutylene) means a water supply pipe comprised of a form of plastic resin that was used extensively from 1978 until 1995. The piping systems were used for underground water mains and as interior water distribution piping. Polybutylene mains are usually blue in color, but may be gray, black, or white. The pipe is usually ½ inch or 1 inch in diameter, and it may be found entering a residence through the basement wall or floor, concrete slab or through the crawlspace; frequently it enters the residence near the water heater.

“Polyethylene pipe” (PE refers to polyethylene) means a water supply pipe comprised of thermoplastic material produced from the polymerization of ethylene. PE pipe is manufactured by extrusion in sizes ranging from ½ inch to 63 inches. PE pipe is available in rolled coils of various lengths or in straight lengths of up to 40 feet. PE pipe is available in many forms and colors, including single-extrusion colored or black pipe, black pipe with co-extruded color striping, and black or natural pipe with a co-extruded colored layer. PE pipe has been demonstrated to be very permeable to petroleum while still retaining its flexible structure.

“Polyvinyl chloride pipe” (PVC refers to polyvinyl chloride) means a pipe made from a plastic and vinyl combination material. The pipes are durable, hard to damage, and long-lasting. A PVC pipe is very resistant and does not rust, nor is it likely to rot or wear over time. PVC piping is most commonly used in water systems, underground wiring, and sewer lines.

“Portland cement” means hydraulic cement (cement that not only hardens by reacting with water but also forms a water-resistant product) and is produced by pulverizing clinkers consisting essentially of hydraulic calcium silicates, usually containing one or more forms of calcium sulfate as an inter ground addition.

“Potential receptor” means a receptor not in existence at the time a Tier 1, Tier 2 or Tier 3 site assessment is prepared but that could reasonably be expected to exist within 20 years of the preparation of the Tier 1, Tier 2 or Tier 3 site assessment or as otherwise specified in these rules.

“Precision test” means a tank and line tightness test that meets the requirements in 567—135.5(455B).

“Preferential pathway” means conditions that act as a pathway permitting contamination to migrate through soils and to groundwater at a faster rate than would be expected through naturally occurring undisturbed soils or unfractured bedrock including but not limited to wells, cisterns, tile lines, drainage systems, utility lines and envelopes, and conduits.

“Protected groundwater source” means a saturated bed, formation, or group of formations that has a hydraulic conductivity of at least 0.44 meters per day (m/d) and a total dissolved solids of less than 2,500 milligrams per liter (mg/l) or a bedrock aquifer with total dissolved solids of less than 2,500 milligrams per liter (mg/l) if bedrock is encountered before groundwater.

“Public water supply well” means a well connected to a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

“Receptor” means enclosed spaces, conduits, protected groundwater sources, drinking and non-drinking water wells, surface water bodies, and public water systems that 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.

“Reference dose” means a designated toxicity value established in these rules for evaluating potential noncarcinogenic effects in humans resulting from exposure to a chemical(s) of concern. Reference doses are designated in Appendix A.

“Regulated substance” means an element, compound, mixture, solution or substance that, 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 302 (September 13, 1988),
 2. Substances that exhibit the characteristics identified in 40 CFR 261.20 through 261.24 (May 10, 1984) and that are not excluded from regulation as a hazardous waste under 40 CFR 261.4(b) (May 10, 1984),
 3. Any substance defined in Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (but not including any substance regulated as a hazardous waste under subtitle C), and
 4. Petroleum, including crude oil or any fraction thereof that is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).
- The term “regulated substance” includes but is not limited to petroleum and petroleum-based

substances comprised of a complex blend of hydrocarbons such as motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.

“Release detection” means determining whether a release of a regulated substance has occurred from the UST system into the environment or a leak has occurred into the interstitial space between the UST system and its secondary barrier or secondary containment around it.

“Removal” means the process of removing and disposing of an underground storage tank system no longer in service or the process of abandoning an underground storage tank system in place in accordance with 567—135.15(455B).

“Remover” means a certified individual who is engaged in permanent closure activities by removal or filling in place of underground storage tank systems in accordance with 567—135.15(455B).

“Repair” means to restore to proper operating condition a tank, pipe, spill prevention equipment, overfill prevention equipment, corrosion protection equipment, release detection equipment or other UST system component that has caused a release of product from the UST system or has failed to function properly.

“Replacement” means the installation of a new underground tank system or component, in substantially the same location as an existing tank system or component.

“Replaced” means:

1. For a tank: to remove a tank and install another tank.
2. For piping: to remove 50 percent or more of piping and install other piping, excluding connectors, connected to a single tank. For tanks with multiple piping runs, this definition applies independently to each piping run.

“Residential area” means land used as a permanent residence or domicile, such as a house, apartment, nursing home, school, child care facility or prison, land zoned for such uses, or land where no zoning is in place.

“Residential tank” is a tank located on property used primarily for dwelling purposes.

“Residual LNAPL” means LNAPL that is bound in the soil and will not move into monitoring wells or smear with a rising or falling water table.

“Risk-based screening level” or *“RBSL”* means the risk-based concentration level for chemicals of concern developed for a Tier 1 analysis to be met at the point(s) of compliance and incorporated in the Tier 1 Look-up Table in Appendix A.

“Secondary containment” or *“secondarily contained”* means a release prevention and release detection system for a tank or piping. This system has an inner and outer barrier with an interstitial space monitored for leaks. This term includes containment sumps when used for interstitial monitoring of piping.

“Secondary containment tank” or *“secondary containment piping”* means a tank or piping that is designed with an inner primary shell and a liquid-tight outer secondary shell or jacket that extends around the entire inner shell, and that is designed to contain any leak through the primary shell from any part of the tank or piping that routinely contains product, and that also allows for monitoring of the interstitial space between the shells and the detection of any leak.

“Self-insured retention” means the portion of a claim paid by insureds who self-insure a portion of their risk as part of a policy. Expenses included as a part of the self-insured retention are the cost of claims settlements or suits, the cost of adjusting, legal fees, court costs and any other investigative cost associated with the claim.

“*Septic tank*” is 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.

“*Service line*” means a pipe connected to a business or residence from a water main, typically of a size not exceeding 6 inches in diameter, and including its gaskets and other appurtenances. For purposes of this chapter, service lines refer to pipes specifically used for drinking water transmission.

“*Service technician*” means a noncertified individual who works for a certified individual or a certified company or who is certified by a manufacturer to conduct modification or replacement activities at UST facilities.

“*Site assessment investigation*” means an investigation conducted by a certified 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.

“*Site cleanup report*” means the report required to be submitted by these rules and in accordance with department guidance that may include the results of Tier 2 or Tier 3 assessment and analysis.

“*Site-specific target level*” or “*SSTL*” means the risk-based target level(s) for chemicals of concern developed as the result of a Tier 2 or Tier 3 assessment that must be achieved at

applicable point(s) of compliance at the source to meet the target level(s) at the point(s) of exposure.

“Soil leaching to groundwater pathway” means a pathway through soil by which chemicals of concern may leach to groundwater and through a groundwater transport pathway impact an actual or potential receptor.

“Soil plume” means the vertical and horizontal extent of soil impacted by the release of chemicals of concern.

“Soil to water line pathway” means a pathway that leads from soil to a water line.

“Soil vapor to enclosed space pathway” means a pathway through soil by which vapors from chemicals of concern may lead to a receptor creating an inhalation or explosive risk hazard.

“Storm water or wastewater collection system” means piping, pumps, conduits, and any other equipment necessary to collect and transport the flow of surface water run-off 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 storm water and wastewater does not include treatment except where incidental to conveyance.

“Surface impoundment” is a natural topographic depression, constructed excavation, or diked area formed primarily of earthen materials (although it may be lined with manufactured materials) that is not an injection well.

“Surface water body” means general use segments as provided in 567—paragraph 61.3(1) “a” and designated use segments of water bodies as provided in 567—paragraph 61.3(1) “b” and 567—subrule 61.3(5).

“*Surface water criteria*” means, for chemicals of concern, the Criteria for Chemical Constituents in Table 1 of 567—61.3(455B), except that “1,000 µg/L” will be substituted for the chronic levels for toluene for Class B designated use segments.

“*Surface water pathway*” means a pathway that leads to a surface water body.

“*Tank*” is 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.

“*Target level*” means the allowable concentrations of chemicals of concern established to achieve an applicable target risk that must be met at the point(s) of compliance as specified in these rules.

“*Target risk*” refers 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).

“*Technological controls*” means a physical action that 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.

“*Temporary closure*” means a regulated tank or UST system that has been out of operation for three months or more.

“*Tester*” means a certified company or individual who tests tanks, lines, leak detection systems, or monitoring systems as required by 567—Chapter 135. For the purposes of this definition, an owner, operator or an employee of an owner or operator performing leak detection or cathodic protection monitoring, as required by 567—Chapter 135, is not a tester.

“*Testing*” means the process of utilizing a system to test underground storage tank systems or any part thereof for tightness, leak detection, cathodic protection or monitoring.

“*Tier 1 level*” means the groundwater and soil levels in the Tier 1 Look-up Table set out in 567—135.9(455B) and Appendix A.

“*Tier 1 site assessment*” means 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.

“*Tier 2 site assessment*” means the process of assessing risk to actual and potential receptors by using site-specific contaminant concentrations and designated Tier 2 exposure and fate and transport models to determine the applicable target level(s).

“*Tier 3 site assessment*” means a site-specific risk assessment utilizing more sophisticated data or analytic techniques than a Tier 2 site assessment.

“*Training program*” means any program that provides information to and evaluates the knowledge of a Class A, Class B, or Class C operator through testing, practical demonstration, or another approach acceptable to the department regarding requirements for UST systems that meet the requirements of 135.4(6) through 135.4(12).

“*Under-dispenser containment*” or “*UDC*” means containment underneath a dispenser system designed to prevent leaks from the dispenser and piping within or above the UDC from reaching soil or groundwater.

“*Underground area*” means 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.

“Underground release” means any below-ground release.

“Underground storage tank compliance inspector” or *“UST compliance inspector”* means a person who inspects a regulated underground storage tank (UST) to satisfy the requirements of 567—135.19(455B) for compliance with UST technical standards in 567—Chapter 135.

“Underground storage tank professional” or *“UST professional”* means an individual certified by the department under 567—Chapter 134, excluding groundwater professionals and compliance inspectors. The certification program includes underground storage tank system installation, installation inspection, UST system testing, tank lining, cathodic protection installation/inspection, and UST removal. The certification issued will list the type of work the individual is certified to perform.

“Underground utility vault” means any constructed space accessible for inspection and maintenance associated with subsurface utilities.

“Unit,” in reference to child support, means the child support recovery unit created in Iowa Code section 252B.2.

“Unreasonable risk to public health and safety or the environment” means the Tier 1 levels for a Tier 1 site assessment, the applicable target level for a Tier 2 site assessment, and the applicable target level for a Tier 3 site assessment.

“Upgrade” means the addition or retrofit of some systems such as cathodic protection, lining, or spill and overflow controls to improve the ability of an underground storage tank system to prevent the release of product.

“U.S. EPA” means the United States Environmental Protection Agency.

“UST system” or *“tank system”* means an underground storage tank, connected underground piping, underground ancillary equipment, and containment system, if any.

“*Utility envelope*” means the backfill and trench used for any subsurface utility line, drainage system and tile line.

“*Wastewater treatment tank*” means a tank that is designed to receive and treat an influent wastewater through physical, chemical, or biological methods.

“*Water line*” means a hollow cylinder or tubular conduit that routinely contains and conveys potable water and is constructed of nonearthen materials, including but not limited to asbestos-cement, copper, high-density polyethylene (HDPE), polybutylene, polyethylene, and wood. Such piping includes any elbows, couplings, unions, valves, or other in-line fixtures, as well as the gaskets, that contain and convey potable water.

“*Water main pipe*” means a main line to the water distribution system with feeder lines or service lines connected to it and that typically is 6 inches or greater in diameter, and includes its gaskets and other appurtenances.

567—135.3(455B) UST systems—design, construction, installation and notification.

135.3(1) *Performance standards for new UST systems.* In order to prevent releases due to structural failure, corrosion, or spills and overfills for as long as the UST system is used to store regulated substances, all owners and operators of new UST systems must meet the following requirements. The UST system must be secondarily contained in accordance with 135.3(9).

a. Tanks. Each tank must be properly designed and constructed, and any portion underground that routinely contains product must be protected from corrosion in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory as specified below:

- (1) The tank is constructed of fiberglass-reinforced plastic; or

NOTE: The codes of practice referenced in 40 CFR 280.20(a)(1) may be used to comply with 135.3(1)“a”(1).

(2) The tank is constructed of steel and cathodically protected in the following manner:

1. The tank is coated with a suitable dielectric material;
2. Field-installed cathodic protection systems are designed by a corrosion expert;
3. Impressed current systems are designed to allow determination of current operating status

as required in 135.4(2)“c.”

4. Cathodic protection systems are operated and maintained in accordance with 135.4(2) or according to guidelines established by the department; and

(3) The tank is constructed of steel and clad or jacketed with a noncorrodible material; or

NOTE: The industry codes referenced in 40 CFR 280.20(3) may be used to comply with 135.3(1)“a”(3).

(4) The tank is constructed of metal without additional corrosion protection measures provided that:

1. The tank is installed at a site that is determined by a corrosion expert not to be corrosive enough to cause it to have a release due to corrosion during its operating life; and

2. Owners and operators maintain records that demonstrate compliance with the requirements of 135.3(1)“a”(4)“1” for the remaining life of the tank; or

(5) The tank 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 health and the environment than 135.3(1)“a”(1) through “a”(4).

b. Piping. The piping that routinely contains regulated substances and is in contact with the ground must be properly designed, constructed, and protected from corrosion in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory as specified in this rule. This includes piping for remote tank fill locations.

All piping must have secondary containment, installed according to manufacturer's specifications, and be compatible with the product stored and the environment to which it will be exposed. Piping must maintain its original specifications and structural integrity. Piping whose structural integrity has degraded must be replaced. All piping installations must meet National Fire Prevention Association Standard 30 and Standard 30A or the International Fire Code as adopted by the Iowa state fire marshal in 481—Chapter 282, "Flammable or Combustible Liquids."

(1) The piping is constructed of a noncorrodible material; or

NOTE: The codes of practice referenced in 40 CFR 280.20(b)(1) may be used to comply with 135.3(1)“b”(1).

(2) The piping is constructed of steel and cathodically protected in the following manner:

1. The piping is coated with a suitable dielectric material;

2. Field-installed cathodic protection systems are designed by a corrosion expert;

3. Impressed current systems are designed to allow determination of current operating status as required in 135.4(2)“c”; and

4. Cathodic protection systems are operated and maintained in accordance with 135.4(2) or guidelines established by the department; or

NOTE: The codes of practice referenced in 40 CFR 280.20(b)(2) may be used to comply with 135.3(1)“b”(2).

(3) The piping is constructed of metal without additional corrosion protection measures provided that:

1. The piping is installed at a site that is determined by a corrosion expert to not be corrosive enough to cause it to have a release due to corrosion during its operating life; and
2. Owners and operators maintain records that demonstrate compliance with the requirements of 135.3(1) "b"(3)"1 for the remaining life of the piping; or

(4) The 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 health and the environment than the requirements in 135.3(1) "b"(1) through "b"(3).

c. Spill and overflow prevention equipment.

(1) Except as provided in 135.3(1) "b"(2), to prevent spilling and overflowing associated with product transfer to the UST system, owners and operators must use the following spill and overflow prevention equipment:

1. Spill prevention equipment that will prevent release of product to the environment when the transfer hose is detached from the fill pipe (for example, a spill catchment basin); and
2. Overflow prevention equipment that will:
 - Automatically shut off flow into the tank when the tank is no more than 95 percent full; or
 - Alert the transfer operator when the tank is no more than 90 percent full by restricting the flow into the tank (not allowed for suction product delivery systems, for tanks with stage 1 vapor recovery or when product delivery is by pumping) or triggering a high-level alarm; or

- Restrict flow 30 minutes prior to overfilling, alert the transfer operator with a high-level alarm one minute before overfilling, or automatically shut 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.

(2) Owners and operators are not required to use the spill and overfill prevention equipment specified in 135.3(1)“b”(1) if:

1. Alternative equipment is used that is determined by the department to be no less protective of human health and the environment than the equipment specified in 135.3(1)“b”(1)“1” or “2”;

or

2. The UST system is filled by transfers of no more than 25 gallons at one time.

(3) Flow restrictors used in vent lines may not be used to comply with 135.3(1)“c”(1)“2” when overfill prevention is installed or replaced.

(4) Spill and overfill prevention equipment must be periodically tested or inspected in accordance with 135.4(12).

(5) Spill prevention equipment must be kept free of any liquid and debris. Any liquid or debris must be removed prior to product delivery.

d. Installation. The UST system must be properly installed 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. The UST system installation shall be conducted by an installer certified by the department under 567—Chapter 134 and in accordance with 567—subrules 134.11(3) and 134.11(4).

NOTE: Tank and piping system installation practices and procedures described in the codes referenced in 40 CFR 280.20(d) may be used to comply with the requirements of 135.3(1)“d.”

e. Certification of installation. All owners and operators must ensure that the following methods of certification, testing, and inspection are used to demonstrate compliance with 135.3(1)“d” by providing a certification of compliance on the UST registration form in accordance with 135.3(3).

(1) The installer is certified by the department as provided in 567—Chapter 134; and

(2) The installation has been inspected by a certified installation inspector as required by 567—Chapter 134.

f. Dispenser systems. Each UST system must be equipped with under-dispenser containment (UDC) for any new or replaced dispenser system.

(1) A dispenser system is considered new when both the dispenser and the equipment needed to connect the dispenser to the underground storage tank system are installed at a location where there previously was no dispenser (new UST system or new dispenser location at an existing UST system). The equipment necessary to connect the dispenser to the underground storage tank system includes check valves, shear valves, unburied risers or flexible connectors, or other transitional components that are underneath the dispenser and connect the dispenser to the underground piping.

(2) UDC shall be installed whenever an existing dispenser system is removed and replaced with another dispenser and the equipment used to connect the dispenser to the underground storage tank system is replaced. This equipment includes flexible connectors or risers or other transitional components that are beneath the dispenser and connect the dispenser to the piping. UDC is not required when only the emergency shutoff or shear valves or check valves are replaced.

(3) UDC must be liquid-tight on its sides, bottom, and at any penetrations. UDC must allow for visual inspection and access to the components in the containment system or be periodically monitored for leaks from the dispenser system.

135.3(2) *Upgrading of existing UST systems.* Owners and operators must permanently close any UST system that does not meet the new UST system performance standards or has not been upgraded in accordance with 135.3(2) “b” through “d.” This subrule does not apply to previously deferred UST systems. Upgrading is no longer allowed for UST systems not upgraded by December 22, 1998.

a. Alternatives allowed. Not later than December 22, 1998, all existing UST systems had to comply with one of the following requirements:

- (1) New UST system performance standards under 135.3(1);
- (2) The upgrading requirements in 135.3(2) “b” through “d”; or
- (3) Closure requirements under 567—135.15(455B), including applicable requirements for corrective action under 567—135.7(455B) through 567—135.12(455B).

b. Tank upgrading requirements. Steel tanks had to be 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:

- (1) Interior lining. Tanks upgraded by internal lining must meet the following:
 1. The lining was installed in accordance with the requirements of 135.4(4), and
 2. Within ten years after lining, and every five years thereafter, the lined tank is internally inspected and found to be structurally sound with the lining still performing in accordance with original design specifications.

3. If the internal lining is no longer performing in accordance with original design specifications and cannot be repaired in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory, the lined tank must be permanently closed in accordance with 567—135.15(455B).

(2) Cathodic protection. Tanks upgraded by cathodic protection meet the requirements of 135.3(1)“a”(2)“2,” “3,” and “4” and the integrity of the tank was ensured using one of the following methods:

1. The tank was internally inspected and assessed to ensure that the tank was structurally sound and free of corrosion holes prior to installing the cathodic protection system; or

2. The tank had been installed for less than ten years and is monitored monthly for releases in accordance with 135.5(4)“d” through “i”; or

3. The tank had been installed for less than ten years and was assessed for corrosion holes by conducting two tightness tests that meet the requirements of 135.5(4)“c.” The first tightness test must have been conducted prior to installing the cathodic protection system. The second tightness test must have been conducted between three and six months following the first operation of the cathodic protection system; or

4. The tank was assessed for corrosion holes by a method that is determined by the department to prevent releases in a manner that is no less protective of human health and the environment than 135.3(2)“b”(2)“1” through “3.”

(3) Internal lining combined with cathodic protection. Tanks upgraded by both internal lining and cathodic protection must have met the following:

1. The lining was installed in accordance with the requirements of 135.4(4); and

2. The cathodic protection system was installed within six months of lining installation and meets the requirements of 135.3(1) “a”(2)“2,” “3,” and “4.”

NOTE regarding 135.3(2) “b”: The codes referenced in 40 CFR 280.21 are options for complying with 135.3(2) “b.”

NOTE regarding 135.3(2) “b”(1)“2”: The codes referenced in 40 CFR 280.21(b)(1)(ii) may be used to comply with the periodic lining inspection requirement of this subrule.

c. Piping upgrading requirements. Metal piping that routinely contains regulated substances and is in contact with the ground must be cathodically protected in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and must meet the requirements of 135.3(1) “b”(2)“2,” “3,” and “4.”

NOTE: The codes of practice listed in 40 CFR 280.21(c) may be used to comply with this requirement.

d. Spill and overflow prevention equipment. To prevent spilling and overflowing associated with product transfer to the UST system, all existing UST systems must comply with UST system spill and overflow prevention equipment requirements specified in 135.3(1) “c.”

135.3(3) *Registration and notification requirements.*

a. Except as provided in 135.3(3) “b,” the owner of an underground storage tank existing on or before July 1, 1985, shall complete and submit to the department a copy of the registration form provided by the department.

b. The owner of an underground storage tank system taken out of operation between January 1, 1974, and July 1, 1985, shall complete and submit to the department a copy of the registration form provided by the department unless the owner knows the tank has been removed from the

ground. For purposes of this subrule, “owner” means the person who owned the tank immediately before the discontinuation of the tank’s use.

c. An owner or operator who brings into use an underground storage tank system after July 1, 1985, shall complete and submit to the department a copy of the registration form provided by the department within 30 days of the final installation inspection required in 567—subparagraph 134.14(3)“c”(3) by a certified installation inspector. The owner or operator shall not allow the deposit of any regulated substance into the tank without prior approval of the department or until the permanent registration tag and annual tank tag have been attached to the tank fill pipe and the tank system is covered by an approved financial responsibility mechanism in accordance with 567—Chapter 136.

d. All owners and operators of new UST systems must provide UST system details and a site diagram and certify in the registration form compliance with the following requirements:

- (1) Installation of tanks and piping under 135.3(1)“e”;
- (2) Cathodic protection of steel tanks and piping under 135.3(1)“a” and “b”;
- (3) Financial responsibility under 567—Chapter 136;
- (4) Release detection methods under 135.5(2) and 135.5(3);
- (5) Class A and B operator certification under 135.4(6);
- (6) NESHAP Stage 1 vapor recovery.

e. All owners and operators of new UST systems must ensure that the certified installer certifies in the registration form that the methods used to install the tanks and piping comply with the requirements in 135.3(1)“d.”

f. Exemption from reporting requirement. Paragraphs 135.3(1)“a” through “c” do not apply to an underground storage tank for which notice was given pursuant to Section 103, Subsection

c, of the Comprehensive Environmental Response, Compensation, and Liabilities Act of 1980. (42 U.S.C. Subsection 9603(c)).

g. Notification requirement for installing a tank. A person installing an underground storage tank and the owner or operator of the underground storage tank must notify the department of their intent to install the tank 30 days prior to installation. Notification shall be on a form provided by the department.

h. Notice requirement for acquiring a UST system. A person, company or lending institution that assumes ownership or operation of a regulated underground storage tank must submit notification to the department on a form provided by the department within 30 days of acquisition and prior to tank operation. The owner must include copies of training certificates for the Class A and Class B operators (135.4(6)) and proof of financial responsibility required in 567—Chapter 136. The new owner is responsible for any current tank management fees that have not been previously paid.

i. It is unlawful for a person to deposit or accept a regulated substance into an underground storage tank if the person has received notice from the department that the underground storage tank is subject to a delivery prohibition or if there is a “red tag” attached to the UST fill pipe or fill pipe cap as provided in 135.3(7).

(1) The department may provide written authorization to receive a regulated substance when conditions warrant.

(2) The department may provide known depositors of regulated substances lists of underground storage tank sites that have been issued tank tags, those that have not been issued tank tags, and those subject to a delivery prohibition pursuant to 135.3(7). These lists do not

remove the requirement for depositors to verify that current tank tags are affixed to the fill pipe prior to delivering product.

(3) A person shall not accept or deposit a regulated substance in an underground storage tank after receiving written or oral notice from the department that the tank is not covered by an approved form of financial responsibility in accordance with 567—Chapter 136.

135.3(4) *Farm and residential tanks.*

a. The owner or operator of a farm or residential tank of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes is subject to the requirements of this subrule.

b. Farm and residential tanks, installed before July 1, 1987, are required to be registered with the department.

c. Farm and residential tanks installed on or after July 1, 1987, must be in compliance with all the underground storage tank regulations.

135.3(5) *Registration tags and annual management fee.*

a. Tanks of 1,100 gallons or less capacity that have registered with the department will be issued a permanent registration tag.

b. The owner or operator of tanks over 1,100-gallon capacity must submit a tank management fee form and fee payment of \$65 per tank by January 15 of each year.

(1) An additional \$250 per tank late fee must be paid if the tank management fee is not paid by March 1.

(2) The owner or operator must submit proof that the tanks are covered by an approved form of financial responsibility in accordance with 567—Chapter 136.

(3) Upon proper payment of the fee and acceptable proof of financial responsibility, and a determination there are no outstanding compliance violations, a one-year renewal tag will be issued for the period from April 1 to March 31.

(4) If there are outstanding compliance violations, the annual tank tags may be withheld until the violations are corrected.

(5) The department shall refund a tank management fee if the tank is permanently closed prior to April 1 for that year.

c. The owner or operator shall affix the tag to the fill pipe of the underground storage tank where it will be readily visible.

d. A person who conveys or deposits a regulated substance shall inspect the underground storage tank to determine the existence or absence of a permanent registration tag, a current annual renewal tag, or a delivery prohibition “red tag” as provided in 135.3(7). If a current annual renewal tag, or a silver permanent tag for regulated tanks less than 1,100 gallons is not affixed to the fill pipe or fill pipe cap or if a delivery prohibition “red tag” is displayed, the person shall not deposit the substance in the tank.

135.3(6) *Previously unregistered petroleum underground storage tanks.* A petroleum underground storage tank required to be registered under 135.3(3) and 135.3(4) that has not been registered shall be registered under the following conditions:

a. The tank registration fee under Iowa Code section 455B.473(4) and 455B.473(5) shall accompany the registration.

b. The storage tank management fee and any late fees under Iowa Code section 455B.473(8) “b” shall be paid for past years in which the tank should have been registered.

c. The department may waive the late fee(s).

135.3(7) *Delivery prohibition process.*

a. Identifying sites subject to delivery response prohibition action.

(1) Annual renewal tag and tank management fee process. Owners and operators shall certify to the following on a form prepared by the department when applying for annual tank tags pursuant to 135.3(5):

1. Installation and performance of an approved UST and piping release detection method as provided in 567—135.5(455B), including an annual line tightness test and a line leak detector test if applicable.

2. Installation of an approved overfill and spill protection system as provided in 135.3(1) “c.”

3. Installation of an approved corrosion protection system as provided in 135.3(1) “a” and “b.”

4. If the UST system has been out of operation for more than three months, that the UST system has been temporarily closed in accordance with 567—135.15(455B) and a certification of temporary closure has been submitted to the department.

5. If the UST system has been removed or filled in place within the last 12 months, the date of removal or filling in place and whether a closure report has been submitted as provided in 567—135.15(455B).

(2) Sites with provisional status. If the UST system has been classified as operating under provisional status as provided in 135.3(7) “c,” owners and operators when applying for annual tank tags pursuant to 135.3(5) must certify on a form prepared by the department that the owners and operators are in compliance with an approved provisional status remedial plan as provided in 135.3(7) “c.”

(3) Compliance inspections. The department may initiate a delivery prohibition response action based on: (1) a finding resulting from a third-party compliance inspection conducted pursuant to 567—135.19(455B); (2) a department investigation and inspection conducted pursuant to Iowa Code section 455B.475; or (3) review of a UST system check or other documentation submitted in response to a suspected release under 567—135.6(455B) or in response to a confirmed release under 567—135.7(455B).

b. Delivery prohibition eligibility criteria. A delivery prohibition response action may be initiated upon a finding that the UST system is out of compliance with department rules and meets the eligibility criteria as specified below. Reinstatement criteria define the standards and process for owners and operators to document that they have taken corrective action sufficient to authorize resumption of fuel to the USTs. Prior to initiation of the delivery prohibition, owners and operators are afforded a minimum level of procedural due process such as prior notice and the opportunity to present facts to dispute the finding. Where notice and the opportunity to take corrective action prior to initiation of a delivery prohibition response action are required, notice by the department or by a certified compliance inspector as provided in 567—135.19(455B) shall be sufficient.

If the department finds that any one of the following criteria has been satisfied, the department may initiate a delivery prohibition response action following the notice procedures outlined in 135.3(7) “e.” After initiation of the delivery prohibition response action, the department will offer the owner or operator an opportunity to establish reinstatement criteria by written documentation and, if requested, an in-person meeting.

(1) An approved release detection method for USTs or UST piping is not installed, such as automatic tank gauging, groundwater monitoring wells and line leak detectors, and there is no

record that an approved method such as inventory control, statistical inventory reconciliation, or interstitial space monitoring has been employed during the previous three months. If the owner or operator claims to have documentation that an approved release detection method has been conducted, the owner or operator will be given two business days to produce the documentation.

REINSTATEMENT CRITERIA: The owner or operator must submit results of a passing UST system precision tightness test at the 0.1 gallon-per-hour leak rate in 135.5(4)“c” and 135.5(5)“b.” The owner or operator must also document installation and operation of an approved release detection system. This may include proof that a contract has been signed with a qualified statistical inventory reconciliation provider or that a qualified inventory control method has been implemented and training has been provided to onsite supervisory personnel.

(2) No documentation of a required annual line tightness test or line leak detector test has been provided, and the owner or operator has failed to conduct the required testing within 14 days of written notice by the department or a certified compliance inspector as provided in 567—135.19(455B).

REINSTATEMENT CRITERIA: The owner or operator must provide documentation of a passing line precision tightness test at the 0.1 gallon-per-hour leak rate in 135.5(5)“b” and a line leak detector test as provided in 135.5(5)“a.”

(3) Overfill and spill protection is not installed.

REINSTATEMENT CRITERION: The owner or operator must provide documentation that overfill and spill protection equipment has been installed.

(4) A corrosion protection system is not installed or there is no record that an impressed current corrosion protection system has been in operation for the prior six months.

REINSTATEMENT CRITERIA: A manned entry tank integrity inspection must be completed prior to installation of a corrosion protection system, and the owner or operator must submit results of a passing UST system precision tightness test at the 0.1 gallon-per-hour leak rate in 135.5(4)“c” and 135.5(5)“b.” A corrosion protection analysis must be completed and approved by the department.

(5) The owner or operator has failed to provide proof of financial responsibility in accordance with 567—Chapter 136.

REINSTATEMENT CRITERION: The owner or operator must submit acceptable proof of financial responsibility in accordance with 567—Chapter 136.

(6) A qualified UST system release detection method is installed and is being used but the documentation or the absence of documentation is sufficient to question the reliability of the release detection over the past 12-month period. The owner or operator shall be notified of the deficiencies, shall be given at least two business days to produce documentation of compliance and, if necessary, shall be required to conduct a leak detection system analysis and a system tightness test within 14 days. If the owner or operator fails to produce documentation of compliance or to conduct the system analysis and the UST system precision tightness test at the 0.1 gallon-per-hour leak rate in 135.5(4)“c” and 135.5(5)“b,” the department may initiate a delivery prohibition response action. Notice by the department or a compliance inspector as provided in 567—135.19(455B) shall be sufficient to initiate a delivery prohibition response action.

REINSTATEMENT CRITERIA: The owner or operator must submit documentation that the leak detection method analysis sufficiently documents compliance and explains the reasons for the accuracy and reliability concerns. If necessary, the owner or operator must submit passing results

of a UST system precision tightness test at the 0.1 gallon-per-hour leak rate in 135.5(4) “c” and 135.5(5) “b.”

(7) The owner or operator has failed to document completion of a three-year corrosion protection test or to repair defective corrosion protection equipment within 30 days after notice of the violation by the department or a certified compliance inspector as provided in 567—135.19(455B).

REINSTATEMENT CRITERION: The owner or operator must submit documentation of a three-year corrosion protection test as provided in 567—135.3(455B).

(8) The owner or operator has failed to complete a compliance inspection required by 567—135.19(455B) within 60 days after written notice of the violation by the department.

REINSTATEMENT CRITERION: The owner or operator must submit a compliance inspection report as provided in 567—135.19(455B).

(9) The owner or operator has failed to take necessary abatement action in response to a confirmed release as provided in 135.7(2) and 135.7(3).

REINSTATEMENT CRITERION: The owner or operator must document compliance with the abatement provisions in 135.7(2) and 135.7(3).

(10) The owner or operator has failed to undertake and document release investigation and confirmation steps within seven days in response to a suspected release as provided in 135.6(3) “a.”

REINSTATEMENT CRITERION: The owner or operator must document release confirmation and system check as provided in 135.6(3) “a.”

(11) The owner or operator has failed to provide documentation of Class A or B operator training.

REINSTATEMENT CRITERION: The owner or operator must submit a copy of the certificates of training for Class A and B operators.

- (12) The owner or operator has failed to install required secondary containment.

REINSTATEMENT CRITERION: The owner or operator must document secondary containment has been installed as provided in 135.3(9).

- (13) The owner or operator has failed to pay the annual tank management fee.

REINSTATEMENT CRITERION: The owner or operator must pay the current and any previous unpaid tank management fees in addition to any late fees as provided in 135.3(5) “b.”

- (14) When tanks are no longer in use or in temporary closure.

REINSTATEMENT CRITERION: The owner or operator must provide a completed Return to Service form along with required documents.

c. Provisional status. The department may classify a UST system as operating under a provisional status when the department documents a pattern of UST operation and maintenance violations under 567—135.3(455B) through 567—135.5(455B) and suspected release and confirmed release response actions under 567—135.6(455B) and 567—135.7(455B). The department shall provide the owner or operator with a notice specifying the basis for the proposed classification and a proposed remedial action plan. The objective of the remedial action plan is to provide the owner and operator an opportunity to undertake certain remedial actions sufficient to establish a reasonable likelihood that future regulatory compliance will be achieved.

The remedial action plan may include but is not limited to provisions for owner/operator training, development of a facility-specific compliance manual, more frequent third-party compliance inspections than otherwise required under 567—135.19(455B), monthly reporting, and retention of a third-party compliance manager/consultant. If the owner or operator and the department

cannot reach agreement on a remedial action plan, the department may initiate enforcement action by issuance of an administrative order pursuant to 567—Chapter 10. This provision does not grant the owner or operator an entitlement to this procedure, and the department reserves all discretion to undertake an enforcement action and assess penalties as provided in Iowa Code sections 455B.476 and 455B.477.

d. Administrative orders. The department may impose a delivery prohibition as a remedy for violations of the operation and maintenance provisions in 567—135.3(455B) through 567—135.5(455B) and the suspected and confirmed release response actions in 567—135.6(455B) and 567—135.7(455B). This remedy may be in addition to the assessment of penalties as provided in Iowa Code section 455B.476 and other appropriate injunctive relief necessary to correct violations.

e. Due process prior to initiation of a delivery prohibition response action.

(1) Prior to imposing a delivery prohibition response action under 135.3(7)“b” above, the department will provide notice to the owner or operator or, if notice to the owner or operator cannot be confirmed, to a person in charge at the UST facility of the basis for the finding and the intent to initiate a delivery prohibition response action. Notice may be by verbal contact, by electronic mail, or by regular or certified mail to the UST facility address or the owner’s or operator’s last-known address. The owner and operator will be given a minimum of three business days to provide documentation that the finding is inaccurate or that reinstatement criteria in 135.3(7)“b”(1) through “b”(5) have been satisfied. Additional days and the opportunity for a telephone or in-person conference may be provided the owner and operator to contest the factual basis for a finding under 135.3(7)“b”(6) through “b”(14). Additional procedural due process

may be afforded the owner and operator on a case-by-case basis sufficient to satisfy Constitutional due process standards.

If insufficient information is submitted to change the finding, the department will notify the owner or operator and a person in charge at the UST facility of the final decision to impose the delivery prohibition response action.

(2) Provisional status. Upon a finding that an owner or operator under provisional status has failed to comply with the terms of a remedial action plan as provided above, the department may initiate a delivery prohibition response action by giving actual notice to the owner or operator of the basis for the finding of noncompliance and the department's intent to initiate a delivery prohibition response action. The delivery prohibition response action shall not be imposed without providing the owner or operator the opportunity for an evidentiary hearing consistent with the provisions for suspension and revocation of certifications under 567—Chapter 7.

f. Delivery prohibition procedure. Upon oral or written notice that the delivery prohibition response action has been imposed, the owner or operator and any person in charge of the UST facility shall be notified that they are not authorized to receive any further delivery of regulated substances until conditions for reinstatement of eligibility are satisfied. Owners and operators are required to provide the department with names and contact information for all persons who convey or deposit regulated substances to the USTs. The department will attempt to notify known persons who convey or deposit regulated substances to the USTs that they are not authorized to deliver to the USTs until further notice by the department as provided in Iowa Code section 455B.473(8) "a" and in 135.3(5).

The department shall visit the site and affix a "red tag" to the fill pipes or fill pipe caps of all affected USTs. It is unlawful for any person to deposit or accept a regulated substance into a UST

that has a “red tag” affixed to the fill pipe or fill pipe cap. The department may allow the owner and operator to dispense and sell the remainder of existing fuel unless the department determines there is an immediate risk of a release or other risk to human health, safety or the environment. The department shall confirm in writing the basis for the delivery prohibition response action, contacts made prior to the action, and steps the owner or operator must take to reinstate fuel delivery.

135.3(8) *Secondary containment requirements for UST system installations.* All new and replacement underground storage tank systems and appurtenances used for the storage and dispensing of petroleum products shall have secondary containment in accordance with this subrule. The secondary containment provision includes the installation of containment sumps.

a. Tanks and piping installed or replaced after November 28, 2007, must have secondary containment that is designed, installed, and maintained according to the performance standards in 135.3(1) and 135.5(3) “*b.*”

(1) The secondary containment may be manufactured as an integral part of the primary containment or constructed as a separate containment system.

(2) At a minimum, the secondary containment must:

1. Contain regulated substances leaked from the UST system until detected and removed.
2. Prevent the release of regulated substances into the environment at any time during the operational life of the underground storage tank system.
3. Be checked for evidence of a release from the tank at least every 30 days as provided in 135.5(2) “*a.*”

b. Testing and inspection. Containment sumps shall be liquid-tight and must be inspected and tested in accordance with the following:

(1) Inspections for secondary containment sumps (spill catchment basins, turbine sumps, transition or intermediate sumps, and under-dispenser containment).

1. Inspections for secondary containment sumps shall consist of visual inspection every year.
2. Containment sumps must be intact (no cracks or perforations) and liquid-tight, including sides and bottom.
3. Containment sumps must be maintained and kept free of debris, liquid, and ice at all times.
4. Regulated substances leaked or spilled into any containment sumps shall be immediately removed.

(2) Secondary containment sumps used for interstitial monitoring of piping shall be tested upon installation and periodically in accordance with 135.4(12).

567—135.4(455B) General operating requirements.

135.4(1) *Spill and overflow control.*

a. Owners and operators must ensure that releases due to spilling or overfilling do not occur. The owner and operator must ensure that the volume available in the tank is greater than the volume of product to be transferred to the tank before the transfer is made and that the transfer operation is monitored constantly to prevent overfilling and spilling.

NOTE: The transfer procedures referenced in 40 CFR 280.30 may be used to comply with 135.4(1)“a.”

b. The owner and operator must report, investigate, and clean up any spills and overfills in accordance with 135.6(4).

135.4(2) *Operation and maintenance of corrosion protection.* All owners and operators of metal UST systems with corrosion protection must comply with the following requirements to

ensure that releases due to corrosion are prevented until the UST system is permanently closed or undergoes a change in service in accordance with 135.15(2):

a. All corrosion protection systems must be operated and maintained to continuously provide corrosion protection to the metal components of that portion of the tank and piping that routinely contain regulated substances and are in contact with the ground.

b. All UST systems equipped with cathodic protection systems must be inspected for proper operation by a qualified cathodic protection tester in accordance with the following requirements:

(1) Frequency. All cathodic protection systems must be tested within six months of installation and at least every three years thereafter or according to another reasonable time frame established by the department; and

(2) Inspection criteria. The criteria that are used to determine that cathodic protection is adequate as required by this subrule must be in accordance with a code of practice developed by a nationally recognized association.

NOTE: The codes of practice in 40 CFR 280.31(b)(2) may be used to comply with 135.4(2) “*b*”(2).

c. UST systems with impressed current cathodic protection systems must also be inspected every 60 days to ensure the equipment is running properly.

d. For UST systems using cathodic protection, records of the operation of the cathodic protection must be maintained (in accordance with 135.4(5)) to demonstrate compliance with the performance standards in this subrule. These records must provide the following:

(1) The results of the last three inspections required in 135.4(2) “*c*”; and

(2) The results of testing from the last two inspections required in 135.4(2) “*b*.”

e. When an impressed current cathodic protection system is failing cathodic protection for the time periods given below, owners and operators must take the following actions:

(1) For impressed current cathodic protection systems that have been inoperative for 0 to 90 days after failing a corrosion protection test or after discovering the system is not operating, all of the following must be completed:

1. Power must be restored to an inoperative corrosion protection system. A damaged or failed corrosion protection system must be repaired by a qualified service technician. A corrosion expert must approve any modifications to the system that are outside of the original design.

2. The corrosion protection system must be retested within six months of repair.

3. A copy of the test and any repairs must be kept as part of the cathodic protection records.

4. A copy of the new design standards must be kept as part of the cathodic protection records.

(2) For impressed current corrosion protection systems that have been inoperative for 90 to 365 days or repaired 90 to 365 days after failing a corrosion protection test, all of the following must be completed:

1. Notify the department.

2. Power must be restored to an inoperative corrosion protection system.

3. The corrosion protection system must be repaired, tested and returned to service under the supervision of a corrosion expert.

4. A precision tightness test must be conducted in accordance with 135.5(4)c and 135.5(5)b.

5. The corrosion protection system must be retested within six months of the repair or power being restored.

6. A copy of the test and any repairs must be kept as part of the cathodic protection records.

7. A copy of the new design standards must be kept as part of the cathodic protection records.

8. If determined the tank is not suitable for corrosion protection, the tank must be permanently closed in accordance with 135.15(2).

(3) If the impressed current corrosion protection system has been inoperative for more than 365 days or was not repaired for more than 365 days after failing a corrosion protection test, all of the following must be completed:

1. Notify the department.
2. Immediately empty and stop using the tank system.
3. An internal inspection of the steel tank must be conducted according to a national standard (e.g., API 1631). If the UST fails the internal inspection, the UST owner must permanently close the tank in accordance with 135.15(2).

4. If the piping and metallic components do not pass a line tightness test or a cathodic protection test and cannot be repaired in accordance with this chapter, the line must be replaced.

5. A precision test must be conducted in accordance with 135.5(4)c and 135.5(5)b.

6. The corrosion protection system must be retested within six months of repair.

7. A copy of the tests and any repairs must be kept as part of the cathodic protection records.

(4) If the impressed current cathodic protection system has been inoperable for more than 365 days and cannot be brought back into immediate use, the tank system must be permanently closed in accordance with 135.15(2).

135.4(3) *Compatibility.* Owners and operators must use a UST system made of or lined with materials that are compatible with the substance stored in the UST system.

a. Owners and operators must notify the department at least 30 days prior to switching to a regulated substance containing greater than 10 percent ethanol, greater than 20 percent biodiesel, or any other regulated substance identified by the department.

b. Owners and operators must have a UST installer certified under 567—Chapter 134 submit the department’s checklist for equipment compatibility for the UST system to the department at least 30 days prior to switching to a regulated substance containing greater than 10 percent ethanol or greater than 20 percent biodiesel, or any other regulated substance identified by the department.

c. A retail dealer, as defined in Iowa Code section 214A.1, must show compliance with the requirements of Iowa Code sections 455G.32 and 455G.33, if applicable, by submitting and maintaining the applicable reporting and recordkeeping documentation listed in 135.4(5) “a”(10), “a”(11), “b”(12), and “b”(13).

NOTE: Owners and operators storing alcohol blends may use the code in 40 CFR 280.32(b)(2) to comply with the requirements of 135.4(3).

135.4(4) *Repairs and replacement.* Owners and operators of UST systems must ensure that repairs will prevent releases due to structural failure or corrosion as long as the UST system is used to store regulated substances. The repairs must meet the following requirements:

a. Repairs to UST systems must be properly conducted in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory.

NOTE: The codes and standards referenced in 40 CFR 280.33(a) may be used to comply with 135.4(4) “a.”

b. Repairs to fiberglass-reinforced plastic tanks may be made by the manufacturer’s authorized representatives or in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory.

c. Piping and fitting

(1) Metal pipe sections and fittings that have released product as a result of corrosion or other damage must be replaced. Noncorrodible pipes and fittings may be repaired in accordance with the manufacturer's specifications.

(2) If 50 percent or more of any piping run is removed, the entire piping run must be removed and replaced with secondarily contained piping and interstitial monitoring.

(3) All piping replacements requiring secondary containment shall be constructed with transition or intermediate containment sumps.

d. Repairs to secondary containment areas of tanks and piping used for interstitial monitoring and to containment sumps used for interstitial monitoring of piping must have the secondary containment tested for tightness according to the manufacturer's instructions, a code of practice developed by a nationally recognized association or independent testing laboratory, or according to requirements established by the department within 30 days following the date of completion of the repair. All other repairs to tanks and piping must be tightness tested in accordance with 135.5(4) "c" and 135.5(5) "b" within 30 days following the date of the completion of the repair except as provided in 135.4(4) "d"(1) through "d"(3):

(1) The repaired tank is internally inspected in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory; or

(2) The repaired portion of the UST system is monitored monthly for releases in accordance with a method specified in 135.5(4) "d" through "i"; or

(3) Another test method is used that is determined by the department to be no less protective of human health and the environment than those listed above.

NOTE regarding 135.4(4) "d": The codes of practice referenced in 40 CFR 280.33(d)(3) may be used to comply with 135.4(4) "d."

e. Within six months following the repair of any cathodically protected UST system, the cathodic protection system must be tested in accordance with 135.4(2) “b” and “c” to ensure that it is operating properly.

f. Within 30 days following any repair to spill or overfill prevention equipment, the repaired spill or overfill prevention equipment must be tested or inspected, as appropriate, in accordance with 135.4(1) to ensure it is operating properly.

g. UST system owners and operators must maintain records of each repair until the UST system is permanently closed or undergoes a change-in-service pursuant to 135.15(2).

135.4(5) *Reporting and recordkeeping.* Owners and operators of UST systems must cooperate fully with inspections, monitoring and testing conducted by the department, as well as requests for document submission, testing, and monitoring by the owner or operator pursuant to Section 9005 of Subtitle I of the Solid Waste Disposal Act as amended.

a. *Reporting.* Owners and operators must submit the following information to the department:

(1) Notification for all UST systems (135.3(3)), which includes certification of installation for new UST systems (135.3(1) “e”);

(2) Notification of equipment replacement or addition of new equipment;

(3) Reports of all releases including suspected releases (135.6(1)), spills and overfills (135.6(4)), and confirmed releases (135.7(2));

(4) Corrective actions planned or taken including initial abatement measures (135.7(3)), initial site characterization (567—135.9(455B)), free product removal (135.7(4)), investigation of soil and groundwater cleanup and corrective action plan (567—135.8(455B) through 567—135.12(455B));

(5) A notification before permanent closure or change-in-service (135.15(2));

- (6) Notification of any change in ownership;
- (7) Notification of any change in Class A or Class B operators;
- (8) Notification of any loss of financial responsibility (i.e., insurance);
- (9) Notification prior to UST systems switching to certain regulated substances;
- (10) Documentation establishing compatibility as required in Iowa Code section 455G.32, if applicable;
- (11) Documentation establishing compatibility as required in Iowa Code section 455G.33, if applicable.

b. Recordkeeping. Owners and operators must maintain the following information:

- (1) A corrosion expert's analysis of site corrosion potential if corrosion protection equipment is not used (135.3(1) "a"(4); 135.3(1) "b"(3)).
- (2) Documentation of operation of corrosion protection equipment (135.4(2));
- (3) Documentation of UST system repairs (135.4(4) "h");
- (4) Documentation of compliance with release detection requirements (135.5(6));
- (5) Results of the site investigation conducted at permanent closure (135.15(3));
- (6) Cathodic protection system testing results (135.4(2));
- (7) Class A, B and C operator training certificates (135.4(6));
- (8) Secondary containment test results (135.3(9));
- (9) Documentation of periodic walkthrough inspections (135.4(13));
- (10) Documentation of compatibility for UST systems (135.4(3));
- (11) Documentation of compliance for spill and overfill prevention equipment and containment sumps used for interstitial monitoring of piping (135.4(12));

(12) Documentation establishing compatibility as required in Iowa Code section 455G.32, if applicable;

(13) Documentation establishing compatibility as required in Iowa Code section 455G.33, if applicable.

c. Availability and maintenance of records. Owners and operators must keep the records required either:

(1) At the UST site and immediately available for inspection by the department; or

(2) At a readily available alternative site and be provided for inspection to the department within two business days of department request.

(3) In the case of permanent closure records required under 135.15(5), owners and operators are also provided with the additional alternative of mailing closure records to the department if they cannot be kept at the site or an alternative site as indicated above.

135.4(6) *Training required for UST operators.*

a. An owner or operator shall designate Class A, Class B, and Class C operators for each underground storage tank system or facility that has underground storage tanks regulated by the department, except for unstaffed facilities, which may designate only Class A and Class B operators.

b. A facility may not operate unless operators have been designated and trained as required in this rule or unless otherwise agreed upon by the department based on a finding of good cause for failure to meet this requirement and a plan for designation and training at the earliest practicable date.

c. Trained operators must be readily available to respond to suspected or confirmed releases, equipment shut-offs or failures, and other unusual operating conditions.

d. A Class A or Class B operator should be immediately available for telephone consultation with the Class C operator when a facility is in operation. *e.* For staffed facilities, a Class C operator must be on site whenever the UST facility is in operation.

f. For unstaffed facilities, a Class B operator must be geographically located such that the person can be on site within two hours of being contacted by the public, the owner or operator of the facility, or the department. Emergency contact information and emergency procedures must be prominently displayed at the site. An unstaffed facility shall have an emergency shutoff device as provided in 135.5(1) and a sign posted in a conspicuous place that includes the emergency contact information of a representative of the facility and information on local emergency responders.

g. Designated operators must successfully complete required training under 135.4(9).

h. A person may be designated for more than one class of operator.

i. When a facility is found to be out of compliance, the department may require that the designated UST system Class A, B, or C operator be retrained under a plan approved by the department. The retraining must occur within 30 days from departmental notice for Class A and Class B operators and within 15 days for Class C operators.

135.4(7) *UST operator responsibilities.*

a. Class A operator.

(1) Class A operators have the primary responsibility to operate, maintain, and have knowledge of the regulatory requirements for the underground storage tank system and facility. The Class A operator's responsibilities include managing resources and personnel to achieve and maintain compliance with regulatory requirements under this chapter in the following ways:

1. Class A operators assist the owner by ensuring that underground storage tank systems are properly installed and expeditiously repaired and inspected; financial responsibility is maintained; and records of system installation, modification, inspection and repair are retained and made available to the department and certified compliance inspectors. The Class A operator shall properly respond to and report emergencies caused by releases or spills from UST systems, ensure that the annual tank management fees are paid, and ensure that Class B and Class C operators are properly trained.

2. Class A operators shall be familiar with training requirements for each class of operator and may provide required training for Class C operators.

3. Class A operators shall provide site drawings that indicate equipment locations for Class B and Class C operators.

(2) Department-certified installers, installation inspectors, and department-certified compliance inspectors may perform Class A operator duties when employed or contracted by the tank owner to perform these functions so long as they are properly trained and designated as Class A operators pursuant to 135.4(9) through 135.4(11). Class A operators who are also certified compliance inspectors under 567—Chapter 134 may perform in-house facility inspections of the UST system, but shall not perform department-mandated compliance inspections pursuant to 567—135.19(455B). Compliance inspections of a UST facility required by 567—135.19(455B) must be completed by a third-party compliance inspector certified under 567—Chapter 134.

(3) When there is a change in ownership or operator status, the new owner or operator is responsible for designating a Class A operator prior to bringing the UST system into operation. The Class A operator is responsible for ensuring that all necessary documentation for change of ownership is completed and submitted to the department and that all compliance requirements of

this chapter are satisfied prior to bringing the UST system into operation. The compliance requirements may be provided to the owner or operator using the department's checklist.

If the UST system was temporarily closed, the designated Class A operator must ensure the department's checklist for returning a UST into service is followed, all compliance requirements of this chapter have been met, and the necessary documentation is submitted to the department.

(4) When there is a change in UST ownership, property ownership or operator status, the designated Class A operator for the current owner and operator is responsible for notifying the department when the change is final and, if possible, prior to the new owner or operator taking possession of the site.

b. Class B operator.

(1) A Class B operator is knowledgeable of the applicable underground storage tank regulatory requirements and standards and implements them in the field or at the tank facility. A Class B operator oversees and implements the day-to-day aspects of operation, maintenance, and recordkeeping for the underground storage tanks at facilities within four hours of travel time from the Class B operator's principal place of business. A Class B operator's responsibilities include but are not limited to:

1. Performing mandated system tests at required intervals and making sure spill prevention, overfill control equipment, and corrosion protection equipment are properly functioning.
2. Assisting the owner by ensuring that release detection equipment is operational, release detection monitoring and tests are performed at the proper intervals, and release detection records are retained and made available to the department and compliance inspectors.
3. Making sure recordkeeping and reporting requirements are met and that relevant equipment manufacturers' or third-party performance standards are available and followed.

4. Properly responding to, investigating, and reporting emergencies caused by releases or spills from USTs.

5. Performing UST release detection in accordance with 567—135.5(455B).

6. Monitoring the status of UST release detection.

7. Meeting spill prevention, overfill prevention, and corrosion protection requirements.

8. Reporting suspected and confirmed releases and taking release prevention and response actions according to the requirements of 567—135.6(455B).

9. Training and documenting Class C operators to make sure at least one Class C operator is on site during operating hours. Class B operators shall be familiar with Class C operator responsibilities and may provide training for Class C operators.

(2) Department-certified installers, installation inspectors, and department-certified compliance inspectors may perform Class B operator duties when employed or contracted by the tank owner to perform these functions so long as they are properly trained and designated as Class B operators under 135.4(9) through 135.4(11). Class B operators who are also certified compliance inspectors under 567—Chapter 134 may perform in-house facility inspections of the UST system, but cannot perform department-mandated compliance inspections pursuant to 567—135.19(455B). Compliance inspections of a UST facility pursuant to 567—135.19(455B) must be completed by a third-party compliance inspector certified under 567—Chapter 134.

(3) The owner or operator of a site undergoing a change in ownership shall designate a Class B operator prior to bringing the UST system into operation. The Class B operator must conduct an inspection using the department's inspection checklist and submit the completed checklist along with the change of ownership form prior to operation. If a UST system was temporarily closed, the Class B operator shall ensure that the department's checklist for returning a UST to

service is followed and that the necessary documentation is submitted to the department prior to operation of the UST system.

c. Class C operator. A Class C operator is an on-site employee who typically controls or monitors the dispensing or sale of regulated substances and is the first to respond to events indicating emergency conditions. A Class C operator must be present at the facility at all times during normal operating hours. A Class C operator monitors product transfer operations to ensure that spills and overfills do not occur. The Class C operator must know how to properly respond to spills, overfills and alarms when they do occur. In the event of a spill, overfill or alarm, a Class C operator shall notify the Class A and Class B operators, as well as the department and appropriate local emergency authorities as required by rule.

(1) Written basic operating instructions, emergency contact names and telephone numbers, and basic procedures specific to the facility shall be provided to all Class C operators and readily available on site.

(2) There may be more than one Class C operator at a storage tank facility, but not all employees of a facility need be Class C operators.

135.4(8) *UST operator training course requirements.* Individuals must attend a department-approved training course covering material designated for each operator class. Individuals must attend every session of the training, take the examination, and attend examination review.

a. Class A operators. To be certified as a Class A operator, the applicant must successfully complete a department-approved training course that covers underground storage tank system requirements as outlined in 567—Chapters 134 through 136. The course must also provide a general overview of the department's UST program, purpose, groundwater protection goals,

public safety and administrative requirements. The training must include but is not limited to the following:

- (1) Components and materials of underground storage tank systems.
- (2) A general discussion of the content of PEI/RP900, Recommended Practices for the Inspection and Maintenance of UST Systems, and PEI/RP500, Recommended Practices for Inspection and Maintenance of Motor Fuel Dispensing Equipment.
- (3) Spill and overfill prevention, to include the American Petroleum Institute (API) Publication RP1621, “Recommended Practice for Bulk Liquid Stock Control at Retail Outlets,” and National Fire Protection Association Standard 30, “Flammable and Combustible Liquids Code.”
- (4) Ensuring product delivery to the correct tank by using color-symbol codes in the API Standard RP1637, “Using the API Color-Symbol System to Mark Equipment and Vehicles for Product Identification at Service Stations and Distribution Terminals.”
- (5) Proper fuel ordering and delivery, including procedures in API RP1007, “Loading and Unloading of MC/DOT 406 Cargo Tank Motor Vehicles.”
- (6) Release detection methods and related reporting requirements.
- (7) Corrosion protection and inspection requirements, including the requirement to have a department-certified cathodic protection tester.
- (8) Discussion of the benefits of monthly or frequent inspections and content and use of inspection checklists. Training materials for operators shall include the department’s “Iowa UST Operator Inspection Checklist” or a checklist template similar to the department’s document.
- (9) Requirement and content of third-party compliance inspections.
- (10) How to properly respond to an emergency, including hazardous conditions.

(11) Product and equipment compatibility, including the department's ethanol compatibility guidance and certification.

(12) Financial responsibility, including detailed explanation of liability, notice and claim procedures, and the six-month window to check for and report a release prior to insurance termination to maintain coverage for corrective action.

(13) Notification of installation and storage tank registration requirements.

(14) Requirement to use department-certified companies and individuals for UST installation, testing, lining, and removal.

(15) Temporary and permanent closure procedures and requirements.

(16) NESHAP vapor recovery requirements.

(17) Conditions under which the department may stop fuel delivery and take enforcement action.

(18) Ensuring that annual tank management fees are paid.

(19) Ensuring that suspected and confirmed releases are investigated and reported according to 135.6(1).

b. Class B operators. To be certified as a Class B operator, the individual must successfully complete a department-approved training course that provides in-depth understanding of UST system regulations applicable to this class. Training must also provide a general overview of the department's UST program, purpose, groundwater protection goals, public safety and administrative requirements. Training shall cover the operation and maintenance requirements set forth in this chapter, including but not limited to the following:

(1) A general discussion of the content of PEI/RP900, Recommended Practices for the Inspection and Maintenance of UST Systems, and PEI/RP500, Recommended Practices for Inspection and Maintenance of Motor Fuel Dispensing Equipment.

(2) Components and materials of underground storage tank systems.

(3) Spill and overflow prevention.

(4) Ensuring product delivery to the correct tank by using color-symbol codes in the API Standard RP1637.

(5) Proper fuel ordering and delivery, including procedures from API RP1007.

(6) Methods of release detection and related reporting requirements.

(7) Corrosion protection and related testing.

(8) Requirements of 30-day and annual walkthrough inspections. Training materials for operators shall include the department's "Iowa UST Operator Inspection Checklist" or a checklist template similar to the department's document.

(9) Requirement and content of third-party compliance inspections.

(10) Emergency response, reporting and investigating releases.

(11) Product and equipment compatibility, including the department's ethanol compatibility guidance and certification.

(12) Financial responsibility, including detailed explanation of liability, notice and claim procedures, and the six-month window to check for and report a release prior to insurance termination to maintain coverage for corrective action.

(13) Notification of installation and storage tank registration requirements.

(14) Requirement to use department-certified companies and individuals for UST installation, testing, lining, and removal.

- (15) Reporting and recordkeeping requirements.
- (16) Overview of Class C operator training requirements.
- (17) NESHAP vapor recovery requirements.
- (18) Conditions under which the department may stop fuel delivery and take enforcement action.
- (19) Requirements for facilities that operate unstaffed at any time.

c. Class C operators. To be certified as a Class C operator, an individual must complete a department-approved training course. A Class A or Class B operator who has completed a department-approved training course may provide the Class C training. Class C operator training must include at a minimum:

- (1) A general overview of the department's UST program and purpose;
- (2) Groundwater protection goals;
- (3) Public safety;
- (4) UST system overview;
- (5) Administrative requirements; and
- (6) Action to be taken in response to an emergency condition due to a spill or release from a UST system.

Training must include written procedures for the Class C operator, including notification instructions necessary in the event of emergency conditions. The written instructions and procedures must be readily available on site. A Class A or Class B operator may provide additional on-site Class C training specific to the operator's UST system.

135.4(9) *Examination and review requirement.* Class A and Class B operators must complete the department-approved training course and take an examination to verify their understanding

and knowledge. The examination may include both written and practical (hands-on) testing activities. The trainer must follow up the examination with a review of missed test questions with the class or individual to ensure understanding of problem areas. Upon successful completion of the training course, the applicant will receive a certificate verifying the applicant's status as a Class A, Class B, or Class C operator.

a. Reciprocity. The department may waive the training course for operators upon a showing of successful completion of a training course and examination approved by another state or regulatory agency that the department determines are substantially equivalent to the UST requirements contained in this chapter.

b. Transferability to another UST site. Class A and Class B operators may transfer to other UST facilities in Iowa provided the operator is properly designated by the facility owner as a Class A or Class B operator according to 567—subrule 135.4(11). Class A and Class B operators transferring from other states shall seek prior approval of training qualifications, unless the department has preapproved the out-of-state program as substantially equivalent to the requirements of this chapter.

135.4(10) *Timing of UST operator training.*

a. An owner shall ensure that Class A, Class B, and Class C operators are trained by approved training providers before an operator assumes duties of that class of operator.

b. When a Class A or Class B operator is replaced, a new operator must be trained prior to assuming duties for that class of operator. A copy of the certificate of training must be submitted to the department within 30 days of assuming duties.

c. Class C operators must be trained before assuming the duties of a Class C operator. Written basic operating instructions, emergency contact names and telephone numbers, and basic

procedures specific to the facility shall be provided to all Class C operators and readily available on site. A Class C operator may be briefed on these procedures concurrent with annual safety training required under Occupational Safety and Health Administration regulations, 29 CFR, Part 1910.

135.4(11) *Documentation of operator training.*

a. The owner of an underground storage tank facility shall maintain a list of designated operators. The list shall be made available to the department in accordance with 135.4(5). The list shall represent the current Class A, Class B and Class C operators for the UST facility and must include:

(1) The name of each operator and the operator's class(es); contact information for Class A and Class B operators; the date each operator successfully completed initial training and refresher training, if any; the name of the company providing the training; and the name of the trainer.

(2) For all classes of operators, the site(s) for which an operator is responsible if more than one site.

b. A copy of the certificates of training for Class A and Class B operators shall be on file and readily available for inspection in accordance with 135.4(5). Records verifying completion of training or retraining of Class A, Class B, and Class C operators must identify name of trainee, date trained, operator training class completed, and list the name of the trainer or examiner and the training company name, address, and telephone number. Owners and operators must maintain these records for as long as Class A, Class B, and Class C operators are designated.

c. A copy of the certificates of training for Class B and Class C operators shall be available at each facility for which the operator is responsible.

d. Class A and Class B operator contact information, including names and telephone numbers and any emergency information, shall be conspicuously posted at unstaffed facilities near the dispensers and the station building.

135.4(12) *Periodic testing of spill prevention equipment and containment sumps used for interstitial monitoring of piping and periodic inspection of overfill prevention equipment.*

a. Owners and operators of UST systems with spill and overfill prevention equipment and containment sumps used for interstitial monitoring of piping must meet these requirements to ensure the equipment is operating properly and will prevent releases to the environment:

(1) Spill prevention equipment (such as a catchment basin, spill bucket, or other spill containment device) and containment sumps used for interstitial monitoring of piping must prevent releases to the environment by meeting one of the following:

1. The equipment is double walled and the integrity of both walls is periodically monitored at a frequency of not less than the frequency of the walkthrough inspections described in 135.4(13). If owners and operators discontinue periodic monitoring of this equipment, they must begin meeting 135.4(12) “a”(1)“2” and conduct a test within 30 days of discontinuing periodic monitoring of this equipment; or

2. The spill prevention equipment and containment sumps used for interstitial monitoring of piping are tested at least once every three years to ensure the equipment is liquid tight by using vacuum, pressure, or liquid testing in accordance with one of the following criteria:

- Requirements developed by the manufacturer (Note: Owners and operators may use this option only if the manufacturer has developed requirements); or

- A code of practice developed by a nationally recognized association or independent testing laboratory; or

- Requirements determined by the department to be no less protective of human health and the environment than the requirements listed in this subrule.

(2) Overfill prevention equipment must be inspected at least once every three years. At a minimum, the inspection must ensure that overfill prevention equipment is set to activate at the correct level specified in 135.3(1)“c” and will activate when regulated substance reaches that level. Inspections must be conducted in accordance with one of the following criteria:

1. Requirements developed by the manufacturer (Note: Owners and operators may use this option only if the manufacturer has developed requirements); or

2. A code of practice developed by a nationally recognized association or independent testing laboratory; or

3. Requirements determined by the department to be no less protective of human health and the environment than the requirements listed in this subrule.

b. Owners and operators must begin meeting these requirements as follows:

- (1) For UST systems in use on or before June 23, 2021, the initial spill prevention equipment test and overfill prevention equipment inspection must be conducted not later than October 13, 2021.

- (2) For UST systems brought into use after June 23, 2021, these requirements apply at installation.

c. Owners and operators must maintain records as follows for spill prevention equipment and overfill prevention equipment:

- (1) All records of testing or inspection must be maintained for three years; and

- (2) For spill prevention equipment and containment sumps used for interstitial monitoring of piping not tested every three years, documentation showing that the prevention equipment is

double-walled and the integrity of both walls is periodically monitored must be maintained for as long as the equipment is periodically monitored.

NOTE: The code of practice referenced in 40 CFR 280.35(a)(2) may be used to comply with this section.

135.4(13) *Periodic operation and maintenance walkthrough inspections.* Conduct inspections to properly operate and maintain UST systems.

a. Conduct a walkthrough inspection every 30 days that, at a minimum, checks the following equipment as specified below (Exception: spill prevention equipment at UST systems receiving deliveries at intervals greater than every 30 days may be checked prior to each delivery):

(1) Spill prevention equipment: visually check for damage; remove liquid or debris; check for and remove obstructions in the fill pipe; check the fill cap to make sure it attaches securely on the fill pipe and gasket is in good condition; and, for double-walled spill prevention equipment with interstitial monitoring, check for a leak in the interstitial area, and

(2) Release detection equipment: check to make sure the release detection equipment is operating with no alarms or other unusual operating conditions present, and ensure records of release detection testing are reviewed and current.

b. Conduct a walkthrough inspection annually, at a minimum, checking the following equipment as specified below:

(1) Containment sumps: visually check for damage, leaks to the containment area, or releases to the environment; remove liquid (in contained sumps) or debris; and, for double-walled sumps with interstitial monitoring, check for a leak in the interstitial area, and

(2) Handheld release detection equipment: check devices such as tank gauge sticks or groundwater bailers for operability and serviceability;

c. Conduct operation and maintenance walkthrough inspections according to a standard code of practice developed by a nationally recognized association or independent testing laboratory that checks equipment comparable to 135.4(13) “a” and “b”; or

NOTE regarding 135.4(13) “c”: The code of practice referenced in 40 CFR 280.36(a)(2) may be used to comply with 135.4(13) “c.”

d. Conduct operation and maintenance walkthrough inspections developed by the department that checks equipment comparable to 135.4(13) “a” and “b.”

e. Owners and operators must maintain records (in accordance with 135.4(5)) of operation and maintenance walkthrough inspections for 12 consecutive months. Records must include a list of each area checked, whether each area checked was acceptable or needed action taken, a description of actions taken to correct an issue, and delivery records if spill prevention equipment is checked less frequently than every 30 days due to infrequent deliveries.

567—135.5(455B) Release detection.

135.5(1) *General requirements for all UST systems.*

a. Owners and operators of UST systems must provide a method, or combination of methods, of release detection that:

(1) Can detect a release from any portion of the tank and the connected underground piping that routinely contains product;

(2) Is installed and calibrated in accordance with the manufacturer’s instructions, including routine maintenance and service checks for operability or running condition; and

(3) Beginning October 13, 2021, is operated and maintained, and electronic and mechanical components are tested for proper operation, in accordance with one of the following:

1. Manufacturer’s instructions;

2. A code of practice developed by a nationally recognized association or independent testing laboratory; or

3. Requirements determined by the department to be no less protective of human health and the environment than the two options listed above.

(4) A test of the proper operation must be performed at least annually and, at a minimum, as applicable to the facility, cover the following components and criteria:

1. Automatic tank gauge and other controllers: test alarm, verify system configuration, test battery backup;

2. Probes and sensors: inspect for residual buildup, ensure floats move freely, ensure shaft is not damaged, ensure cables are free of kinks and breaks, test alarm operability or running condition and communication with controller;

3. Automatic line leak detector: test operation to meet criteria in 135.5(5) “a” by simulating a leak;

4. Vacuum pumps and pressure gauges: ensure proper communication with sensors and controller; and

5. Handheld electronic sampling equipment associated with groundwater and vapor monitoring: ensure proper operation.

The code of practice referenced in 40 CFR 280.40(a)(3) may be used to comply with 135.5(1) “a”(3) and “a”(4).

(5) Meets the performance requirements in 135.5(4) or 135.5(5), with any performance claims and their manner of determination described in writing by the equipment manufacturer or installer. In addition, methods conducted in accordance with 135.5(4) “b,” “c,” and “d” and

135.5(5) “a” and “b” must be capable of detecting the leak rate or quantity specified for that method with a probability of detection of 0.95 and a probability of false alarm of 0.05.

b. When an owner and operator continually show the inability to conduct leak detection with the method being used, the department may require the owner and operator to find an alternative leak detection method.

c. Any UST system that cannot apply a method of release detection that complies with the requirements of this rule must complete the closure procedures in 567—135.15(455B). For previously deferred UST systems described in 567—135.1(455B) and 567—135.20(455B), this requirement applies after the effective dates described in 135.1(3) and 567—135.20(455B).

d. Any UST facility that uses pressurized piping and dispenses product in the absence of a Class A, B, or C operator shall comply with the following requirements:

(1) Employ automatic line leak detectors that do one or more of the following:

1. Shut down the submersible pump when a leak is detected.
2. Restrict the flow of product when a leak is detected.
3. Trigger an audible or visual alarm when a leak is detected.

(2) At facilities implementing 135.5(1) “d”(1)“2” or “3,” the facility’s operator shall be notified or shall conduct a visit through one of the following methods:

1. Notification of the Class B operator by immediate electronic communication.
2. Signage directing the customer to contact the emergency contact information of a representative of the facility. The sign must be immediately visible to the customer, state that slow flow or an audible or visual alarm is an indication of a possible release, and direct the customer to stop dispensing product in the event of a possible release.

3. Daily visit to the site by a Class A, B, or C operator or designee. Visits shall include observation of every automatic line leak detector for shutdown, alarm, or restricted flow conditions. Methods of observing for restricted flow conditions may include dispensing product into a proper container or personal vehicle, observing a customer dispense product into a vehicle, or another method approved by the department. Owners and operators shall maintain an onsite log of site visits to demonstrate compliance with this provision. The log shall include the name of the observer and method used to observe the status of the automatic line leak detectors.

(3) All UST facilities subject to 135.5(1)“d” must comply with its provisions by July 1, 2014.

135.5(2) *Requirements for petroleum UST systems.* Owners and operators of petroleum UST systems must provide release detection for tanks and piping as follows:

a. Tanks. Tanks must be monitored at least every 30 days for releases using one of the methods listed in 135.5(4)“d” through “i” except that:

(1) Tanks installed after November 28, 2007, must use interstitial monitoring of the secondary containment as the primary leak detection method in accordance with 135.5(4)“g.”

(2) Tanks installed on or before November 28, 2007, with capacity of 550 gallons or less and tanks with a capacity of 551 to 1,000 gallons that meet the tank diameter criteria in 135.5(4)“b” may use manual tank gauging (conducted in accordance with 135.5(4)“b”).

b. Piping. Underground piping that routinely contains regulated substances must be monitored for releases in a manner that meets one of the following requirements:

(1) Pressurized piping. Underground piping that conveys regulated substances under pressure must:

1. Be equipped with an automatic line leak detector conducted in accordance with 135.5(5)“a”; and

2. Have an annual line tightness test conducted in accordance with 135.5(5) “b” or have monthly monitoring conducted in accordance with 135.5(5) “c.” Piping installed after November 28, 2007, must use interstitial monitoring of the piping secondary containment in accordance with 135.5(5) “d.”

(2) Suction piping. Underground piping that conveys regulated substances under suction must either have a line tightness test conducted at least every three years and in accordance with 135.5(5) “b,” or use a monthly monitoring method conducted in accordance with 135.5(5) “c.” Remote fill is considered suction piping. No release detection is required for suction piping that is designed and constructed to meet the following standards:

1. The below-grade piping operates at less than atmospheric pressure;
2. The below-grade piping is sloped so that the contents of the pipe will drain back into the storage tank if the suction is released;
3. Only one check valve is included in each suction line;
4. The check valve is located directly below and as close as practical to the suction pump; and
5. A method is provided that allows compliance with “2” through “4” to be readily determined.

(3) Piping installed or replaced must meet one of the following:

1. Pressurized piping must be monitored for releases at least every 30 days in accordance with 135.5(5) “d” and be equipped with an automatic line leak detector.
2. Suction piping must be monitored for releases at least every 30 days. No release detection is required for suction piping that meets 135.5(5) “b”(2)“1” through “5.”

135.5(3) *Requirements for hazardous substance UST systems.* Owners and operators of hazardous substance UST systems must have containment that meets the following requirements and monitor these systems pursuant to 135.5(4) “g” at least every 30 days:

a. Secondary containment systems must be designed, constructed and installed to:

(1) Contain regulated substances leaked from the primary containment until they are detected and removed;

(2) Prevent the release of regulated substances to the environment at any time during the operational life of the UST system; and

(3) Be checked for evidence of a release at least every 30 days.

b. Double-walled tanks must be designed, constructed, and installed to:

(1) Contain a leak from any portion of the inner tank within the outer wall; and

(2) Detect the failure of the inner wall.

c. External liners (including vaults) must be designed, constructed, and installed to:

(1) Contain 100 percent of the capacity of the largest tank within its boundary;

(2) Prevent the interference of precipitation or groundwater intrusion with the ability to contain or detect a release of regulated substances; and

(3) Surround the tank completely (i.e., it is capable of preventing lateral as well as vertical migration of regulated substances).

d. Underground piping must be equipped with secondary containment that satisfies the requirements of this subrule (e.g., trench liners, jacketing of double-walled pipe). In addition, underground piping that conveys regulated substances under pressure must be equipped with an automatic line leak detector in accordance with 135.5(5) “a”;

e. For hazardous substance UST systems installed on or before November 28, 2007, other methods of release detection may be used if owners and operators:

(1) Demonstrate to the department that an alternate method can detect a release of the stored substance as effectively as any of the methods allowed in 135.5(4) “b” through “i” can detect a release;

(2) 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

(3) Obtain approval from the department to use the alternate release detection method before the installation and operation of the new UST system.

135.5(4) *Methods of release detection for tanks.* Each method of release detection for tanks used to meet the requirements of 135.5(2) must be conducted in accordance with the following:

a. Inventory control. Product inventory control (or another test of equivalent performance) must be conducted monthly to detect a release of at least 1.0 percent of flow-through plus 130 gallons on a monthly basis in the following manner:

(1) Inventory volume measurements for regulated substance inputs, withdrawals, and the amount still remaining in the tank are recorded each operating day;

(2) The equipment used is capable of measuring the level of product over the full range of the tank’s height to the nearest 1/8 of an inch;

(3) The regulated substance inputs are reconciled with delivery receipts by measurement of the tank inventory volume before and after delivery;

(4) Deliveries are made through a drop tube that extends to within 1 foot of the tank bottom;

(5) Product dispensing is metered and recorded within the local standards for meter calibration or an accuracy of 6 cubic inches for every 5 gallons of product withdrawn; and

(6) The measurement of any water level in the bottom of the tank is made to the nearest 1/8 of an inch at least once a month.

NOTE: Practices described in 40 CFR 280.43(a)(6) may be used, where applicable, as guidance in meeting the requirements of 135.5(4) “a”(1) through “a”(6).

b. Manual tank gauging. Manual tank gauging must meet the following requirements:

(1) Tank liquid level measurements are taken at the beginning and end of the test period during which no liquid is added to or removed from the tank;

(2) Level measurements are based on an average of two consecutive stick readings at both the beginning and ending of the period;

(3) The equipment is capable of measuring the level of product over the full range of the tank’s height to the nearest 1/8 of an inch;

(4) A release is suspected and subject to the requirements of 567—135.6(455B) if the variation between the beginning and ending measurements exceeds the weekly or monthly standards in the following table. Immediately contact the department if these standards are exceeded.

Nominal Tank Capacity	Minimum Duration of Test	Weekly Standard (one test)	Monthly Standard (four-test average)
550 gallons or less	36 hours	10 gallons	5 gallons
551-1,000 gallons (when tank diameter is 64 inches)	44 hours	9 gallons	4 gallons
551-1,000 gallons (when tank diameter is 48 inches)	58 hours	12 gallons	6 gallons

551-1,000 gallons (also requires annual tank tightness testing)	36 hours	13 gallons	7 gallons
1,001-2,000 gallons (also requires annual tank tightness test)	36 hours	26 gallons	13 gallons

(5) Only those tanks of 550 gallons or less nominal capacity or tanks of 551 to 1,000 gallons nominal capacity with diameters of 64 inches or 48 inches may use this as the sole method of release detection. Other tanks of 551 to 2,000 gallons may use this method in place of inventory control in 135.5(4) "a." Tanks of greater than 2,000 gallons nominal capacity may not use this method to meet the requirements of this rule.

c. Tank tightness testing. Tank tightness testing (or another test of equivalent performance) must be capable of detecting a 0.1 gallon-per-hour leak rate from any portion of the tank that routinely contains product while accounting for the effects of thermal expansion or contraction of the product, vapor pockets, tank deformation, evaporation or condensation, and the location of the water table.

The tank tightness test procedure must be certified by a third party and meet US EPA testing procedures. The testing procedures are found in *Standard Test Procedures for Evaluating Leak Detection Methods: Volumetric Tank Tightness Testing Methods* (EPA /530/UST-90/004) March 1990 or as revised by EPA or *Non-Volumetric Tank Tightness Testing Methods* (EPA /530/UST-90/005) March 1990 or as revised by EPA.

d. Automatic tank gauging. Equipment for automatic tank gauging that tests for the loss of product and conducts inventory control must meet the following requirements:

(1) The automatic product level monitor test can detect a 0.2 gallon-per-hour leak rate from any portion of the tank that routinely contains product;

(2) The automatic tank gauging equipment must meet the inventory control (or other test of equivalent performance) requirements of 135.5(4) "a";

(3) The leak test must be performed according to manufacturer specifications;

(4) The automatic tank gauging equipment must be certified by a third party and meet US EPA testing procedures in *Standard Test Procedures for Evaluating Leak Detection Methods: Automatic Tank Gauging Systems (ATGS)* (EPA /530/UST-90/006) March 1990 or as revised by US EPA; and

(5) The test must be performed with the system operating in one of the following modes:

1. In-tank static testing conducted at least once every 30 days; or
2. Continuous in-tank leak detection operating on an uninterrupted basis or operating within a process that allows the system to gather incremental measurements to determine the leak status of the tank at least once every 30 days.

e. Vapor monitoring. Testing or monitoring for vapors within the soil gas of the excavation zone must meet the following requirements:

(1) The materials used as backfill are sufficiently porous (e.g., gravel, sand, crushed rock) to readily allow diffusion of vapors from releases into the excavation area;

(2) The stored regulated substance, or a tracer compound placed in the tank system, is sufficiently volatile (e.g., gasoline) to result in a vapor level that is detectable by the monitoring devices located in the excavation zone in the event of a release from the tank;

(3) The measurement of vapors by the monitoring device is not rendered inoperative by the groundwater, rainfall, or soil moisture or other known interferences so that a release could go undetected for more than 30 days;

(4) The level of background contamination in the excavation zone will not interfere with the method used to detect releases from the tank;

(5) The vapor monitors are designed and operated to detect any significant increase in concentration above background of the regulated substance stored in the tank system, a component or components of that substance, or a tracer compound placed in the tank system;

(6) In the UST excavation zone, the site is assessed to ensure compliance with the requirements in 135.5(4) “e”(1) through “e”(4) and to establish the number and positioning of monitoring wells that will detect releases within the excavation zone from any portion of the tank that routinely contains product;

(7) Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering; and

(8) The vapor product detector must be certified by a third party and meet US EPA testing procedures in *Standard Test Procedures for Evaluating Leak Detection Methods: Vapor-Phase Out-of-Tank Product Detectors* (EPA/530/UST-90/008) March 1990 or as revised by US EPA.

f. Groundwater monitoring. Testing or monitoring for liquids on the groundwater must meet the following requirements:

(1) The regulated substance stored is immiscible in water and has a specific gravity of less than 1;

(2) Groundwater is never more than 20 feet from the ground surface and the hydraulic conductivity of the soil(s) between the UST system and the monitoring wells or devices is not

less than 0.01 cm/sec (e.g., the soil should consist of gravels, coarse to medium sands, coarse silts or other permeable materials);

(3) The slotted portion of the monitoring well casing must be designed to prevent migration of natural soils or filter pack into the well and to allow entry of regulated substance on the water table into the well under both high and low groundwater conditions;

(4) Monitoring wells shall be sealed from the ground surface to the top of the filter pack;

(5) Monitoring wells or devices intercept the excavation zone or are as close to it as is technically feasible;

(6) The continuous monitoring devices or manual methods used can detect the presence of at least 1/8 of an inch of free product on top of the groundwater in the monitoring wells;

(7) Within and immediately below the UST system excavation zone, the site is assessed to ensure compliance with the requirements in 135.5(4) “f”(1) through “f”(5) and to establish the number and positioning of monitoring wells or devices that will detect releases from any portion of the tank that routinely contains product; and

(8) Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.

g. Interstitial monitoring. Interstitial monitoring between the UST system and a secondary barrier immediately around or beneath it may be used, but only if the system is designed, constructed and installed to detect a leak from any portion of the tank that routinely contains product and also meets one of the following requirements:

(1) For secondary containment systems, the sampling or testing method must be able to detect a leak through the inner wall in any portion of the tank that routinely contains product:

1. Continuously, by means of an automatic leak sensing device that signals to the operator the presence of any regulated substance in the interstitial space; or
2. Monthly, by means of a procedure capable of detecting the presence of any regulated substance in the interstitial space.
3. The interstitial space shall be maintained and kept free of liquid, debris or anything that could interfere with leak detection capabilities.

(2) For UST systems with a secondary barrier within the excavation zone, the sampling or testing method used can detect a leak between the UST system and the secondary barrier:

1. The secondary barrier around or beneath the UST system consists of artificially constructed material that is sufficiently thick and impermeable (at least 10^{-6} cm/sec for the regulated substance stored) to direct a leak to the monitoring point and permit its detection;
2. The barrier is compatible with the regulated substance stored so that a leak from the UST system will not cause a deterioration of the barrier allowing a release to pass through undetected;
3. For cathodically protected tanks, the secondary barrier must be installed so that it does not interfere with the proper operation of the cathodic protection system;
4. The groundwater, soil moisture, or rainfall will not render the testing or sampling method used inoperative so that a release could go undetected for more than 30 days;
5. The site is assessed to ensure that the secondary barrier is always above the groundwater and not in a 25-year flood plain, unless the barrier and monitoring designs are for use under such conditions; and
6. Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.

(3) For tanks with an internally fitted liner, an automated device can detect a leak between the inner wall of the tank and the liner, and the liner is compatible with the substance stored.

h. Statistical inventory reconciliation. Release detection methods based on the application of statistical principles to inventory data that test for the loss of product must meet the following requirements:

(1) Use a leak threshold that does not exceed one-half the minimum detectable leak rate;

(2) The statistical test must be able to detect at least a 0.2 gallon per hour leak rate from any portion of the tank that routinely contains product; and

(3) The report by the SIR company must be a quantitative result with a calculated leak rate and include the leak threshold (leak rate at which a leak is declared), the calculated leak rate (leak rate calculated from the inventory records) and minimum detectable leak rate (minimum leak rate that can be determined from the inventory records).

1. A “pass” means that the calculated leak rate for the data set is less than the leak threshold and the minimum detectable leak rate is less than or equal to the certified performance standard;

2. A “fail” means the calculated leak rate for the data set is equal to or greater than the leak threshold;

3. An “inconclusive” means the minimum detectable leak rate exceeds the certified performance standard and the calculated leak rate is less than the leak threshold. If for any other reason the test result is not a “pass” or “fail,” the result is “inconclusive”;

(4) Owners and operators must notify the department in accordance with 567—135.6(455B) when a monthly SIR report of “fail” occurs or two consecutive inconclusive results occur.

(5) Owners and operators must assure the SIR analytical results are complete and available to the department upon request.

(6) The statistical inventory reconciliation method must be certified by a third party and meet US EPA testing procedures in *Standard Test Procedures for Evaluating Release Detection Methods: Statistical Inventory Reconciliation* (EPA 510-B-19-004) May 2019 or as revised by EPA.

i. Other methods. Any other type of release detection method, or combination of methods, can be used if:

(1) It can detect a 0.2 gallon-per-hour leak rate or a release of 150 gallons within a month with a probability of detection of 0.95 and a probability of false alarm of 0.05; or

(2) The department may approve another method if the owner and operator can demonstrate that the method can detect a release as effectively as any of the methods allowed in 135.5(5) “c” through “h.” In comparing methods, the department shall consider the size of release that the method can detect and the frequency and reliability with which it can be detected. If the method is approved, the owner and operator must comply with any conditions imposed by the department on its use to ensure the protection of human health and the environment.

135.5(5) *Methods of release detection for piping.* Each method of release detection for piping used to meet the requirements of 135.5(2) must be conducted in accordance with the following:

a. Automatic line leak detectors. Methods that alert the operator to the presence of a leak in pressurized piping by restricting or shutting off the flow of regulated substances through piping or triggering an audible or visual alarm may be used only if they detect leaks of 3 gallons per hour at 10 pounds per square inch line pressure within one hour. An annual test of the operation of the leak detector must be conducted in accordance with 135.5(1) “a.”

b. Line tightness testing. A periodic test of piping may be conducted only if it can detect a 0.1 gallon-per-hour leak rate at one and one-half times the operating pressure. The line leak detection

method must be certified by a third party and meet US EPA testing procedures in *Standard Test Procedures for Evaluating Release Detection Methods: Pipeline Release Detection* (EPA 510-B-19-005) May 2019 or as revised by EPA.

c. Applicable tank methods. Except as described in 135.5(2) “a,” any of the methods in 135.5(4) “e” through “i” may be used if they are designed to detect a release from any portion of the underground piping that routinely contains regulated substances.

d. Interstitial monitoring of secondary containment. Interstitial monitoring may be used for any piping with secondary containment designed for and capable of interstitial monitoring.

(1) Leak detection shall be conducted:

1. Continuously, by means of an automatic leak sensing device that signals to the operator the presence of any regulated substance in the interstitial space or containment sump; or

2. Monthly, by means of a procedure capable of detecting the presence of any regulated substance in the interstitial space or containment sump, such as visual inspection.

(2) The interstitial space or sump shall be maintained and kept free of water, debris or anything that could interfere with leak detection capabilities.

(3) At least every two years, any sump shall be visually inspected for integrity of sides and floor and tightness of piping penetration seals. Any automatic sensing device shall be tested for proper function.

135.5(6) Release detection recordkeeping. All UST system owners and operators must maintain records in accordance with 135.4(5) demonstrating compliance with all applicable requirements of this rule. These records must include the following:

a. All written performance claims pertaining to any release detection system used, and the manner in which these claims have been justified or tested by the equipment manufacturer or

installer, must be maintained for five years, or for another reasonable period of time determined by the department, from the date of installation. Records of site assessments required for vapor monitoring under 135.5(4)“e”(6) and groundwater monitoring under 135.5(4)“f”(7) must be maintained for as long as the methods are used. Records of site assessments must be signed by a professional engineer or professional geologist, or equivalent certified professional with experience in environmental engineering, hydrogeology, or other relevant technical discipline acceptable to the department;

b. The results of any sampling, testing, or monitoring must be maintained for at least one year, or for another reasonable period of time determined by the department, except as follows:

(1) The results of tank tightness testing conducted in accordance with 135.5(4)“c” must be retained until the next test is conducted; and

(2) The results of annual operation tests conducted in accordance with 135.5(1)“a”(3) and “a”(4), must be maintained for three years. At a minimum, the results must list each component tested, indicate whether each component tested meets criteria in 135.5(1)“a”(3) and “a”(4), or needs to have action taken, and describe any action taken to correct an issue; and

(3) The results of tank tightness testing, line tightness testing, and vapor monitoring using a tracer compound placed in the tank system conducted in accordance with 567—135.20(455B) must be retained until the next test is conducted; and

c. Written documentation of all calibration, maintenance, and repair of release detection equipment permanently located on-site must be maintained for at least one year after the servicing work is completed, or for another reasonable time period determined by the department. Any schedules of required calibration and maintenance provided by the release detection equipment manufacturer must be retained for five years from the date of installation.

567—135.6(455B) Release reporting, investigation, and confirmation.

135.6(1) *Reporting of suspected releases.* Owners and operators of UST systems must report to the department within 24 hours, or within 6 hours in accordance with 567—Chapter 105 if a hazardous condition exists as defined in 567—105.3(455B), or another reasonable time period specified by the department, and follow the procedures in 135.8(1) for any of the following conditions:

a. The discovery by owners and operators or others of released regulated substances at the UST site or in the surrounding area (such as the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface water);

b. Unusual operating conditions observed by owners and operators (such as the erratic behavior of product dispensing equipment, the sudden loss of product from the UST system, an unexplained presence of water in the tank, or liquid in the interstitial space of secondarily contained systems) unless:

(1) The system equipment or component is found not to be releasing regulated substances to the environment;

(2) Any defective system equipment or component is immediately repaired or replaced; and

(3) For secondarily contained systems, except as provided for in 135.5(4)“g”(2)“4,” any liquid in the interstitial space not used as part of the interstitial monitoring method (for example, brine filled) is immediately removed.

c. Monitoring results, including investigation of an alarm, from a release detection method required under 135.5(2) and 135.5(3) that indicate a release may have occurred unless:

(1) The monitoring device is found to be defective, and is immediately repaired, recalibrated or replaced, and additional monitoring does not confirm the initial result; or

(2) The leak is contained in the secondary containment and:

1. Except as provided for in 135.5(4) “g”(2)“4,” any liquid in the interstitial space not used as part of the interstitial monitoring method (for example, brine filled) is immediately removed; and

2. Any defective system equipment or component is immediately repaired or replaced;

(3) In the case of inventory control, a second month of data does not confirm the initial result or the investigation determines no release has occurred; or

(4) The alarm was investigated and determined to be a non-release event (for example, from a power surge or caused by filling the tank during release detection testing).

135.6(2) *Investigation due to off-site impacts.* When required by the department, owners and operators of UST systems must follow the procedures in 135.6(3) to determine if the UST system is the source of off-site impacts. These impacts include the discovery of regulated substances (such as the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface and drinking waters) that has been observed by the department or brought to its attention by another party.

135.6(3) *Release investigation and confirmation steps.* Owners and operators must immediately investigate and confirm all suspected releases of regulated substances requiring reporting under 135.6(1) within seven days, or another reasonable time period specified by the department, using either the following steps or another procedure approved by the department:

a. System test. Owners and operators must conduct tests (according to the requirements for tightness testing in 135.5(4) “c” and 135.5(5) “b”) or, as appropriate, secondary containment testing described in 135.4(4).

(1) The test must determine whether:

1. A leak exists in that portion of the tank that routinely contains product, or the attached delivery piping; or

2. A breach of either wall of the secondary containment has occurred.

(2) If the system test confirms a leak into the interstice or a release, owners and operators must repair, replace, upgrade, or close the UST system. In addition, owners and operators must begin corrective action in accordance with 567—135.9(455B) if the test results for the system, tank, or delivery piping indicate a release exists.

(3) Further investigation is not required if the test results for the system, tank, and delivery piping do not indicate a release exists and if environmental contamination is not the basis for suspecting a release.

(4) Owners and operators must conduct a site check as described in 135.6(3) “b” if the test results for the system, tank, and delivery piping do not indicate a release exists but environmental contamination is the basis for suspecting a release.

b. Site check. A certified groundwater professional must conduct a site check in accordance with the tank closure in place procedures as provided in 135.15(3) or they may conduct a Tier 1 assessment in accordance with 135.9(3). Under either procedure, the certified groundwater professional must follow the policies and procedures applicable to sites where bedrock is encountered before groundwater as provided in 135.8(5) to avoid creating a preferential pathway for soil or groundwater contamination to reach a bedrock aquifer. The certified groundwater professional must measure for the presence of a release where contamination is most likely to be present at the UST site. The certified groundwater professional must follow the policies and procedures applicable to sites where bedrock is encountered before groundwater as provided in 135.8(5) to avoid creating a preferential pathway for soil or groundwater contamination to reach

a bedrock aquifer. In selecting sample types, sample locations, and measurement methods, the certified groundwater professional must consider the nature of the stored substance, the type of initial alarm or cause for suspicion, the type of backfill, the depth of groundwater, and other factors appropriate for identifying the presence and source of the release.

(1) If the test results of the site check indicate action levels in 567—135.14(455B) have been exceeded, owners and operators must begin corrective action in accordance with 567—135.7(455B) through 567—135.12(455B).

(2) If the test results for the excavation zone or the UST site do not indicate a release has occurred, further investigation is not required.

135.6(4) *Reporting and cleanup of spills and overfills.*

a. Reportable releases. Owners and operators of UST systems must contain and immediately clean up a spill, overfill or any aboveground release, and report to the department within 24 hours, or within 6 hours in accordance with 567—Chapter 105 if a hazardous condition exists as defined in 567—105.3(455B) and begin corrective action in accordance with 567—135.7(455B) through 567—135.12(455B) in the cases identified in 40 CFR 280.53(a)(1) and (2).

b. Nonreportable releases. Owners and operators of UST systems must contain and immediately clean up a spill, overfill or any aboveground release of petroleum that is less than 25 gallons and a spill, overfill or any aboveground release of a hazardous substance that is less than the reportable quantity. If cleanup cannot be accomplished within 24 hours, owners and operators must immediately notify the department.

NOTE: Any spill or overfill that results in a hazardous condition as defined in 567—105.3(455B) must be reported within 6 hours. This includes the transporter of the product. A release of a hazardous substance equal to or in excess of its reportable quantity must also be reported

immediately (rather than within 24 hours) to the National Response Center under Sections 102 and 103 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and to appropriate state and local authorities under Title III of the Superfund Amendments and Reauthorization Act of 1986.

567—135.7(455B) Release response and corrective action for UST systems containing petroleum or hazardous substances.

135.7(1) *General.* Owners and operators of petroleum or hazardous substance UST systems must, in response to a confirmed release from the UST system, comply with the requirements of this rule except for USTs excluded under 135.1(3)“b” and UST systems subject to RCRA Subtitle C corrective action requirements under Section 3004(u) of the Resource Conservation and Recovery Act, as amended.

135.7(2) *Initial response.* Upon confirmation of a release in accordance with 135.6(3) or after a release from the UST system is identified in any other manner, owners and operators must perform the following initial response actions within 24 hours of a release or within another reasonable period of time specified by the department:

- a. Report the release to the department (e.g., by telephone or electronic mail);
- b. Take immediate action to prevent any further release of the regulated substance into the environment; and
- c. Identify and mitigate fire, explosion, and vapor hazards.

135.7(3) *Initial abatement measures.*

a. Unless directed to do otherwise by the department, owners and operators must perform the following abatement measures:

(1) Remove as much of the regulated substance from the UST system as is necessary to prevent further release to the environment;

(2) Visually inspect any aboveground releases or exposed below-ground releases and prevent further migration of the released substance into surrounding soils and groundwater;

(3) Continue to monitor and mitigate any additional fire and safety hazards posed by vapors or free product that have migrated from the UST excavation zone and entered into subsurface structures (such as sewers or basements);

(4) Remedy hazards posed by contaminated soils that are excavated or exposed as a result of release confirmation, site investigation, abatement, or corrective action activities. If these remedies include treatment or disposal of soils, the owner and operator must comply with applicable state and local requirements;

(5) Investigate to determine the possible presence of free product, and begin free product removal as soon as practicable and in accordance with 135.7(4).

b. Within 20 days after release confirmation, or within another reasonable period of time determined by the department, owners and operators must submit a report to the department summarizing the initial abatement steps taken under 135.7(3) "a" and any resulting information or data.

135.7(4) *Free product assessment and removal.* The free product assessment and removal requirements in this chapter are primarily concerned with a regulated substance that is present as a light nonaqueous phase liquid (LNAPL) in a monitoring well, boring, excavation, or other location at a thickness of more than 0.01 ft. At sites where investigations under 135.7(3) "a"(5) indicate 0.01 ft. or more of free product, owners and operators must immediately initiate a free product recovery assessment and submit a report in accordance with 135.7(4) "d" and initiate

interim free product removal while continuing, as necessary, any actions initiated under 135.7(2) and 135.7(3), or preparing for actions required under 567—135.8(455B) through 567—135.12(455B). Owners and operators must immediately begin interim free product removal by bailing or by installation and maintenance of passive skimming equipment until an alternative removal method is required by or approved by the department. A certified groundwater professional must initially determine 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. 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 (1) sufficient documentation establishing that the bailing or skimming system has been adequately designed and tested, and (2) a written plan for regular maintenance, reporting and supervision by a certified groundwater professional. Interim free product recovery reports must be submitted to the department on a monthly basis and on forms provided by the department. In meeting the requirements of this subrule, owners and operators must:

a. Conduct free product removal at a frequency determined by the recharge rate of the product and in a manner that minimizes the spread of contamination into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site, and that properly treats, discharges or disposes of recovery by-products in compliance with applicable local, state and federal regulations. Unless approved by the department, free product assessment and recovery activities must be conducted by a certified groundwater professional. Owners and operators must report the results of free product removal activities on forms designated by the department;

b. Use abatement of free product migration as a minimum objective for the design of the free product removal system. Free product recovery systems must be designed to remove free product in accordance with 135.7(4)a;

c. Handle any flammable products in a safe and competent manner to prevent fires or explosions; and

d. Free product recovery assessment and report. Unless directed to do otherwise by the department, prepare and submit to the department, within 45 days after confirming a release, a free product recovery assessment report and a proposal for subsequent free product removal activities. The free product recovery assessment report and removal proposal must contain at least the following information:

(1) The name of the person(s) responsible for implementing the free product removal measures;

(2) The 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;

(3) A detailed justification for the free product removal technology proposed for the site. Base the justification narrative on professional judgment considering the characteristics of the free product plume (i.e., estimated volume, type of product, thickness, extent), an assessment of cost effectiveness based on recovery costs compared to alternative methods, site hydrology and geology, when the release event occurred, testing conducted to verify design assumptions and the potential for petroleum vapors or explosive conditions to occur in enclosed spaces. Proposals for removal systems other than hand bailing or passive skimming systems must be completed and submitted on a format consistent with the department's corrective action design report.

- (4) A schematic and narrative description of the free product recovery system used;
- (5) Whether any discharge will take place on site or off site during the recovery operation and where this discharge will be located;
- (6) A schematic and narrative description of the treatment system, and the effluent quality expected from any discharge;
- (7) The steps that have been or are being taken to obtain necessary permits for any discharge;
- (8) The disposition of the recovered free product;
- (9) Free product plume definition and map. The extent of free product must be assessed. If monitoring wells are used to define the free product plume, the number and location of wells and separation distance between the wells used to define the plume must be based on the receptors present and the site hydrology and geology. A minimum of five monitoring wells are required to construct the plume map. The boundary of the plume may be determined by half the distance between wells with free product and wells with no free product. If the groundwater professional can adequately define the plume using other technology as approved by the department, fewer than five wells may be used to define the boundary of the plume;
- (10) The estimated volume of free product present, how the volume was calculated, recoverable volume and estimated recovery time; and
- (11) Identification of all water lines, regardless of construction material, within the area of free product. Water lines and gaskets which are susceptible to petroleum contamination shall be considered within the area of free product if it is located within the boundary of the free product plume as defined by wells unless it can be demonstrated that no LNAPL exists within 10 feet (horizontally or vertically) of the water line and the LNAPL is not migrating nor is likely to migrate. Water lines and gaskets which are susceptible to petroleum contamination within the

area of free product must be relocated unless the department has approved an alternate plan of construction or it can be demonstrated that mobile LNAPL is not in contact with water lines or gaskets. See 135.12(3)“c.”

e. The department will review the free product assessment report; and, if approved, the owner or operator must implement the installation of the approved recovery system within 60 days or other time period approved by the department.

f. Termination of free product recovery activities. Owners and operators may propose to the department to terminate free product recovery activities when significant amounts of hydrocarbons are not being recovered. The department will consider proposals to terminate free product recovery when the amount of product collected from a monitoring well is equal to or less than 0.1 gallon each month for a year, or it is documented that the free product plume has been adequately delineated horizontally and vertically and free product is documented to not be migrating. When free product activities have been terminated based on the recovery rate of equal to or less than 0.1 gallon each month for a year, owners and operators must inspect the monitoring wells monthly for at least a year unless another schedule is approved by the department. The department must be notified and may require that free product recovery activities be 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.

g. Unless directed to do otherwise by the department, prepare and submit to the department within 180 days after confirming a release, a Tier 2 site cleanup report.

567—135.8(455B) Risk-based corrective action.

135.8(1) *General.* The objective of risk-based corrective action is to effectively evaluate the risks posed by contamination to human health, safety and the environment using a progressively more site-specific, three-tiered approach to site assessment and data analysis. Based on the tiered assessment, a corrective action response is determined sufficient to remove or minimize risks to acceptable levels. Corrective action response includes a broad range of options including reduction of contaminant concentrations through active or passive methods, monitoring of contamination, use of technological controls or institutional controls.

a. Tier 1. The purpose of a Tier 1 assessment is to identify whether a site poses an unreasonable risk to public health and safety or the environment based on limited site data. The objective is to determine maximum concentrations of chemicals of concern at the source of a release(s) in soil and groundwater. The Tier 1 assessment assumes worst-case scenarios in which actual or potential receptors could be exposed to these chemicals at maximum concentrations through certain soil and groundwater pathways. The point of exposure is assumed to be the source showing maximum concentrations. Risk-based screening levels (Tier 1 levels) contained in the Tier 1 Look-Up Table have been derived from models that use conservative assumptions to predict exposure to actual and potential receptors. (These models and default assumptions are contained in Appendix A.) If Tier 1 levels are not exceeded for a pathway, that pathway may not require further assessment. If the maximum concentrations exceed a Tier 1 level, the options are to conduct a more extensive Tier 2 assessment, apply an institutional control, or in limited circumstances excavate contaminated soil to below Tier 1 levels. If all pathways clear the Tier 1 levels, it is possible for the site to obtain a no action required classification.

b. Tier 2. The purpose of a Tier 2 assessment is to use site-specific data to assess the risk from chemicals of concern to existing receptors and potential receptors using fate and transport models in accordance with 567—135.10(455B). See 135.10(2) “a.”

c. Tier 3. Where site conditions may not be adequately addressed by Tier 2 procedures, a Tier 3 assessment may provide more accurate risk assessment. The purpose of Tier 3 is to identify reasonable exposure levels of chemicals of concern and to assess the risk of exposure to existing and potential receptors based on additional site assessment information, probabilistic evaluations, or sophisticated chemical fate and transport models in accordance with 567—135.11(455B).

d. Notification. Whenever the department requires a tiered site assessment and a public water supply well is within 2,500 feet of a leaking underground storage tank site, the department will notify the public water supply operator.

e. Pathway reevaluation. Prior to issuance of a no further action certificate in accordance with 135.12(10) and Iowa Code section 455B.474(1) “h”(3), if it is determined that the conditions for an individual pathway that has been classified as “no action required” no longer exist, or the site presents an unreasonable risk to a public water supply well and the model used to obtain the pathway clearance underpredicts the actual contaminant plume, the individual pathway shall be further assessed consistent with the risk-based corrective action provisions in 567—135.8(455B) through 567—135.12(455B).

135.8(2) *Certified groundwater professional.* All assessment, corrective action, data analysis and report development required under 567—135.6(455B) through 567—135.12(455B) must be conducted by or under the supervision of a certified groundwater professional in accordance with these rules and department guidance as specified.

135.8(3) *Chemicals of concern.* Soil and groundwater samples from releases of petroleum regulated substances must always be analyzed for the presence of benzene, ethylbenzene, toluene, and xylenes. In addition, if the release is suspected to include any petroleum regulated substance other than gasoline or gasoline blends, or if the source of the release is unknown, the samples must be tested for the presence of Total Extractable Hydrocarbons (TEH). Appendices A and B and department Tier 2 guidance define a method for converting TEH values to a default concentration for naphthalene, benzo(a)pyrene, benz(a)anthracene and chrysene and conversion back to a representative TEH value. These default values must be used in order to apply Tier 2 modeling to these constituents in the absence of accurate laboratory analysis.

135.8(4) *Boring depth for sampling.* When drilling for the placement of groundwater monitoring wells, if groundwater is encountered, drilling must continue to the maximum of 10 feet below the first encountered groundwater or to the bottom of soil contamination as estimated by field screening. If groundwater is not encountered, drilling must continue to the deeper of 10 feet below the soil contamination as estimated by field screening or 75 feet from the ground surface.

135.8(5) *Bedrock aquifer assessment.* Prior to conducting any groundwater drilling, a groundwater professional must determine if there is a potential to encounter bedrock before groundwater. These potential areas include (1) areas where karst features or outcrops exist in the vicinity and (2) areas with bedrock less than 50 feet from the surface as illustrated in Tier 1 and Tier 2 guidance. The purpose of this determination is to prevent drilling through contaminated subsurface areas thereby creating a preferential pathway to a bedrock aquifer. If the first encountered groundwater is above bedrock but near the bedrock surface or fluctuates above and below bedrock, the groundwater professional should evaluate the subsurface geology and aquifer

characteristics to determine the potential for creating a preferential pathway. If it is determined that the aquifer acts like a nongranular aquifer as provided in 135.10(3)“a” or bedrock is encountered before groundwater, the groundwater professional must conduct a Tier 2 assessment for all pathways under 567—135.10(455B), including the specified bedrock procedures under 135.10(3).

If the first encountered groundwater is above bedrock with sufficient separation and aquifer characteristics to establish that it acts as a granular aquifer, site assessment may proceed under the site check procedure in 567—135.6(455B), the Tier 1 procedure in 567—135.9(455B) or the Tier 2 procedure in 567—135.10(455B) as would be customary regardless of the bedrock designation. However, even under this condition, drilling through bedrock should be avoided in contaminated areas.

567—135.9(455B) Tier 1 site assessment policy and procedure.

135.9(1) *General.* The main objective of a Tier 1 site assessment is to reasonably determine the highest concentrations of chemicals of concern that would be associated with any suspected or confirmed release and an accurate identification of applicable receptors. The potential source of a release, nature of the substance released, site stratigraphy, depth to groundwater, and other appropriate factors must be considered when selecting the sample types, sample locations, and measurements methods. The placement and depth of borings and the construction of monitoring wells must be sufficient to determine the sources of all releases, the vertical extent of contamination, an accurate description of site stratigraphy, and a reliable determination of groundwater flow direction.

a. Pathway assessment. The pathways to be evaluated at Tier 1 are the groundwater ingestion pathway, soil leaching to groundwater pathway, groundwater vapor to enclosed space pathway,

soil vapor to enclosed space pathway, soil to water line pathway, groundwater to water line pathway and the surface water pathway. Assessment requires a determination of whether a pathway is complete, an evaluation of actual and potential receptors, and a determination of whether conditions are satisfied for obtaining no further action clearance for individual pathways or for obtaining a complete site classification of “no action required.” A pathway is considered complete if a chemical of concern has a route that could be followed to reach an actual or potential receptor.

b. Pathway clearance. If contaminant concentrations for an individual pathway do not exceed the applicable Tier 1 levels or if a pathway is incomplete, no further action is required to evaluate the pathway unless otherwise specified in these rules. If the contaminant concentrations for a pathway exceed the applicable Tier 1 level(s) in the “Iowa Tier 1 Look-up Table,” the response is to conduct further assessment under Tier 2 or Tier 3 unless an effective institutional control is approved. In limited circumstances excavation of contaminated soils may be used as an option to obtain pathway clearance. If further site assessment indicates site data exceeds an applicable Tier 1 level(s) for a previously cleared pathway or the conditions justifying a determination of pathway incompleteness change, that pathway must be reevaluated as part of a Tier 2 or Tier 3 assessment.

c. Chemical group clearance. If concentrations for all chemicals of concern within a designated group of chemicals are below the Tier 1 levels, no further action is required as to the group of chemicals unless otherwise specified in these rules. Group one consists of benzene, ethylbenzene, toluene, and xylenes (BTEX). Group two consists of naphthalene, benzo(a)pyrene, benz(a)anthracene and chrysene; TEH default values are incorporated into the Iowa Tier 1 Look-Up Table and Appendix A for group two chemicals.

d. Site classification. A site can be classified as no action required only after all pathways have met the conditions for pathway clearance as provided in this rule.

e. Groundwater sampling procedure. Groundwater sampling and field screening must be conducted in accordance with department Tier 1 guidance. A minimum of three properly constructed groundwater monitoring wells must be installed, subject to the limitations on maximum drilling depths, for the purpose of identifying maximum concentrations of groundwater contamination, suspected sources of releases, and groundwater flow direction.

(1) Field screening must be used to locate suspected releases and to determine locations with the greatest concentrations of contamination. Field screening is required as per department guidance at each former and current tank basin, each former and current pump island, along the piping, and at any other areas of actual or suspected releases. In placing monitoring wells, the following must be considered: field screening data, available current and historical information regarding the releases, tank and piping layout, site conditions, and drilling data available from sites in the vicinity. At least one well must be placed at each suspected source of release that shall include at a minimum: the pump island with the greatest field screening level, each current and former underground storage tank basin, and if field screening shows greater levels than at the pump islands or tank basins, at other suspected sources of releases. As a general rule, wells should be installed outside of the tank basin through native soils but as close to the tank basin as feasible. A well must be installed in a presumed downgradient direction and within 30 feet of the sample with the greatest field screening level. Three of the wells must be placed in a triangular arrangement to determine groundwater flow direction.

(2) Where the circumstances that prompt a Tier 1 assessment identify a discrete source and cause of a release, and the groundwater professional is able to rule out other suspected sources or

contributing sources such as pump islands, piping runs and tank basins, the application of field screening and groundwater well placement may be limited to the known source.

f. Soil sampling procedure. The objective of soil sampling is to identify the maximum concentrations of soil contamination in the vadose and saturated zones and to identify sources of releases. The same principles stated above apply to soil sampling. Soil samples must be taken from borings with the greatest field screening levels even if the boring will not be converted to a monitoring well. At a minimum, soil and groundwater samples must be collected for analysis from all borings that are converted to monitoring wells.

Iowa Tier 1 Look-Up Table

Media	Exposure Pathway	Receptor	Group 1				Group 2: TEH		
			Benzene	Toluene	Ethylbenzene	Xylenes	Diesel*	Waste Oil	
Groundwater (µg/L)	Groundwater	Actual	5	1,000	700	10,000	1,200	400	
	Ingestion	Potential	290	7,300	3,700	73,000	75,000	40,000	
	Groundwater	All	1,540	20,190	46,000	NA	2,200,000	NA	
	Vapor to Enclosed Space								
	Groundwater to Water Line	PVC or Gasketed Mains		7,500	6,250	40,000	48,000	75,000	40,000
		PVC or Gasketed		3,750	3,120	20,000	24,000	75,000	40,000

		Service Lines						
		PE/PB/AC Mains or Service Lines	200	3,120	3,400	19,000	75,000	40,000
	Surface Water	All	290	1,000	3,700	73,000	75,000	40,000
Soil (mg/kg)	Soil Leaching to Groundwater	All	0.54	42	15	NA	3,800	NA
	Soil Vapor to Enclosed Space	All	1.16	48	79	NA	47,500	NA
	Soil to Water Line	All	2.0	3.2	45	52	10,500	NA

NA: Not applicable. There are no limits for the chemical for the pathway, because for groundwater pathways the concentration for the designated risk would be greater than the solubility of the pure chemical in water, and for soil pathways the concentration for the designated risk would be greater than the soil concentration if pure chemical were present in the soil.

TEH: Total Extractable Hydrocarbons. The TEH value is based on risks from naphthalene, benzo(a)pyrene, benz(a)anthracene, and chrysene. Refer to Appendix B for further details.

Diesel*: Standards in the Diesel column apply to all low volatile petroleum hydrocarbons except waste oil.

135.9(2) *Conditions requiring Tier 1 site assessment.* Unless owners and operators choose to conduct a Tier 2 assessment, the presence of bedrock requires a Tier 2 assessment as provided in 135.8(5), or these rules otherwise require preparation of a Tier 2 site assessment, a Tier 1 site assessment must be completed in response to release confirmation as provided in 567—135.6(455B), or tank closure investigation under 567—135.15(455B), or other reliable laboratory analysis that confirms the presence of contamination above the action levels in 567—135.14(455B).

135.9(3) *Tier 1 assessment report.* Unless directed to do otherwise by the department or the owners or operators choose to prepare a Tier 2 site cleanup report, owners and operators must assemble information about the site and the nature of the release in accordance with the department Tier 1 guidance, including information gained while confirming the release under 567—135.6(455B), tank closure under 567—135.15(455B) or completing the initial abatement measures in 135.7(1) and 135.7(2). This information must include but is not necessarily limited to the following:

- a. Data on the nature and estimated quantity of release.
- b. Results of any release investigation and confirmation actions required by 135.6(3).
- c. Results of the free product investigations required under 135.7(3) “a”(5), to be used by owners and operators to determine whether free product must be recovered under 135.7(4).
- d. Chronology of property ownership and underground storage tank ownership, identification of the person(s) having control of, or having responsibility for the daily operation of the underground storage tanks and the operational history of the underground storage tank system. The operational history shall include but is not limited to a description of or suspected known subsurface or aboveground releases, past remediation or other corrective action, type of

petroleum product stored, recent tank and piping tightness test results, any underground storage tank system repairs, upgrades or replacements and the underground storage tank and piping leak detection method being utilized. The operational history shall confirm that current release detection methods and recordkeeping comply with the requirements of 567—135.5(455B), that all release detection records have been reviewed and report any evidence that a release detection standard has been exceeded as provided in 135.5(4) and 135.5(5).

e. Appropriate diagrams of the site and the underground storage tank system and surrounding land use, identifying site boundaries and existing structures and uses such as residential properties, schools, hospitals, child care facilities and a general description of relevant land use restrictions and known future land use.

f. Current proof of financial responsibility as required by 567—Chapter 136 and the status of coverage for corrective action under any applicable financial assurance mechanism or other financial assistance program.

g. A receptor survey including but not limited to the following: existing buildings, enclosed spaces (basements, crawl spaces, utility vaults, etc.), conduits (gravity drain lines, sanitary and storm sewer mains and service lines), water lines and other utilities within 500 feet of the source. For conduits and enclosed spaces, there must be a description of construction material, conduit backfill material, slope of conduit and trenches (include flow direction of sewers), burial depth of utilities or subsurface enclosed spaces, and the relationship to groundwater elevations.

h. An explosive vapor survey of enclosed spaces where there may be the potential for buildup of explosive vapors. The groundwater professional must provide a specific justification for not conducting an explosive vapor survey.

i. A survey of all surface water bodies within 200 feet of the source.

j. A survey of all active, abandoned and plugged groundwater wells within 1,000 feet of the source with a description of construction and present or future use.

k. Accurate and legible site maps showing the location of all groundwater monitoring wells, soil borings, field screening locations and screening values, and monitoring well and soil boring construction logs.

l. A tabulation of all laboratory analytical results for chemicals of concern and copies of the laboratory analytical reports.

m. Results of hydraulic conductivity testing and description of the procedures utilized.

n. A Tier 1 site assessment in accordance with the department's Tier 1 guidance. The Tier 1 report shall be submitted on forms and in a format prescribed by this guidance.

135.9(4) *Groundwater ingestion pathway assessment.* The groundwater ingestion pathway addresses the potential for human ingestion of petroleum-regulated substances from existing groundwater wells or potential drinking water wells.

a. Pathway completeness. This pathway is considered complete if: (1) there is a drinking or non-drinking water well within 1,000 feet of the source(s) exhibiting the maximum concentrations of the chemicals of concern; or (2) the first encountered groundwater is a protected groundwater source.

b. Receptor evaluation. A drinking or non-drinking water well within 1,000 feet of the source(s) is an actual receptor. The Tier 1 levels for actual receptors apply to drinking water wells and the Tier 1 levels for potential receptors apply to non-drinking water wells. Potential receptor points of exposure exist if the first encountered groundwater is a protected groundwater source but no actual receptors presently exist within 1,000 feet of the source.

c. Pathway clearance. If the pathway is incomplete, no further action is required for this pathway. If the Tier 1 level for actual or potential receptors is not exceeded, no further action is required for this pathway. Groundwater wells that are actual or potential receptors may be plugged in accordance with 567—Chapters 39 and 49 and may result in no further action clearance if the groundwater is not a protected groundwater source and the pathway is thereby incomplete.

d. Corrective action response. If maximum concentrations exceed the applicable Tier 1 levels for either actual or potential receptors, a Tier 2 assessment must be conducted unless effective institutional controls are implemented as provided below. Technological controls are not acceptable at Tier 1 for this pathway. Abandonment and plugging of drinking and non-drinking water wells in accordance with 567—Chapters 39 and 49 is an acceptable corrective action response.

e. Use of institutional controls. To apply an effective institutional control, if drinking or non-drinking water wells are present within 1,000 feet of the source, and the applicable Tier 1 level is exceeded, the well(s) for which there is an exceedance must be properly plugged. If the groundwater is a protected groundwater source and the maximum concentrations do not exceed the Tier 1 level for potential receptors but do exceed the Tier 1 level for actual receptors, the owner or operator must provide notification of site conditions on a department form to the department water supply section, or if a county has delegated authority, then the designated county authority responsible for issuing private water supply construction permits or regulating non-public water well construction as provided in 567—Chapters 39 and 49.

If the groundwater is a protected source and the maximum concentrations exceed the Tier 1 level for potential receptors, the owner or operator must (1) implement an institutional control

prohibiting the use of the groundwater for installation of drinking and non-drinking water wells within 1,000 feet of the source; and (2) provide notification as provided above. If an effective institutional control is not feasible, a Tier 2 assessment must be performed for this pathway in accordance with 567—135.10(455B).

135.9(5) *Soil leaching to groundwater pathway assessment.* This pathway addresses the potential for soil contamination to leach to groundwater creating a risk of human exposure through the groundwater ingestion pathway.

a. Pathway completeness. If the groundwater ingestion pathway is complete, the soil leaching to groundwater pathway is considered complete.

b. Receptor evaluation. There is a single receptor type for this pathway and one applicable Tier 1 level.

c. Pathway clearance. If the pathway is incomplete or the pathway is complete and the maximum concentrations of chemicals of concern do not exceed the Tier 1 levels, no further action is required for assessment of this pathway.

d. Corrective action response. If the Tier 1 levels are exceeded for this pathway, a Tier 2 assessment must be conducted or alternatively, institutional controls or soil excavation may be undertaken in accordance with 135.9(7)“h.”

e. Use of institutional controls. Institutional controls must satisfy the conditions applicable to the groundwater ingestion pathway as provided in 135.9(4)“e.”

135.9(6) *Groundwater vapor to enclosed space pathway assessment.* This pathway addresses the potential for vapors from contaminated groundwater to migrate to enclosed spaces where humans could inhale chemicals of concern at unacceptable levels. This pathway assessment

assumes the health-based Tier 1 levels will adequately protect against any associated short- and long-term explosive risks.

a. Pathway completeness. This pathway is always considered complete for purposes of Tier 1 and must be evaluated.

b. Explosive vapor survey. An explosive vapor survey must be conducted in accordance with procedures outlined in the department Tier 1 guidance. If potentially explosive levels are detected, the groundwater professional must notify the owner or operator with instructions to report the condition in accordance with 567—Chapter 105. The owner or operator must begin immediate response and abatement procedures in accordance with 567—135.7(455B) and 567—Chapter 105.

c. Receptor evaluation. For purposes of Tier 1, there is one receptor type for this pathway and the Tier 1 level applies regardless of the existence of actual or potential receptors.

d. Pathway clearance. No further action is required for this pathway, if the maximum groundwater concentrations do not exceed the Tier 1 levels for this pathway.

e. Corrective action response. If the maximum concentrations exceed the Tier 1 levels for this pathway, a Tier 2 assessment of this pathway must be conducted unless institutional controls are implemented. Technological controls are not acceptable at Tier 1 for this pathway.

f. Use of institutional controls. An institutional control must be effective to prohibit the placement of enclosed space receptors within 500 feet of the source.

135.9(7) *Soil vapor to enclosed space pathway assessment.* This pathway addresses the potential for vapors from contaminated soils to migrate to enclosed spaces where humans could inhale chemicals of concern at unacceptable levels. This pathway assessment assumes health-

based screening levels at Tier 1 will adequately protect against short- and long-term explosive risks.

a. Pathway completeness. This pathway is always considered complete for purposes of Tier 1 and must be evaluated.

b. Explosive vapor survey. An explosive vapor survey must be conducted in accordance with procedures outlined in the department Tier 1 guidance. If potentially explosive levels are detected, the groundwater professional must notify the owner or operator with instructions to report the condition in accordance with 567—Chapter 105. The owner or operator must begin immediate response and abatement procedures in accordance with 567—135.7(455B) and 567—Chapter 105.

c. Receptor evaluation. For purposes of Tier 1, there is one receptor type for this pathway, and the Tier 1 level applies regardless of existing or potential receptors.

d. Pathway clearance. No further action is required for this pathway, if the maximum soil concentrations do not exceed the Tier 1 levels for this pathway. If the Tier 1 levels are exceeded, soil gas measurements may be taken in accordance with the Tier 2 guidance at the area(s) of maximum concentration. Subject to confirmation sampling, if the soil gas measurements do not exceed the target levels in 135.10(7) “f,” no further action is required for this pathway. If the Tier 1 level is not exceeded but the soil gas measurement exceeds the target level, further action is required for the pathway.

e. Soil gas samples. To establish that the soil gas measurement is representative of the highest expected levels, a groundwater professional must obtain two soil gas samples taken at least two weeks apart. One of the samples should be collected beneath the frost line depth during a seasonal period of lowest groundwater elevation.

f. Corrective action response. If the maximum concentrations exceed the Tier 1 levels and the soil gas measurements exceed target levels for this pathway, or if no soil gas measurement was taken, a Tier 2 assessment of this pathway must be conducted unless institutional controls are implemented or soil excavation is conducted as provided below. Technological controls are not acceptable at Tier 1 for this pathway.

g. Use of institutional controls. An institutional control must be effective to eliminate the placement of enclosed space receptors within 500 feet of the source.

h. Soil excavation. Excavation of contaminated soils for the purpose of removing soils contaminated above the Tier 1 levels is permissible as an alternative to conducting a Tier 2 assessment. Adequate field screening methods must be used to identify maximum concentrations during excavation. At a minimum, one soil sample must be taken for field screening every 100 square feet of the base and each sidewall. Soil samples must be taken for laboratory analysis at least every 400 square feet of the base and each sidewall of the excavated area to confirm that remaining concentrations are below Tier 1 levels. If the base or a sidewall of the excavation is less than 400 square feet, a minimum of one sample must be analyzed for each sidewall and the base.

135.9(8) *Groundwater to water line pathway assessment.* This pathway addresses the potential for creating a drinking water ingestion risk due to contact with water lines and causing infusion to the drinking water.

a. Pathway completeness and receptor evaluation.

(1) Actual receptors. This pathway is considered complete for an actual receptor if there is an existing water line within 200 feet of the source and the first encountered groundwater is less than 20 feet below ground surface.

(2) Potential receptors. This pathway is considered complete for a potential receptor if the first encountered groundwater is less than 20 feet below ground surface.

b. Pathway clearance. If the pathway is not complete, no further action is required for this pathway. If the pathway is complete and the maximum concentrations of all chemicals of concern do not exceed the Tier 1 levels for this pathway, no further action is required for this pathway.

c. Utility company notification. The utility company that supplies water service to the area must be notified of all actual and potential water line impacts as soon as knowledge of a potential risk is determined.

d. Corrective action response.

(1) For actual receptors, if the Tier 1 levels are exceeded for this pathway, all water lines within 200 feet must be replaced with water line materials and gasket materials of appropriate construction in accordance with current department standards set forth in 567—Chapter 43 and with no less than nitrile or FKM gaskets or as otherwise approved by the department, or the water lines must be relocated beyond the 200-foot distance from the source. A Tier 2 assessment must be conducted for this pathway if lines are not replaced or relocated.

(2) For potential receptors, upon utility company notification, no further action will be required for this pathway.

135.9(9) *Soil to water line pathway assessment.* This pathway addresses the potential for creating a drinking water ingestion risk due to contact with water lines and infusion into the drinking water.

a. Pathway completeness and receptor evaluation.

(1) Actual receptors. This pathway is considered complete for an actual receptor if a water line exists within 200 feet of the source.

(2) Potential receptors. This pathway is always considered complete for potential receptors.

b. Pathway clearance. If the pathway is not complete for actual receptors, no further action is required for this pathway. If the pathway is complete for actual receptors and the maximum concentrations of all chemicals of concern do not exceed Tier 1 levels for this pathway, no further action is required. For potential receptors, upon utility company notification, no further action will be required for this pathway for potential receptors.

c. Utility company notification. The utility company that supplies water service to the area must be notified of all actual and potential water line impacts as soon as knowledge of a potential risk is determined.

d. Corrective action response. For actual receptors, if the Tier 1 levels are exceeded for this pathway, all water lines within 200 feet must be replaced with water line materials and gasket materials of appropriate construction in accordance with current department standards set forth in 567—Chapter 43 and with no less than nitrile or FKM gaskets or as otherwise approved by the department, or the water lines must be relocated beyond the 200-foot distance from the source. Excavation of soils to below Tier 1 levels may be undertaken in accordance with 135.9(7) “h.” If none of these options is implemented, a Tier 2 assessment must be conducted for this pathway.

135.9(10) *Surface water pathway assessment.* This pathway addresses the potential for contaminated groundwater to impact surface water bodies creating risks to human health and aquatic life.

a. Pathway completeness. This pathway is considered complete if a surface water body is present within 200 feet of the source. For purposes of Tier 1, surface water bodies include both general use segments and designated use segments as provided in 567—subrule 61.3(1).

b. Receptor evaluation. The Tier 1 levels for this pathway only apply to designated use segments of surface water bodies as provided in 567—subrules 61.3(1) and 61.3(5). The point of compliance is the source with the highest concentrations of chemicals of concern. General use segments of surface water bodies as provided in 567—paragraph 61.3(1) “a” are only subject to the visual inspection criteria.

c. Visual inspection requirements. A visual inspection of all surface water bodies within 200 feet of the source must be conducted to determine if there is evidence of a sheen on the water or there is evidence of petroleum residue along the bank. If a sheen or residue is evident or has been reported to be present, the groundwater professional must make a sufficient investigation to reasonably determine its source. If in the opinion of the groundwater professional, the sheen is not associated with the underground storage tank site, the professional must report and reasonably justify this opinion. If in the opinion of the groundwater professional the sheen is not a petroleum-regulated substance, a sample must be laboratory tested in accordance with 567—135.16(455B) to confirm it is not a petroleum-regulated substance.

d. Pathway clearance. If the pathway is not complete or it is complete and the maximum concentrations of all chemicals of concern at the point of compliance do not exceed the Tier 1 levels and there is no petroleum sheen or residue attributable to the site, no further action is required for assessment of this pathway.

e. Corrective action response. If a Tier 1 level is exceeded for any chemical of concern for a designated use segment within 200 feet of the source, or the groundwater professional determines the presence of a petroleum-regulated substance sheen or residue, a Tier 2 assessment of this pathway must be conducted.

135.9(11) *Tier 1 submission and review procedures.*

a. Within 90 calendar days of release confirmation or another reasonable period of time determined by the department, owners and operators must submit to the department a Tier 1 report in a format prescribed by the department and in accordance with these rules and the department Tier 1 guidance.

b. If the owner or operator elects to prepare a Tier 2 site cleanup report instead of a Tier 1 assessment, the department must be notified in writing prior to the expiration of the Tier 1 submission deadline. The Tier 2 site cleanup report must be submitted to the department in accordance with 567—135.10(455B) within 180 calendar days of release confirmation or another reasonable period of time determined by the department.

c. A Tier 1 report is considered to be complete if it contains all the information and data required by this rule and the department Tier 1 guidance. The report is accurate if the information and data is reasonably reliable based first on application of the standards in these rules and department guidance and second, generally accepted industry standards.

d. The certified groundwater professional shall include the following certification with the Tier 1 site assessment report:

I, _____, Groundwater Professional Certification No. _____, am familiar with all applicable requirements of Iowa Code section 455B.474 and all rules and procedures adopted thereunder including, but not limited to, 567—Chapter 135 and the Department of Natural Resources Tier 1 guidance. Based on my knowledge of those documents and information I have prepared and reviewed regarding this site, UST Registration No. _____, LUST No. _____ I certify that this document is complete and accurate as provided in 567 IAC 135.9(11)“c” and meets the applicable requirements of the Tier 1 site assessment.

Signature:

Date:

e. Upon receipt of the groundwater professional's certified Tier 1 report, the groundwater professional's proposed site classification for the site shall be determinative unless, within 90 days of receipt, the department identifies material information in the report that is inaccurate or incomplete. Material information may be data found to be inaccurate or incomplete or a report that lacks information that, if correct and complete, would result in a different site classification than proposed by the certified groundwater professional. If the department determines that the site cleanup report is inaccurate or incomplete, the department shall notify the groundwater professional of the inaccurate or incomplete information within 90 days of receipt of the report and shall work with the groundwater professional and the party responsible for cleanup to obtain correct information or additional information necessary to appropriately classify the site. If the groundwater professional recommends proceeding to Tier 2, or a Tier 2 site cleanup report is required pursuant to 135.7(4)“g,” 135.8(5), or 567—135.9(455B), the groundwater professional's site classification and pathway classification recommendations shall not be considered determinative until the Tier 2 report is submitted for review as provided in 135.10(11).

f. If a “no action required” site classification is proposed, the department shall review the report in accordance with 135.12(6) and the review standards in 135.9(11)“e.”

135.9(12) *Tier 1 site classification and corrective action response.*

a. No action required site classification. At Tier 1, a site is only eligible for a “no action required” classification. To be classified as no action required, each pathway must meet the requirements for pathway clearance as specified in this rule. If the department determines a no

action required site classification is appropriate, a no further action certificate will be issued as provided in 135.12(10).

b. Where an individual pathway or a chemical group meets the requirements for clearance but the site is not entitled to a no action required classification, only those pathways and chemical groups that do not meet the no further action requirements must be evaluated as part of a Tier 2 assessment as provided in 567—135.10(455B).

c. Compliance monitoring and confirmation sampling. Compliance monitoring is not an acceptable corrective action at Tier 1. Except for soil gas sampling under 135.9(7), confirmation sampling to verify a sample does not exceed a Tier 1 level is not required. However, the department retains the authority to require confirmation sampling from existing groundwater monitoring wells if a no action required classification is being proposed at Tier 1 and the department has a reasonable basis to question the representative validity of the samples based on, for example, the seasonal bias of the sampling, evidence of multiple sources of releases, marginal groundwater monitoring well locations and analytical variability.

d. Expedited corrective action is permissible in accordance with 135.12(11).

567—135.10(455B) Tier 2 site assessment policy and procedure.

135.10(1) *General conditions.* A Tier 2 site assessment must be conducted and a site cleanup report submitted for all sites that 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 in 567—135.9(455B). 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 shall be further assessed under this rule. The Tier 2 assessment and report must be completed whenever free product is discovered as provided in 567—135.7(455B). If the owner or operator elects to

complete the Tier 2 site assessment without doing a Tier 1 assessment, all the Tier 1 requirements as provided in 567—135.9(455B) must be met in addition to requirements under this rule.

a. Guidance. The Tier 2 site assessment shall be conducted in accordance with the department's "Tier 2 Site Assessment Guidance" and these rules. The site cleanup report shall be submitted on forms and in a format prescribed by this guidance. The Tier 2 data analysis shall be performed by using computer software or online application developed by the department.

b. Classification. At Tier 2, individual pathways may be classified as high risk or low risk or no action required and separate classification criteria may apply to actual and potential receptors for any pathway. A single pathway may have multiple classifications based on actual or potential receptor evaluations. A pathway must meet both the criteria for actual and potential receptors for the pathway to obtain a classification of no action required. Sites may have multiple pathway classifications. For a site to obtain a no action required classification, all pathways must meet the individual pathway criteria for no action required classification.

c. Public right-of-way. As a general rule, public right-of-way will not be considered an area of potential receptor exposure except for potential sanitary sewer evaluation under the soil and groundwater vapor pathways (135.10(6) and 135.10(7)).

135.10(2) *General Tier 2 assessment procedures.*

a. Objectives. The objective of a Tier 2 assessment is to collect site-specific data and with the use of Tier 2 modeling determine what actual or potential receptors could be impacted by chemicals of concern and what concentrations at the source are predicted to achieve protection of these receptors. Both Tier 1 and Tier 2 are based on achieving similar levels of protection of human health, safety and the environment.

b. Groundwater modeling. Tier 2 uses fate and transport models to predict the maximum distance groundwater contamination is expected to move and the distribution of concentrations of chemicals of concern within this area. The model is used for two basic purposes. One, it is used to predict at what levels of concentration contamination would be expected to impact actual and potential receptors. Two, it is used to determine a concentration at the source that if achieved, and after dispersion and degradation, would protect actual and potential receptors at the point of exposure. In predicting the transport of contaminants, the models assume the contaminant plume is at “steady state” such that concentrations throughout the plume have reached a maximum level and are steady or decreasing. The Tier 2 models are only designed to predict transport in a direct line between the source and downgradient to a receptor. In order to more reasonably define a modeled plume in all directions, 135.10(2) “i” defines a method of decreasing modeled concentrations as a percentage of their distance in degrees from the downgradient direction.

c. Soil vapor models. The soil vapor models are vertical transport models and do not use modeling to predict soil contaminant transport horizontally to receptors.

d. Soil leaching to groundwater modeling. The soil leaching to groundwater model is a model that predicts the maximum concentrations of chemicals of concern that would be expected in groundwater due to vertical leaching from the area of maximum soil concentrations and then incorporates the groundwater transport models to predict contaminant transport through groundwater pathways.

e. Modeling default parameters. The Tier 2 model formulas and applicable parameters are designated in Appendix B and must be followed unless otherwise specified in these rules. Unless otherwise specified, target levels at a point of exposure may be the Tier 1 level(s) or may be determined using site-specific parameters. The target level at a point of exposure is calculated

using the Tier 1 formulas in Appendix A and either site-specific measurements or the default values for those parameters identified as “optional” and “site-specific” in Appendix B.

f. Source width. The source width and source length are variables used in modeling and must be determined by the following criteria and as specified in the department’s Tier 2 guidance. The following are not to be used as criteria for defining the extent of the contaminant plumes.

(1) Source width (equals S_w in models) for groundwater transport modeling. The sum of group one chemical (benzene, toluene, ethylbenzene, xylenes or “BTEX”) concentrations for each groundwater sample is determined and the location of the sample with the maximum total BTEX is identified. Linear interpolation is used to estimate the area where groundwater concentrations would be expected to exceed 50 percent of the maximum BTEX value, and this area is considered for the source width measurement. The same procedure is used to determine source width for group two chemicals, using TEH in groundwater. The width of the groundwater contamination perpendicular to estimated groundwater flow direction (S_w) is determined, and the larger of either group one or group two chemicals is used in the groundwater transport model.

(2) Source width (S_w) and source length (equals W in models) for soil leaching to groundwater transport modeling. Both the source width perpendicular to the estimated groundwater flow direction (S_w) and the source length parallel to the estimated groundwater flow direction (W) are used in the soil leaching to groundwater model. The sum of BTEX concentrations for each soil sample is determined and the location of the sample with the maximum total BTEX is identified. Concentrations from both the vadose zone and the saturated zone must be considered when determining the maximum. Linear interpolation is used to estimate the area where soil concentrations would be expected to exceed 50 percent of the maximum BTEX value, and this area is considered for the source width and source length measurements. The same procedure is

used to determine source width for group 2 chemicals, using TEH in soil. Source width and source length measurements for BTEX in groundwater are also taken following the same linear interpolation criteria in 135.10(2)“f”(1). The source width value used in the model is the greatest of either the soil source width measurements or the groundwater source width measurement. The source length value used in the model is the greatest of either of the soil source length measurements or the groundwater length measurement.

g. Modeled simulation line. The simulation line represents the predicted maximum extent of groundwater contamination and distribution of contaminant concentrations between the source(s) and actual or potential receptor locations. The model calculates the simulation line using maximum concentrations at the source(s) and predicting the amount of dispersion and degradation. Modeled data in the simulation line are compared with actual contaminant concentrations to verify the predictive validity of the model and to make risk classification decisions.

h. Modeled site-specific target level (SSTL) line. The modeled SSTL line represents acceptable levels of contaminant concentrations at points between and including the source(s) and an applicable point(s) of exposure or other point(s) of compliance (ex. a potential receptor point of exposure). The SSTL line is calculated by assuming an applicable target level concentration at the point(s) of exposure or point(s) of compliance and modeling back to the source to determine the maximum concentrations at the source (SSTL) that must be achieved to meet the target level at the point of exposure or compliance. Comparison of contaminant concentrations from actual samples to this SSTL line is used to determine a risk classification and determine appropriate corrective action response.

i. Crossgradient and upgradient modeling. In determining the SSTL line and the simulation line in directions other than downgradient, the modeled contaminant concentrations are applied to reduced distances as specified in the “Tier 2 Guidance.” The modeled results are applied to 100 percent of the distance within an angle of 30 degrees on either side of the range of downgradient directions as specified in Tier 2 guidance. The modeled results are applied to 20 percent of the distance in the upgradient direction and directly proportional distances between these two outer limits. If the groundwater gradient is less than 0.005 or the groundwater contaminant plume shows no definitive direction or shows directional reversals, the modeled concentrations are applied to 100 percent of the distance in all directions from the source. As the downgradient velocity increases, the upgradient modeled distance is reduced to less than 20 percent of the downgradient modeled distance.

j. Plume definition. The purpose of plume definition at Tier 2 is to obtain sufficient data to determine the impact on actual and potential receptors, to determine and confirm the highest levels of contamination, to verify the validity of the models, and to determine groundwater flow direction. The number and location of borings and monitoring wells and the specificity of plume definition will depend on the pathway or pathways being assessed and the actual or potential receptors of concern. Unless otherwise specified, groundwater and soil contamination shall be defined to Tier 1 levels for the applicable pathways. Linear interpolation between two known concentrations must be used to delineate plume extent. Samples with no concentrations detected shall be considered one-half the detection limit for interpolation purposes.

k. Pathway completeness. Unless a pathway has obtained clearance under Tier 1, each pathway must be evaluated at Tier 2. Pathways are generally considered complete (unless otherwise specified) and receptors affected if actual receptors or potential receptor points of

exposure exist within the modeled contaminant plume using the modeled simulation line calculated to the applicable target level at a point of exposure. If the actual contaminant plume exceeds the modeled plume, the pathway is complete and must be evaluated if actual or potential points of exposure exist within a distance extending 10 percent beyond the edge of the defined plume.

l. Points of exposure and compliance. For actual receptors, the point(s) of exposure is the receptor. For potential receptors, the potential receptor point(s) of exposure is determined by using actual plume definition or the modeled simulation line to determine all points that exceed the target level(s) for potential receptors. The potential receptor point(s) of exposure is the location(s) closest to the source where a receptor could reasonably exist and that is not subject to an institutional control; for example, the source is the potential receptor point of exposure if not subject to an institutional control or an adjoining property boundary line if that property is not subject to an institutional control. At Tier 2, the point(s) of exposure or potential receptor point(s) of exposure is a point of compliance unless otherwise specified. Other points of compliance are specified by rules and will generally include all points along the SSTL line for purposes of pathway and site classification and corrective action response.

135.10(3) *Bedrock assessment.*

a. General. As provided in 135.8(5), if bedrock is encountered before groundwater, special assessment procedures under this subrule apply. The Tier 2 assessment procedures apply to the extent they are not inconsistent with this subrule. The objectives of these special procedures are to avoid creating a preferential pathway for contamination through a confining layer to a bedrock aquifer; to avoid creating a preferential pathway to a fractured system, and to determine whether groundwater transport modeling can be used and, if not, what alternative procedures are required.

The owner or operator may choose to conduct a Tier 3 assessment under 567—135.11(455B) as an alternative to proceeding under this subrule. For sites where bedrock is encountered before groundwater, there are three general categories of site conditions that determine the assessment procedures that apply:

(1) Nongranular bedrock. Nongranular bedrock is bedrock that is determined to not act as a granular aquifer as provided in 135.10(3) “a”(2). Nongranular bedrock generally has some type of fractured system where groundwater transport modeling cannot be applied and that makes it difficult to define the extent of contamination.

(2) Granular bedrock. Granular bedrock is bedrock that is determined to act as a granular aquifer and for which monitoring wells do not exist at the source. For purposes of this rule, a granular aquifer is one that shows no extraordinary variations or inconsistencies in groundwater elevations across the site, groundwater flow, hydraulic conductivities, or total dissolved solid concentrations among monitoring wells. Although the extent of contamination can be defined in granular bedrock, groundwater transport modeling cannot be used because monitoring wells shall not be installed at the source if soil contamination is present. If soil contamination above a Tier 1 level is not identified or an overexcavation of contaminated soil has successfully removed all soil contamination greater than a Tier 1 level, then monitoring wells can be installed in the source area and the site can be evaluated as exempt granular bedrock.

(3) Exempt granular bedrock. Exempt granular bedrock is bedrock that is determined to act as a granular aquifer as provided in 135.10(3) “a”(2) and for which monitoring wells exist at the source as of August 15, 1996. Sites in exempt granular bedrock shall be evaluated using regular Tier 1 and Tier 2 procedures in this rule.

NOTE: Nongranular bedrock is subject to special bedrock assessment procedures even if groundwater monitoring wells exist at the source because the flow is not predictable by the Tier 2 model.

b. Exempt soil pathways. The soil vapor to enclosed space pathway and the soil to water lines pathway shall be assessed under the regular Tier 2 procedures in 135.10(7) and 135.10(9), respectively. In all cases, the assessment must comply with the policy of avoiding a preferential pathway to groundwater consistent with 135.8(5) and this subrule.

c. Soil and groundwater assessment. The vertical and horizontal extent of soil contamination shall first be defined to Tier 1 levels for the soil leaching to groundwater pathway without drilling into bedrock. A minimum of three groundwater monitoring wells shall be located and installed between 50 to 100 feet beyond the soil contamination Tier 1 levels to avoid creating a preferential pathway. Analytical data as normally required by these rules and guidance must be obtained.

d. Soil contamination remediation. For all sites where soil contamination exceeds the soil leaching to groundwater Tier 1 levels, soil excavation or other active soil remediation technology must be conducted in accordance with department guidance to reduce concentrations to below this Tier 1 level. Soil remediation monitoring must be conducted in accordance with 567—135.12(455B).

e. Groundwater plume definition. If it is determined the groundwater acts in a manner consistent with a granular aquifer as provided in 135.10(3) “a”(2) and guidance but does not meet the criteria for exemption under 135.10(3) “a”(3), the plume must be defined. The policy of avoiding the creation of a preferential pathway to the bedrock aquifer in accordance with 135.8(5) must be followed.

f. Soil leaching to groundwater ingestion pathway. Under this subrule, the soil leaching to groundwater pathway only need be evaluated in combination with the groundwater ingestion pathway. Because of the policies requiring soil remediation to the soil leaching to groundwater Tier 1 levels under 135.10(3) “d” and “k,” the soil leaching pathway target levels applicable to other groundwater transport pathways and other soil pathways would not be exceeded. If a soil leaching to groundwater Tier 1 level is exceeded, the pathway is high risk.

g. Special procedures for the groundwater ingestion pathway.

(1) A protected groundwater source is assumed without measurements of hydraulic conductivity for all sites designated as granular or nongranular bedrock.

(2) Groundwater well receptor evaluation for granular and nongranular bedrock designations. All drinking and non-drinking water wells within 1,000 feet of the source must be identified and tested for chemicals of concern. All public water supply systems within one mile of the source must be identified and raw water tested for chemicals of concern. All area within 1,000 feet of the source is considered a potential receptor point of exposure.

(3) Target levels. The following target levels apply regardless of granular aquifer designation. If drinking water wells are within 1,000 feet of the source, the applicable target level is the groundwater ingestion pathway Tier 1 level for actual receptors. If non-drinking water wells are within 1,000 feet of the source, the applicable target level is the groundwater ingestion pathway Tier 1 level for potential receptors. For potential wells, the applicable target level is the groundwater ingestion pathway Tier 1 level for potential receptors.

(4) Sentry well. If the Tier 1 level for actual receptors is exceeded at sites designated as granular bedrock and the receptor has not yet been impacted, a monitoring well shall be placed between the source and an actual receptor, outside the defined plume and approximately 200 feet

from the actual receptor. For alternative well placement, the certified groundwater professional must provide justification and obtain department approval. This monitoring well is to be used for monitoring potential groundwater contamination of the receptor.

(5) High risk classification. A site where bedrock is encountered before groundwater shall be classified high risk for this pathway if any of the following conditions exist regardless of granular aquifer determination: The target level at any actual receptor is exceeded; drinking water well receptors are present within 1,000 feet and groundwater concentrations in any monitoring well exceed the groundwater ingestion Tier 1 level for actual receptors; non-drinking water wells are within 1,000 feet and groundwater concentrations in any monitoring well exceed the groundwater ingestion pathway Tier 1 level for potential receptors; or for sites designated nongranular bedrock, if groundwater concentrations for chemicals of concern from any public water system well within one mile of the source exceed 40 percent of the Tier 1 level for actual receptors, and groundwater concentrations in any monitoring well exceed the groundwater ingestion Tier 1 level for actual receptors. Corrective action shall be undertaken as provided in 135.10(3) “k.”

(6) Low risk classification. Sites without an actual receptor within 1,000 feet shall be classified as low risk for this pathway if no high risk conditions exist and the Tier 1 level for potential receptors is exceeded. The site is subject to monitoring as provided in 135.10(3) “l.” If an actual receptor exists within 1,000 feet, a site designated as granular or nongranular bedrock shall be classified low risk for this pathway when soil contamination has been removed or remediated to below the soil leaching to groundwater Tier 1 levels and all groundwater monitoring wells are non-detect or below the applicable target level for actual and potential receptors. A site may be reclassified to no action required for this pathway after all monitoring wells meet the exit monitoring criteria as specified in 135.10(3) “l.” (NOTE: Exit monitoring is required because

groundwater monitoring wells are not located at the source or if they are, the data is highly unreliable given the nature of bedrock.) If actual receptors do not exist or have been properly plugged and concentrations exceed the Tier 1 level for potential receptors, institutional controls and notification to permitting authorities may be employed in accordance with 135.10(4) “h.” The institutional control must prohibit use of groundwater for 1,000 feet.

h. Special procedures for the groundwater vapor to enclosed space pathway.

(1) Soil gas plume. Soil gas measurements must be taken regardless of granular aquifer determination and in accordance with Tier 2 guidance to determine a soil gas plume. Soil gas where practical should be measured at the soil-bedrock interface. At a minimum, soil gas must be measured at the suspected area of maximum contamination and near the three monitoring wells with the highest concentrations that exceed the Tier 1 level for the groundwater to enclosed space pathway. Where the plume has been defined, soil gas measurements should be taken near wells exceeding the Tier 1 level. Other soil gas measurements must be taken as needed to define the extent of contamination where soil gas measurements exceed the soil gas vapor target levels.

(2) The soil gas target levels are those defined in 135.10(7) “f.”

(3) High risk classification. A site designated as granular or nongranular bedrock shall be classified high risk for this pathway if an actual confined space receptor exists within 50 feet of the soil gas plume based on the soil gas target level as defined in 135.10(6).

(4) Low risk classification. A site designated as granular or nongranular bedrock shall be classified as low risk for this pathway if the soil gas exceeds the vapor target level at any point and no actual confined space receptors exist within 50 feet of the soil gas contaminant plume.

i. Special procedure for the groundwater to water line pathway.

(1) Target level. The applicable target level is the Tier 1 level for the specific type of water line.

(2) High risk classification. A site designated as granular or nongranular bedrock shall be classified high risk for this pathway if the highest groundwater elevation is within three feet of the bottom of a water line as provided in 135.10(8)“a”(1), risk classification cannot be determined as provided in 567—135.12(455B) due to limitations on placement of monitoring wells, and water lines exist within 200 feet of a monitoring well that exceeds the Tier 1 level.

j. Special procedures for the surface water pathway. Any surface water body within 200 feet of the source must be evaluated under the following for sites designated as granular or nongranular bedrock. The provisions of 135.10(10) apply to the extent they are not inconsistent with the following, including the visual inspection requirements.

(1) Point of compliance. The monitoring well closest to the surface water body must be used as the point of compliance to evaluate impacts to designated use segments as described in 135.10(10) and for general use segments that fail the visual inspection criteria of 135.10(10)“b.” If the surface water criteria are exceeded for a designated use segment, an allowable discharge concentration must be calculated and met at the point of compliance. For general use segments failing the visual inspection criteria, the acutely toxic target level must be met at the point of compliance.

(2) High risk classification. A site designated as granular or nongranular bedrock shall be classified high risk for this pathway if the surface water body is within 200 feet of the source, risk classification cannot be determined as per 567—135.12(455B) due to limitations on placement of monitoring wells, and the monitoring well closest to the designated use segment exceeds the allowable discharge concentration. A general use segment failing the visual

inspection criteria is high risk if, after the sheen is removed, the monitoring well closest to the general use segment exceeds the acutely toxic target level.

(3) Low risk classification. If the allowable discharge concentration is not exceeded at the point of compliance, the site shall be classified as low risk for this pathway and subject to monitoring under 135.10(3)“l.” The monitoring well closest to the receptor shall serve as the sentry well for monitoring purposes.

k. High risk corrective action response. Owners and operators have the option to conduct a Tier 3 assessment in accordance with 567—135.11(455B).

(1) Groundwater ingestion pathway. For high risk sites, where soil exceeds the soil leaching to groundwater Tier 1 level for actual receptors, soil excavation or other active remediation of soils must be conducted in accordance with department guidance to reduce soil concentrations to below the soil leaching Tier 1 level. Corrective action other than monitoring of groundwater is required at sites designated as nongranular bedrock if the actual receptor has been or is likely to be impacted. Corrective action other than monitoring of groundwater is required at sites designated as granular bedrock if the actual receptor has been impacted or the sentry well required by 135.10(3)“g”(4) has been impacted above Tier 1 levels. Acceptable corrective action for impacted or vulnerable groundwater wells may include active remediation, technological controls, institutional controls, well plugging, relocation, and well reinstallation with construction measures sufficient to prevent contaminant infiltration to the well and to prevent formation of a preferential pathway.

(2) Groundwater ingestion pathway high risk monitoring. For high risk sites designated as nongranular or granular bedrock, if the soil concentrations do not exceed the soil leaching to groundwater Tier 1 levels or have been reduced to this level by corrective action, and corrective

action of groundwater is not required as in 135.10(3)“k”(1), these sites shall be subject to groundwater monitoring as provided in 135.10(3)“l.” Corrective action other than monitoring of groundwater is required at sites designated as granular bedrock if groundwater concentrations exceed the applicable target level less than 200 feet from an actual receptor. Reevaluation of the potential for impact to actual receptors is required at sites designated as nongranular bedrock if concentrations from monitoring wells increase more than 20 percent of the previous samples.

(3) For water line pathways. For high risk sites, active remediation must be conducted to reduce concentrations below the applicable target levels, or water lines and gaskets must be replaced or relocated, including the use of institutional and technological controls. If lines are polybutylene, polyethylene, or asbestos-cement, the lines must be removed or relocated. All water lines that are replaced must be replaced with water line materials and gasket materials of appropriate construction in accordance with current department standards set forth in 567—Chapter 43 and with no less than nitrile or FKM gaskets or as otherwise approved by the department.

(4) Other pathways. For high risk sites other than groundwater ingestion and water lines, active remediation must be conducted to reduce concentrations below the applicable target levels, including the use of institutional and technological controls.

l. Monitoring. For high and low risk sites, annual monitoring at a minimum is required as specified below, and potential receptor status for low risk sites must be confirmed. Annual monitoring may be used to meet the exit requirements for no action required classification in accordance with 135.10(3)“m.”

(1) Groundwater in nongranular bedrock designations. All groundwater monitoring wells must be monitored at least annually.

(2) Groundwater in granular bedrock designations. The following monitoring wells must be monitored at least annually: a well with detected levels of contamination closest to the leading edge of the groundwater plume between the source and the receptor, and a sentry well with concentrations below the applicable target level consistent with 135.10(3)“g”(4) and 135.10(3)“j.”

(3) Soil gas. For sites where the soil gas target level is exceeded, annual monitoring of soil gas is required at the suspected area of maximum contamination and between the soil gas plume and any actual receptors within 100 feet of the soil gas plume.

m. No action required classification. A site may be given a no action required classification after conducting a Tier 2 assessment as provided in this subrule if maximum soil concentrations do not exceed the Tier 1 levels for the soil leaching pathway, and if groundwater exit monitoring criteria and soil gas confirmation sampling are met as specified below.

(1) Groundwater in nongranular bedrock designations. Exit monitoring requires that samples from all groundwater monitoring wells must not exceed the applicable target levels for annual sampling for three consecutive years. If soil contamination above a Tier 1 level is not identified or if an overexcavation has successfully removed all soil contamination greater than a Tier 1 level and monitoring wells are installed in the source area, exit monitoring criteria are met when two consecutive samples collected at least six months apart from all monitoring wells show concentrations less than the lowest target level.

(2) Groundwater in granular bedrock designations. Exit monitoring must be met in two ways: A monitoring well between the source and the receptor must not exceed applicable target levels for three sampling events, and samples must be separated by at least six months; and the three most recent consecutive groundwater samples from a monitoring well between the source and the

receptor with detected levels of contamination must show a steady or declining trend and meet the following criteria: The first of the three samples must be greater than detection limits, concentrations cannot increase more than 20 percent from the first of the three samples to the third sample; concentrations cannot increase more than 20 percent from the previous sample; and samples must be collected at least six months apart.

(3) Soil gas. Confirmation sampling for soil gas must be conducted as specified in 135.12(6) “c.”

n. Properly plugged monitoring wells. After receiving a no action required classification, all monitoring wells must be properly plugged in accordance with 567—Chapters 39 and 49.

135.10(4) *Groundwater ingestion pathway assessment.*

a. Pathway completeness. Unless cleared at Tier 1, this pathway is complete and must be evaluated under any of the following conditions: (1) the first encountered groundwater is a protected groundwater source; or (2) there is a drinking water well or a non-drinking water well within the modeled groundwater plume or the actual plume as provided in 135.10(2) “j” and “k.”

b. Receptor evaluation. All drinking and non-drinking water wells located within 100 feet of the largest actual plume (defined to the appropriate target level for the receptor type) must be tested, at a minimum, for chemicals of concern as part of the receptor evaluation. Actual plumes refer to groundwater plumes for all chemicals of concern. Untreated or raw water must be collected for analysis unless it is determined to be infeasible or impracticable.

All existing drinking water wells and non-drinking water wells within the modeled plume or the actual plume as provided in 135.10(4) “a” must be evaluated as actual receptors. Potential receptors only exist if the groundwater is a protected groundwater source. Potential receptor points of exposure are those points within the modeled plume or actual plume that exceed the

potential point of exposure target level. The point(s) of compliance for actual receptor(s) is the receptor. The point(s) of compliance for potential receptor(s) is the potential receptor point of exposure as provided in 135.10(2) “j” and “k.”

c. Target levels. For drinking water wells, the target level at the point(s) of exposure is the Tier 1 level for actual receptors. For non-drinking water wells, the target level at the point(s) of exposure is the Tier 1 levels for potential receptors. For potential receptors, the target level at the potential receptor point(s) of exposure is the Tier 1 level for potential receptors.

d. Pathway evaluation. The soil leaching to groundwater pathway must be evaluated in accordance with 135.9(5) if this pathway is complete.

e. Modeling. At Tier 2, the groundwater well located within the modeled plume is assumed to be drawing from the contaminated aquifer, and the groundwater transport model is designed to predict horizontal movement to the well. If the groundwater professional determines that assessment of the vertical movement of contamination is advisable to determine the potential or actual impact to the well source, a Tier 3 assessment of this vertical pathway may be conducted. The groundwater professional shall submit a work plan to the department specifying the assessment methods and objectives for approval in accordance with 567—135.11(455B). Factors that should be addressed include but are not limited to well depth and construction, radius of influence, hydrogeologic separation of aquifer, preferential pathways, and differing water quality characteristics.

f. Plume definition. The groundwater plume shall be defined to the applicable Tier 1 level for actual receptors except, where there are no actual receptors and the groundwater is a protected groundwater source, the plume shall be defined to the Tier 1 level for potential receptors.

g. Pathway classification. This pathway shall be classified as high risk, low risk or no action required in accordance with 567—135.12(455B).

h. Corrective action response. Corrective action must be conducted in accordance with 567—135.12(455B). Abandonment and plugging of wells in accordance with 567—Chapters 39 and 49 is an acceptable corrective action response.

i. Use of institutional controls. Institutional controls may be used to obtain no action required pathway classification. If the pathway is complete and the concentrations exceed the applicable Tier 1 level(s) for actual receptors, the drinking or non-drinking water well must be properly plugged in accordance with 567—Chapters 39 and 49 and the institutional control must prohibit the use of a protected groundwater source (if one exists) within the actual or modeled plume as provided in 135.10(2)“j” and “k.” If the Tier 1 level is exceeded for potential receptors, the institutional control must prohibit the use of a protected groundwater source within the actual or modeled plume, whichever is greater. If concentrations exceed the Tier 1 level for drinking water wells and the groundwater is a protected groundwater source, the owner or operator must provide notification of the site conditions on a department form to the department water supply section, or if a county has delegated authority, then the designated county authority responsible for issuing private water supply construction permits or regulating non-public water well construction as provided in 567—Chapters 39 and 49.

j. Notification of well owners. Upon receipt of a Tier 2 site cleanup report and as soon as practicable, the department shall notify the owner of any public water supply well identified within the Tier 2 site cleanup report that a leaking underground storage tank site is within 2,500 feet and an assessment has been performed.

135.10(5) *Soil leaching to groundwater pathway assessment.*

a. General. The soil leaching to groundwater pathway is evaluated using a one-dimensional model that predicts vertical movement of contamination through soil to groundwater and transported by the groundwater to a receptor. The model is used to predict the maximum concentrations of chemicals of concern that would be present in groundwater beneath a source that is representative of residual soil contamination and maximum soil concentrations. The predicted groundwater concentrations then must be used as a groundwater source concentration to evaluate its impact on other groundwater transport pathways, including the groundwater ingestion pathway, the groundwater vapor pathway, the groundwater water line pathway and the surface water pathway.

b. Pathway completeness. This pathway is complete whenever a groundwater transport pathway is complete as provided in this rule.

c. Plume definition. The soil plume shall be defined to the Tier 1 levels for the soil leaching to groundwater pathway.

d. Receptor evaluation. Receptors for this pathway are the same as the receptors for each complete groundwater transport pathway.

e. Modeling and target levels. The soil and groundwater parameters shall be measured as provided in 135.10(2).

The soil leaching to groundwater model shall be used to calculate the predicted groundwater source concentration. Each applicable groundwater transport pathway model shall then be used in accordance with the rules for that pathway to predict potential impact to actual receptors, the location of potential receptor points of exposure and the SSTL in groundwater at the source. This SSTL then is used to calculate a SSTL for soil at the source. If the soil concentrations exceed the SSTL for soil, corrective action response shall be evaluated.

f. Corrective action response. If the maximum soil concentration at the source exceeds the SSTL for soil for actual or potential receptors, corrective action must be taken in accordance with 567—135.12(455B).

135.10(6) *Groundwater vapor to enclosed space pathway assessment.*

a. Pathway completeness. Unless cleared at Tier 1, this pathway is always considered complete for purposes of Tier 2.

b. Explosive vapor survey. If an explosive vapor survey has not been conducted as part of a Tier 1 assessment, an explosive vapor survey of enclosed spaces must be conducted during the Tier 2 assessment in accordance with 135.9(6) “*b*” and procedures outlined in the department’s Tier 1 guidance.

c. Confined space receptor evaluation. Actual and potential receptors are evaluated at Tier 2 for this pathway.

(1) Actual receptors. An existing confined space within the modeled groundwater plume or the actual groundwater plume as provided in 135.10(2) “*j*” and “*k*” is an actual receptor. For the purpose of Tier 2, a confined space is a basement in a building occupied by humans. Buildings constructed with a concrete slab on grade or buildings constructed without a concrete slab, but with a crawl space are not considered confined spaces. Sanitary sewers are considered confined space receptors and preferential pathways if an occupied building exists within 200 feet of where the sewer line crosses over or through actual or modeled groundwater contamination that exceeds the target levels calculated for sewers. The sanitary sewer includes its utility envelope. The point of exposure is the receptor and points of compliance include the locations where target level measurements may be taken as provided in 135.10(6) “*f*” and “*g*.”

(2) Potential receptors. Potential receptors are confined spaces that do not presently exist but could exist in the future. Areas within the actual groundwater plume perimeter or modeled groundwater plume perimeter are considered potential receptor points of exposure. Potential receptors are evaluated and target levels established based on the current zoning as provided in 135.10(6)“f.” The potential receptor point of exposure is a point of compliance.

d. Vapor inhalation hazards. Owners and operators may be required to address vapor inhalation hazards in occupied spaces other than confined spaces as defined in these rules when evidence arises that would give the department a reasonable basis to believe vapor hazards are present or may occur.

e. Plume definition.

(1) The soil plume must be defined in accordance with 135.10(2)“f” for the purposes of estimating source width and source length used in soil leaching to groundwater and groundwater transport models.

(2) The groundwater plume must be defined to the target levels derived from site-specific data as provided in 135.10(6)“f.”

f. Target levels. Target levels can be based on groundwater concentrations, soil gas measurements, and indoor vapor measurements as provided below.

(1) For actual receptors and potential receptors, groundwater modeling as provided in 135.10(2) is used to calculate the groundwater concentration target level at the point of exposure. Default residential exposure factors, default residential building parameters, and a target risk of 10^{-4} are used to determine target levels for actual receptors and potential receptor points of exposure in residential areas and areas with no zoning. Default nonresidential exposure factors, default nonresidential building parameters, and a target risk of 10^{-4} are used to determine target

levels for actual receptors and potential receptor points of exposure in nonresidential areas. Default values are provided in Appendices A and B.

(2) For actual receptors, the indoor vapor target levels are designated in 135.10(7) “f.” For actual and potential receptors, the soil gas target levels are designated in 135.10(7) “f.”

(3) Sanitary sewers are treated as human health receptors, and groundwater concentration target levels at the point of exposure are based on the application of a target risk of 2×10^{-4} for carcinogens and a hazard quotient of 2 for noncarcinogens.

g. Pathway evaluation and classification. Upon completion of evaluation of analytical results of appropriate samples and modeled data, the pathway must be classified high risk, low risk or no further action as provided in 567—135.12(455B).

(1) Actual receptors. If it can be demonstrated that the groundwater plume has reached steady state concentrations under a confined space, indoor vapor measurements at the point(s) of exposure and soil gas measurements at an alternative point(s) of compliance may be used for the pathway evaluation. When assessing sanitary sewers for pathway clearance, soil gas measurements may be evaluated against the soil gas target levels; however, indoor vapor cannot be used as criteria for pathway clearance. Soil gas measurements shall be taken and analyzed in accordance with 135.16(5) and the department’s Tier 2 guidance, and at locations in the plume where measured groundwater concentrations exceed the levels that are projected by modeling to exist beneath the actual receptor. If measured groundwater concentrations beneath the actual receptor exceed the levels projected from modeling, then the soil gas measurements may be taken either adjacent to the actual receptor in areas expected to exhibit the greatest soil gas measurements or at an alternative point of compliance between the source and receptor where the actual groundwater concentrations exceed the groundwater concentrations that exist beneath the

confined space. If the soil gas measurements and confirmation samples taken in accordance with 135.12(6)“c” do not exceed the soil gas target levels, the pathway as to actual receptors shall be classified no action required. If the soil gas target levels are exceeded, either the pathway shall be classified high risk, or indoor vapor measurements may be taken in accordance with the department’s Tier 2 guidance. If indoor vapor measurements and confirmation samples do not exceed the indoor vapor target levels, the pathway as to actual confined space receptors shall be classified no action required. If the Tier 1 indoor vapor target levels are exceeded, the pathway shall be classified high risk.

(2) Potential receptors. If the potential receptor groundwater concentration target level(s) is exceeded at any potential receptor point of exposure based on actual data or modeling, the pathway shall be classified low risk. However, if soil gas measurements taken at the potential receptor point(s) of exposure and alternate point(s) of compliance and confirmation samples do not exceed the target levels in 135.10(7)“f,” the pathway, as to potential receptors, shall be classified no action required. If the target level(s) for potential sanitary sewer receptors is exceeded, the pathway shall be classified as low risk. Where the area of potential receptor exposure includes public right-of-way, the pathway may be classified as no action required if the owner or operator provides sufficient documentation to establish that there are no foreseeable plans for construction of sanitary sewers through the area of potential receptor exposure. The municipal authority must acknowledge consent to the no action required classification whenever target levels are exceeded. If the municipal authority reports that it has confirmed plans for construction of sanitary sewers through the area of potential receptor exposure, the pathway shall be reevaluated as an actual receptor.

h. Corrective action response. Unless the pathway is classified as no action required, corrective action for this pathway must be conducted as provided in 567—135.12(455B). Actual receptors are subject to corrective actions that (1) reduce groundwater concentrations beneath the enclosed space to below the target level; (2) reduce the measured soil gas levels to below the soil gas target levels; (3) reduce the indoor vapor concentrations to below the indoor vapor target level; or (4) reduce the vapor level to below 10 percent of the lower explosive limit (LEL), if applicable. Potential receptors are subject to the monitoring requirements in 135.12(5). Soil vapor monitoring may be conducted in lieu of groundwater monitoring for this pathway. Institutional or technological controls as provided in 567—135.12(455B) may be used.

i. Municipal authority notification for potential sewer receptors. The municipal authority responsible for sewer construction must be notified of the environmental conditions whenever target level(s) is exceeded for potential sanitary sewers. The notification must show the area where groundwater concentrations and soil gas samples exceed target levels. The owner or operator must acknowledge what plans, if any, exist for construction of sanitary sewers through the area of potential receptor exposure.

135.10(7) *Soil vapor to enclosed space pathway assessment.*

a. Pathway completeness. Unless cleared at Tier 1, this pathway is always considered complete for purposes of Tier 2.

b. Explosive vapor survey. If an explosive vapor survey has not been conducted as part of a Tier 1 assessment, an explosive vapor survey of enclosed spaces must be conducted during the Tier 2 assessment in accordance with 135.9(6) “b” and procedures outlined in the department’s Tier 1 guidance.

c. Confined space receptor evaluation. Actual and potential receptors are evaluated at Tier 2 for this pathway.

(1) Actual receptors. An existing confined space within 50 feet of the edge of the plume is an actual receptor. For the purpose of Tier 2, a confined space is a basement in a building occupied by humans. Buildings constructed with a concrete slab on grade or buildings constructed without a concrete slab, but with a crawl space are not considered receptors. Sanitary sewers are considered confined space receptors and preferential pathways if an occupied building exists within 200 feet of where the sewer line crosses over or through soil contamination that exceeds the target levels calculated for sewers. The sanitary sewer includes its utility envelope. The point of exposure is the receptor and points of compliance include the locations where target level measurements may be taken as provided in 135.10(7) “f” and “g.”

(2) Potential receptors. Potential receptors are confined spaces that do not presently exist but could exist in the future. Areas where soil concentrations are greater than the Tier 1 level applicable to residential areas or alternative target levels for nonresidential areas as specified in 135.10(7) “f” are considered potential receptor points of exposure. Potential receptors are evaluated and target levels established based on the current zoning. An area with no zoning is considered residential. The potential receptor point of exposure is a point of compliance.

d. Vapor inhalation hazards. Owners and operators may be required to address vapor inhalation hazards in occupied spaces other than confined spaces as defined in these rules when evidence arises that would give the department a reasonable basis to believe vapor hazards are present or may occur.

e. Plume definition. The soil plume must be defined to the Tier 1 level for this pathway unless vapor measurements taken at the area(s) with the maximum levels of soil contamination do not

exceed the soil gas target level in 135.10(7) “f.” If soil gas measurements taken from the area(s) of maximum soil concentration do not exceed target levels, confirmation sampling must be conducted in accordance with 135.12(6) “c” prior to proposing a no action pathway classification.

f. Target levels. Target levels can be based on soil concentrations, soil gas measurements, and indoor vapor measurements as provided below:

(1) For actual receptors, the soil concentration target level is the Tier 1 level. For potential receptors, the soil concentration target level for residential areas and areas with no zoning is the Tier 1 level. For areas zoned nonresidential, the target level is calculated using the default nonresidential exposure factors and building parameters from Appendix A and a target risk of 10^{-4} .

(2) The following indoor vapor target levels apply to actual receptors other than sanitary sewers and the soil gas target levels apply to all actual and potential receptors. These levels were derived from the ASTM indoor air inhalation and the soil vapor to enclosed space models designated in Appendix A.

	Indoor Vapor ($\mu\text{g}/\text{m}^3_{\text{air}}$)	Soil Gas ($\mu\text{g}/\text{m}^3$)
Benzene	39.2	600,000
Toluene	555	9,250,000

(3) Sanitary sewers are treated as human health receptors, and soil concentration target levels at the point of exposure are based on application of a target risk of 2×10^{-4} for carcinogens and hazard quotient of 2 for noncarcinogens.

g. Pathway evaluation and classification.

(1) Actual receptors. Confined space receptors may be evaluated using soil gas measurements and indoor vapor measurements. When assessing sanitary sewers for pathway clearance, soil gas

measurements may be evaluated against the soil gas target levels, however, indoor vapor cannot be used as criteria for pathway clearance. Soil gas measurements shall be taken adjacent to the actual receptor or at an alternative point of compliance between the source and receptor such as the property boundary and in accordance with 135.16(5) and the department's Tier 2 guidance. If the soil gas measurements and confirmation samples taken in accordance with 135.12(6) "c" do not exceed the soil gas target levels, the pathway as to actual receptors shall be classified no action required. If the soil gas target levels are exceeded, either the pathway shall be classified high risk, or indoor vapor measurements may be taken in accordance with the department's Tier 2 guidance. If indoor vapor measurements and confirmation samples do not exceed the indoor vapor target levels, the pathway as to actual receptors shall be classified no action required. If the indoor vapor target levels are exceeded, the pathway shall be classified high risk.

(2) Potential receptors. If the potential receptor target level(s) based on soil concentrations is exceeded at any potential receptor point of exposure, the pathway shall be classified low risk. However, if soil gas measurements taken at the potential receptor point(s) of exposure and alternate point(s) of compliance and confirmation samples do not exceed the target levels in 135.10(7) "f," the pathway shall be classified no action required as to potential receptors. If the target level(s) for potential sanitary sewer receptors is exceeded, the pathway shall be classified as low risk. Where the area of potential receptor exposure includes public right-of-way, the pathway may be classified as no action required if the owner or operator provides sufficient documentation to establish that there are no foreseeable plans for construction of sanitary sewers through the area of potential receptor exposure. The municipal authority must acknowledge consent to the no action required classification whenever target levels are exceeded. If the

municipal authority reports that it has confirmed plans for construction of sanitary sewers through the area of potential receptor exposure, the pathway shall be reevaluated as an actual receptor.

h. Corrective action response. Unless the pathway is classified as no action required, corrective action for this pathway must be conducted as provided in 567—135.12(455B) and in accordance with department Tier 2 guidance. Actual receptors are subject to corrective actions that (1) reduce the indoor vapor concentrations to below the target level; (2) reduce measured soil gas levels to below the soil gas target levels; and (3) if applicable, reduce the vapor level to below 10 percent of the lower explosive limit (LEL). Potential receptors are subject to monitoring requirements as provided in 135.12(5). Soil vapor monitoring may be conducted in lieu of soil monitoring for this pathway. Institutional or technological controls as provided in 567—135.12(455B) may be used.

i. Municipal authority notification for potential sewer receptors. The municipal authority responsible for sewer construction must be notified of the environmental conditions whenever target level(s) is exceeded for potential sanitary sewers. The notification must show the area where soil concentrations and soil gas samples exceed target levels. The owner or operator must acknowledge what plans, if any, exist for construction of sanitary sewers through the area of potential receptor exposure.

135.10(8) *Groundwater to water line pathway assessment.*

a. Pathway completeness and receptor evaluation.

(1) Actual receptors include all water lines where the highest groundwater elevation is higher than three feet below the bottom of the water line at the measured or predicted points of exposure. The highest groundwater elevation is the estimated average of the highest measured groundwater elevations for each year. All water lines must be evaluated for this pathway regardless of distance

from the source and regardless of the Tier 1 evaluation, if the lines are in areas with actual data above the applicable Tier 1 level and modeled data above the SSTL line. If actual data exceeds modeled data, then all water lines are considered actual receptors if they are within a distance extending 10 percent beyond the edge of the contaminant plume defined by the actual data.

(2) Potential receptors include all areas where the first encountered groundwater is less than 20 feet deep and where actual data or modeled data are above Tier 1 levels.

(3) The point(s) of exposure is the water line, and the points of compliance are monitoring wells between the source and the water line that would be effective in monitoring whether the line has been or may be impacted by chemicals of concern.

b. Plume definition. If this pathway is complete for an actual receptor, the groundwater plume must be defined to the Tier 1 levels, with an emphasis between the source and any actual water lines. The water inside the water lines shall be analyzed for all chemicals of concern.

c. Target levels. Groundwater modeling as provided in 135.10(2) must be used to calculate the projected concentrations of chemicals of concern and site-specific target levels. The soil leaching to groundwater pathway must be evaluated to ensure contaminated soil will not cause future groundwater concentrations to exceed site-specific target levels. The target level at the point(s) of exposure is the Tier 1 level.

d. Pathway evaluation and classification. Upon completion of evaluation of analytical results of appropriate samples and modeled data, the pathway must be classified high risk, low risk or no further action as provided in 567—135.12(455B). The water quality inside the water lines is not a criterion for clearance of this pathway.

e. Utility company notification. The utility company that supplies water service to the area must be notified of all actual and potential water line impacts as soon as knowledge of a potential

risk is determined. If the extent of contamination has been defined, this information must be included in utility company notification, and any previous notification made at Tier 1 must be amended to include this information.

f. Corrective action response.

(1) For actual receptors, unless the pathway is classified as no further action, corrective action for this pathway must be conducted as provided in 567—135.12(455B). If the concentrations of chemicals of concern in a water line exceed the Tier 1 levels for actual receptors for the groundwater ingestion pathway, immediate corrective action must be conducted to eliminate exposure to the water, including but not limited to replacement of the line with an approved material.

(2) For potential receptors, upon utility company notification, no further action will be required for this pathway for potential receptors.

135.10(9) *Soil to water line pathway assessment.*

a. Pathway completeness and receptor evaluation.

(1) All water lines must be evaluated for this pathway regardless of distance from the source if the lines are in areas where Tier 1 levels are exceeded. Actual receptors include all water lines within ten feet of the soil plume defined to the Tier 1 level, unless it can be demonstrated that the water line inside the soil plume is not in contact with the soil contamination.

(2) Potential receptors include all areas where Tier 1 levels are exceeded.

b. Plume definition. The extent of soil contamination must be defined to Tier 1 levels for the chemicals of concern.

c. Target level. The point(s) of exposure includes all areas within ten feet of the water line. The target level at the point(s) of exposure is the Tier 1 level.

d. Pathway classification. Upon completion of evaluation of analytical results of appropriate samples, the pathway must be classified high risk, low risk or no further action as provided in 567—135.12(455B). Measurements of water quality inside the water lines may be required, but are not allowed as criteria to clear this pathway.

e. Utility company notification. The utility company that supplies water service to the area must be notified of all actual and potential water line impacts as soon as knowledge of the potential risk is determined. If the extent of contamination has been defined, this information must be included in utility company notification, and any previous notification made at Tier 1 must be amended to include this information.

f. Corrective action response.

(1) For actual receptors, unless the pathway is classified as no further action, corrective action for this pathway must be conducted as provided in 567—135.12(455B).

(2) For potential receptors, upon utility company notification, no further action will be required for this pathway for potential receptors.

135.10(10) *Surface water pathway assessment.*

a. Pathway completeness. Unless maximum concentrations are less than the applicable Tier 1 levels, this pathway is complete and must be evaluated under any of the following conditions: (1) there is a designated use surface water within the modeled groundwater plume or the actual plume as provided in 135.10(2) “f” and “g”; or (2) any surface water body that failed the Tier 1 visual inspection as provided in 135.9(10).

b. Visual inspection. A visual inspection must be conducted according to 135.9(10) “c.” If a sheen or residue from a petroleum-regulated substance is present, soil and groundwater sampling

must be conducted to identify the source of the release and to define the extent of the contaminant plume to the levels acutely toxic to aquatic life as provided in 567—subrule 61.3(2).

c. Receptor evaluation.

(1) Surface water criteria apply only to designated use segments of surface water bodies as provided in 567—subrules 61.3(1) and 61.3(5). If the surface water body is a designated use segment and if maximum groundwater concentrations exceed applicable surface water criteria, the extent of contamination must be defined as provided in 135.10(10)“d.”

The point of compliance for measuring chemicals of concern at the point of exposure is the groundwater adjacent to the surface water body because surface water must be protected for low flow conditions. In-stream measurements of concentrations are not allowed as a basis for no further action.

(2) If the visual inspection indicates the presence of a petroleum sheen in a general use segment within 200 feet of the source, as defined in 567—paragraph 61.3(1)“a,” the segment must be evaluated as an actual receptor. The point of compliance for measuring chemicals of concern at the point of exposure is the groundwater adjacent to the general use segment.

d. Plume definition. The groundwater plume must be defined to the surface water criteria levels for designated use segment receptors and to the acutely toxic levels for general use segment receptors, with an emphasis between the source and the surface water body.

e. Target levels. Determining target levels for this pathway involves a two-step process.

(1) Groundwater modeling as provided in 135.10(2) must be used to calculate the projected concentrations of chemicals of concern at the point of compliance. If the modeled concentrations or field data at the point of compliance exceed surface water criteria for designated use segments, an allowable discharge concentration must be calculated. If the projected concentrations and

actual concentrations at the point of compliance do not exceed surface water criteria, no further action is required to assess this pathway.

(2) The department water quality section will calculate the allowable discharge concentration using information provided by the certified groundwater professional on a department form. Required information includes, at a minimum, the site location and a discharge flow rate calculated according to the department's Tier 2 guidance. The allowable discharge concentration is the target level that must be met adjacent to the surface water body that is the point of compliance.

(3) The target level at the point of exposure/compliance for general use segments subject to evaluation is the acutely toxic levels established by the department under 567—Chapter 61 and 567—subrule 62.8(2). If the modeled concentrations of contaminant concentrations at the point of exposure/compliance exceed the acutely toxic levels, modeling must be used to determine site classifications and corrective action in accordance with 567—135.12(455B).

f. Pathway evaluation and classification. Upon completion of evaluation of analytical results of appropriate samples and modeled data, the pathway must be classified high risk, low risk or no further action as provided in 567—135.12(455B).

(1) For general use segments, as defined in 567—subrule 61.3(1), if the groundwater professional determines there is no sheen or residue present or if the site is not the source of the sheen or residue or if the sheen does not consist of petroleum-regulated substances, no further action is required for assessment of this pathway. If a petroleum-regulated substance sheen is present, the pathway is high risk and subject to classification in accordance with 567—135.12(455B).

(2) For designated use segments, as provided in 567—subrules 61.3(1) and 61.3(5), if projected concentrations of chemicals of concern and actual contaminant concentrations at the point of compliance do not exceed the target level adjacent to the surface water, and the groundwater professional determines there is no sheen or residue present, no further action is required for assessment of this pathway.

g. Corrective action response. Unless the pathway is classified as no further action, corrective action for this pathway must be conducted as provided in 567—135.12(455B). For surface water bodies failing the visual inspection criteria, corrective action must eliminate the sheen and reduce concentrations to below the site specific target level in accordance with 567—135.12(455B).

135.10(11) *Tier 2 submission and review procedures.*

a. Owners and operators must submit a Tier 2 site cleanup report within 180 days of the date the department approves or is deemed to approve a Tier 1 assessment report under 135.9(12). If the owner or operator has elected to conduct a Tier 2 assessment instead of a Tier 1, or a Tier 2 assessment is required due to the presence of free product under 135.7(4), the Tier 2 site cleanup report must be submitted within 180 days of the date the release was confirmed. The department may establish an alternative schedule for submittal.

b. Site cleanup report completeness and accuracy. A Tier 2 site cleanup report is considered to be complete if it contains all the information and data required by this rule and the department's Tier 2 guidance. The report is considered accurate if the information and data are reasonably reliable based first on the standards in these rules and department guidance, and second, on generally accepted industry standards.

c. The certified groundwater professional responsible for completion of the Tier 2 site assessment and preparation of the report must accompany each Tier 2 site cleanup report with a certification as set out below:

I, _____, groundwater professional certification number _____, am familiar with all applicable requirements of Iowa Code section 455B.474 and all rules and procedures adopted thereunder including, but not limited to, the Department of Natural Resources' Tier 2 guidance. Based on my knowledge of those documents and the information I have prepared and reviewed regarding this site, UST registration number _____, LUST No. _____, I certify that this document is complete and accurate as provided in 135.10(11) and meets the applicable requirements of the Tier 2 site cleanup report.

Signature

Date

d. Upon receipt of the groundwater professional's certified Tier 2 report, the groundwater professional's proposed site classification for the site shall be determinative unless, within 90 days of receipt, the department identifies material information in the report that is inaccurate or incomplete. Material information may be data found to be inaccurate or incomplete or a report that lacks information that, if accurate and complete, would result in a different site or pathway classification than proposed by the certified groundwater professional. If the department determines that the site cleanup report is inaccurate or incomplete, the department shall notify the groundwater professional of the inaccurate or incomplete information within 90 days of receipt of the report and shall work with the groundwater professional and the party responsible for cleanup to obtain correct information or additional information necessary to appropriately

classify the site. If the groundwater professional recommends proceeding to Tier 3, the groundwater professional's site classification and any pathway classification recommendations subject to or influenced by a Tier 3 assessment shall not be considered determinative until the Tier 3 report is submitted for review as provided in 567—135.11(455B).

e. If a “no action required” site classification is proposed, the department shall review the report in accordance with 135.12(6) and the review standards in 135.10(11) “*d.*”

f. The department may, in the interest of minimizing environmental or public health risks and promoting a more effective cleanup, require owners and operators to begin cleanup of soil and groundwater before the Tier 2 site cleanup report is approved.

567—135.11(455B) Tier 3 site assessment policy and procedure.

135.11(1) *General.* Tier 3 site assessment. Unless specifically limited by rule or an 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 under 567—135.10(455B) or as an alternative to completion of a corrective action design report under 567—135.12(455B). Prior to conducting a Tier 3 site assessment, a groundwater professional must submit a work plan to the department for approval. The work plan must contain an evaluation of the specific site conditions that justify the use of a Tier 3 assessment, an outline of the proposed Tier 3 assessment procedures, a reporting format and a method for determining a risk classification consistent with the provisions underlying the risk classification system in 567—135.12(455B). Upon approval, the groundwater professional may implement the assessment plan and submit a report within a reasonable time designated by the department.

135.11(2) *Tier 3 site assessment.* A Tier 3 assessment may include but is not limited to the use of more site-specific or multidimensional models and assessment data, methods for

calibrating Tier 2 models to make them more predictive of actual site conditions, and more extensive assessment of receptor construction and vulnerability to contaminant impacts. If use of Tier 2 models is proposed with substitution of other site-specific data (as opposed to the Tier 2 default parameters), the groundwater professional must adequately justify how site-specific data is to be measured and why it is necessary. The groundwater professional must demonstrate that the proposal has a proven applicability to underground storage tank sites or similar conditions or has a strong theoretical basis for applicability and is not biased toward underestimating assessment results. The Tier 3 assessment report shall make a recommendation for site classification as high risk, low risk or no action required, at least two corrective action response technologies and provide justification consistent with the standards and policies underlying risk classification and corrective action response under 567—135.12(455B) and Iowa Code chapter 455B, subchapter IV, part 8.

135.11(3) *Review and submittal.* The department will review the Tier 3 assessment for compliance with the terms of the approved work plan and based on principles consistent with these rules and Iowa Code chapter 455B, subchapter IV, part 8. Upon approval of the Tier 3 assessment, the department may require corrective action in accordance with 567—135.12(455B).

567—135.12(455B) Tier 2 and 3 site classification and corrective action response.

135.12(1) *General.* Iowa Code section 455B.474(1)“a”(4)(b) provides that sites shall be classified as high risk, low risk and no action required. Risk classification is accomplished by comparing actual contaminate concentrations to the concentrations that are predicted by the use of models. Concentrations must be compared to the simulation model that uses the maximum concentrations at a source and predicts at what levels actual or potential receptors could be

impacted in the future. Concentrations must also be compared to the site-specific target level line that assumes a target level concentration at the point of exposure and is used to predict the reduction in concentration that must be achieved at the source in order to meet the applicable target level at the point of exposure. These models not only predict concentrations at points of exposure or a point of compliance at a source but also predict a distribution of concentrations between the source and the point of exposure, which may also be points of compliance. The comparison of contaminate concentrations with these distribution curves primarily is considered for purposes of judging whether the modeled data is reasonably predictive and what measures such as monitoring are prudent to determine the reliability of modeled data and actual contaminate concentrations.

For the soil vapor to enclosed space and soil to water line pathways, there are no horizontal transport models to use for predicting future impacts. Therefore, for these pathways, sites are classified as high risk, low risk or no action required based on specified criteria below and in 567—135.10(455B).

135.12(2) *High risk classification.* Except as provided below, sites shall be classified as high risk if, for any pathway, any actual contaminate concentrations exceed the site-specific target level line at any point for an actual receptor.

a. For the soil vapor to enclosed space and soil to water line pathways, sites shall be classified as high risk if the target levels for actual receptors are exceeded as provided in 135.10(7) and 135.10(9).

b. For the soil vapor or groundwater vapor to enclosed space pathways, sites shall be classified as high risk if the explosivity levels at applicable points of compliance are exceeded as provided in 135.10(6) and 135.10(7).

c. Generally, sites are classified as low risk if only potential receptor points of compliance are exceeded. The following is an exception. For the soil leaching to groundwater ingestion pathway for potential receptor conditions, the site shall be classified as high risk if the groundwater concentration(s) exceeds the groundwater Tier 1 level for potential receptor and the soil concentration exceeds the soil leaching site-specific target level at the source.

135.12(3) *High risk corrective action response.*

a. Objectives. The primary objectives of corrective action in response to a high risk classification are both short-term and long-term. The short-term goal is to eliminate or reduce the risk of exposure at actual receptors that have been or are imminently threatened with exposure above target levels. The longer term goal is to prevent exposure to actual receptors that are not currently impacted or are not imminently threatened with exposure. To achieve these objectives, it is the intent of these rules that concentrations of applicable chemicals of concern be reduced by active remediation to levels below the site-specific target level line at all points between the source(s) and the point(s) of exposure as well as to undertake such interim corrective action as necessary to eliminate or prevent exposure until concentrations below the SSTL line are achieved. If it is shown that concentrations at all applicable points have been reduced to below the SSTL line, the secondary objective is to establish that the actual chemical concentrations can be reasonably relied upon to predict future conditions at points of exposure rather than reliance on the modeled data. Reliance on actual contaminant concentrations is achieved by establishing through monitoring that concentrations within the contaminant plume are steady or declining. Institutional controls and technological controls may be used to sever pathways or control the risk of receptor impacts.

b. For the groundwater to water line and soil to water line receptors, these objectives are achieved by active remediation, replacement or relocation of high risk water line receptors in the actual and modeled plume areas. If water lines and gaskets are replaced in an area of contamination, they must be replaced with water line materials and gasket materials of appropriate construction in accordance with current department standards set forth in 567—Chapter 43 and with no less than nitrile or FKM gaskets or as otherwise approved by the department.

c. In areas of free product, all water lines, regardless of construction material, must be relocated unless there is no other option and the department has approved an alternate plan of construction. Refer to 135.7(4)“d”(11). If a service line remains in the area of LNAPL, a backflow preventer shall be installed to prevent impacts to the larger water distribution system.

d. For the soil vapor pathway, these objectives are achieved by active remediation of soil contamination below the target level at the point(s) of exposure or other designated point(s) of compliance using the same measurement methods for receptor evaluation under 135.10(7) and 135.10(9).

e. For a site classified as high risk or reclassified as high risk for the soil leaching to groundwater ingestion pathway, these objectives are achieved by active remediation of soil contamination to reduce the soil concentration to below the site-specific target level at the source.

f. A corrective action design report (CADR) must be submitted by a certified groundwater professional for all high risk sites unless the terms of a corrective action plan are formalized in a memorandum of agreement within a reasonable time frame specified by the department. The CADR must be submitted on a form provided by the department and in accordance with department CADR guidance within 60 days of site classification approval as provided in

135.10(11). The CADR must identify at least two principally applicable corrective action options designed to meet the objectives in 135.12(3), an outline of the projected timetable and critical performance benchmarks, and a specific monitoring proposal designed to verify its effectiveness and must provide sufficient supporting documentation consistent with industry standards that the technology is effective to accomplish site-specific objectives. The CADR must contain an analysis of its cost-effectiveness in relation to other options. The department will review the CADR in accordance with 135.12(9).

g. Interim monitoring. From the time a Tier 2 site cleanup report is submitted and until the department determines a site is classified as no action required, interim monitoring is required at least annually for all sites classified as high risk. Groundwater samples must be taken: (1) from a monitoring well at the maximum source concentration; (2) from a transition well, meaning a monitoring well with detected levels of contamination closest to the leading edge of the groundwater plume as defined to the pathway-specific target level, and between the source(s) and the point(s) of exposure; and (3) from a guard well, meaning a monitoring well between the source(s) and the point(s) of exposure with concentrations below the SSTL line. If a receptor is located within an actual plume contoured to the applicable target level for that receptor, the point of exposure must be monitored. If concentrations at the receptor already exceed the applicable target level for that receptor, corrective actions must be implemented as soon as practicable. Monitoring conducted as part of remediation or as a condition of establishing a no action required classification may be used to the extent it meets these criteria. Soil monitoring is required at least annually for all applicable pathways in accordance with 135.12(5) “d.” All drinking water wells and non-drinking water wells within 100 feet of the largest actual plume (defined to the

appropriate target level for the receptor type) must be tested annually for chemicals of concern. Actual plumes refer to groundwater plumes for all chemicals of concern.

h. Remediation monitoring. Remediation monitoring during operation of a remediation system is required at least four times each year to evaluate effectiveness of the system. A remediation monitoring schedule and plan must be specified in the corrective action design report and approved by the department.

i. Technological controls. The purpose of a technological control is to effectively sever a pathway by use of technologies such that an applicable receptor could not be exposed to chemicals of concern above an applicable target risk level. Technological controls are an acceptable corrective action response either alone or in combination with other remediation systems. The purpose of technological controls may be to control plume migration through use of containment technologies, barriers, etc., both as an interim or permanent corrective action response or to permanently sever a pathway to a receptor. Controls may also be appropriate to treat or control contamination at the point of exposure. Any technological control proposed as a permanent corrective action option without meeting the reduction in contaminant concentrations objectives must establish that the pathway to a receptor will be permanently severed or controlled. The effectiveness of a technological control must be monitored under a department approved plan until concentrations fall below the site-specific target level line or its effectiveness as a permanent response is established and no adverse effects are created.

j. Following completion of corrective action, the site must meet exit monitoring criteria to be reclassified as no action required as specified in 135.12(6) "c." At any point where an institutional or technological control is implemented and approved by the department, the site may be reclassified as no action required consistent with 135.12(6).

135.12(4) *Low risk classification.* A site shall be classified as low risk if none of the pathways are high risk and if any of the pathways are low risk. A pathway shall be classified low risk if it meets one of the following conditions:

a. For actual and potential receptors, if the modeled data and the actual concentrations are less than the site-specific target level line, and any of the actual concentrations are greater than the simulation line.

b. For potential receptors, if any actual concentrations exceed the site-specific target level line at any point.

c. For the soil leaching to groundwater ingestion pathway where modeling predicts that the Tier 1 levels for potential receptors would be exceeded in groundwater at applicable potential receptor points of compliance and the soil concentration exceeds the soil leaching to groundwater site-specific target level but groundwater concentrations are currently below the Tier 1 level for potential receptors, the site shall be initially classified as low risk and subject to monitoring under 135.12(5)“d”(2). If at any time during the three-year monitoring period, groundwater concentrations exceed the Tier 1 level for potential receptors, the site shall be classified as high risk requiring soil remediation in accordance with 135.12(3)“d.”

135.12(5) *Low risk corrective action response.*

a. Purpose. For sites or pathways classified as low risk, the purpose of monitoring is to determine if concentrations are decreasing such that reclassification to no action required may be appropriate or if the contaminant plume is stable such that reclassification to no action required can be achieved with implementation of an institutional control in accordance with 135.12(8), or if concentrations are increasing above the site-specific target level line such that reclassification to high risk is appropriate. Monitoring is necessary to evaluate impacts to actual receptors and

assess the continued status of potential receptor conditions. Low risk monitoring shall be conducted and reported by a certified groundwater professional.

b. For sites or pathways classified as low risk, provide a best management practices plan. The plan must include maintenance procedures, schedule of activities, prohibition of practices, and other management practices, or a combination thereof, which, after problem assessment, are determined to be the most effective means of monitoring and preventing additional contamination of the groundwater and soil. The plan will also contain a contamination monitoring proposal containing sufficient sampling points to ensure the detection of any significant movement of or increase in contaminant concentration.

c. Groundwater monitoring. For groundwater pathways, samples must be taken at a minimum of once per year: (1) from a monitoring well at the maximum source concentration; (2) a transitional well meaning a well with detected levels of contamination closest to the leading edge of the groundwater plume as defined to the pathway-specific target level and between the source and the receptor; and (3) a guard well meaning a monitoring well between the source and the point of exposure with concentrations below the SSTL line. (NOTE: Monitoring under this provision may be used to satisfy exit monitoring if it otherwise meets the criteria in 135.12(6).)

d. Soil monitoring.

(1) For the soil vapor to enclosed space pathway potential receptors, soil gas samples must be taken at a minimum of once per year in the area(s) of expected maximum vapor concentrations where an institutional control is not in place.

(2) For the soil leaching to groundwater pathway potential receptors, annual groundwater monitoring is required for a minimum of three years as provided in 135.12(5) “c.” If groundwater concentrations are below the applicable SSTL line for all three years, no further action is required.

If groundwater concentrations exceed the applicable SSTL line in any of the three years, corrective action is required to reduce soil concentrations to below the Tier 1 levels for soil leaching to groundwater. Therefore, annual monitoring of soil is not applicable.

(3) For the soil to water line pathway potential receptors, notification of the utility company is required. Notification will result in reclassification to no action required. Therefore, annual monitoring of soil is not applicable.

e. Receptors must be evaluated at least annually to ensure no actual or modeled data are above the site-specific target level line for any actual receptors. Potential receptor areas of concern must be evaluated at least annually and the presence of no actual receptors confirmed. If actual receptors are present or reasonably expected to be brought into existence, the owner or operator must report this fact to the department as soon as practicable. Annual monitoring that also meets the exit criteria under 135.12(6) may be used for that purpose.

f. The site or pathway must meet exit monitoring criteria to be reclassified as no action required as specified in 135.12(6) “*b.*” If concentrations for actual receptors increase above the site-specific target level line or potential receptor status changes to actual receptor status, the site must be reclassified as high risk and further corrective action required in accordance with 135.12(3).

135.12(6) *No action required classification.* A site shall be classified as no action required if all of the pathways are classified as no action required as provided below:

a. Soil pathways shall be classified as no action required if samples are less than the applicable target levels as defined for each pathway and confirmational sampling requirements have been met.

b. For initial classification, groundwater pathways shall be classified as no action required if the contaminant concentrations are below the site-specific target level line and all concentrations are at or less than the simulation line, and confirmation monitoring has been completed successfully. Confirmation sampling for groundwater is a second sample that confirms the no action required criteria.

c. A groundwater pathway shall be reclassified from high risk to no action required if:

(1) all contaminant concentrations are below the site-specific target level and if exit monitoring criteria have been met. Exit monitoring criteria means that the three most recent consecutive groundwater samples from all monitoring wells must show a steady or declining trend and the most recent samples are below the site-specific target level. A steady and declining trend includes the following: the first of the three samples for the source well and transition well must be more than detection limits; concentrations cannot increase more than 20 percent from the first of the three samples to the third sample; concentrations cannot increase more than 20 percent of the previous sample; and samples must be separated by at least six months; or

(2) there are no actual receptors within the actual groundwater plume defined to the applicable target level and plume stability has been documented to show that the actual plume is not migrating to actual receptors.

d. A low risk site shall be reclassified as “no action required” if contaminant concentrations are below the site-specific target level and if exit monitoring criteria have been met pursuant to 135.12(6)“c” or if the site has maintained less than the applicable target level for four consecutive sampling events separated by at least six months as defined in the monitoring plan regardless of exit monitoring criteria and guidance.

e. Confirmation sampling for soil gas and indoor vapor. For the enclosed space pathways, confirmation sampling is required to reasonably establish that the soil gas and indoor vapor samples represent the highest expected levels. A groundwater professional must obtain two samples taken at least two weeks apart. One of the samples should be collected beneath the frost line depth during a seasonal period of lowest groundwater elevation.

f. As a condition of obtaining site classification as no action required, all groundwater monitoring wells must be properly plugged in accordance with 567—Chapters 39 and 49 unless the department requires selected wells to be maintained or a written request with justification and a plan for properly maintaining the wells are submitted to the department for approval. Approval to maintain wells shall be deemed granted if not disapproved with reason within 30 days of request.

g. Prior to acceptance of a request to classify the site as no action required, and in the event there is a question of validity of the data or sampling methods, laboratory analysis procedures, indication of plume movement, or the department obtains information about new conditions at the site, the department may conduct or require the owner to conduct confirmation sampling of the soil, groundwater, soil gas, or indoor vapor to confirm that the no action required criteria have been met.

h. The department may waive, at its discretion, the exit monitoring criteria based on a certified groundwater professional's written justification to support a no action required classification for the site based on a reasoned assessment of data, trends, receptor status, and corrective actions performed. One example is when steady and declining criteria have not been met due solely to variations among a laboratory's lowest achievable detection limits.

135.12(7) *Reclassification.* Any site or pathway that is classified as high risk may be reclassified to low risk if in the course of corrective action the criteria for low risk classification are established. Any site or pathway that is classified as low risk may be reclassified to high risk if in the course of monitoring the conditions for high risk classification are established. Sites subject to department-approved institutional or technological controls are classified as no action required if all other criteria for no action required classification are satisfied.

135.12(8) *Use of institutional and technological controls.*

a. Purpose. The purpose of an institutional control is to restrict access to or use of property such that an applicable receptor could not be exposed to chemicals of concern for as long as the target level is exceeded at applicable points of exposure and compliance. Institutional controls include:

- (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) An environmental covenant as provided in Iowa Code chapter 455I;
- (5) Any other institutional control the owner or operator can reasonably demonstrate to the department will reduce the risk from a release throughout the period necessary to ensure that no applicable target level is likely to be exceeded.

b. Modification or termination of institutional and technological controls. At a point when the department determines that an institutional or technological control has been removed or is no longer effective for the purpose intended, regardless of the issuance of a no further action certification or previous site classification, it may require owners and operators to undertake such

reevaluation of the site conditions as necessary to determine an appropriate site classification and corrective action response. If the owner or operator is in control of the affected property, the department may require reimplementation of the institutional or technological control or may require a Tier 2 assessment of the affected pathway(s) be conducted to reevaluate the site conditions and determine alternative corrective action response. An owner or operator subject to an institutional or technological control may request modification or termination of the control by conducting a Tier 2 assessment of the affected pathway or conduct such other assessment as required by the department to establish that the control is no longer required given current site conditions.

c. If the owner or operator is not in control of the affected property or cannot obtain control and the party in control refuses to continue implementation of an institutional control, the department may require the owner or operator to take such legal action as available to enforce institution of the control or may require the owner or operator to undertake a Tier 2 assessment to determine site classification and an alternative corrective action response. If a person in control of the affected property appears to be contractually obligated to maintain an institutional or technological control, the department may, but is not required to, attempt enforcement of the contractual obligation as an alternative to requiring corrective action by the owner or operator.

d. If a site is classified no action required, subject to the existence of an institutional control or technological control, the holder of the fee interest in the real estate subject to the institutional control or technological control may request, at any time, that the department terminate the institutional control or technological control requirement. The department shall terminate the requirement for an institutional control if the holder demonstrates by completion of a Tier 2 assessment of the applicable pathway or other assessment as required by the department that the

site conditions warranting the control no longer exist and that the site or pathway has met exit criteria for no action required classification under 135.12(6).

135.12(9) *Corrective action design report submission and review procedures.*

a. Owners and operators must submit a CADR within 60 days of the date the department approves or is deemed to approve a Tier 2 assessment report under 135.10(11) or a Tier 3 assessment is to be conducted. The department may establish an alternative schedule for submittal. As an alternative to submitting a CADR, owners or operators may participate in a corrective action meeting process to develop a corrective action plan that would be incorporated into a memorandum of agreement or other written agreement approved by the department. Owners or operators shall implement the terms of an approved CADR, memorandum of agreement or other corrective action plan agreement.

b. Corrective action design report completeness and accuracy. A CADR is considered to be complete if it contains all the information and data required by this rule and the department's guidance. The report is considered accurate if the information and data are reasonably reliable based first on the standards in these rules and department guidance, and second, on generally accepted industry standards.

c. The certified groundwater professional responsible for completion of the CADR must provide the following certification with the CADR:

I, _____, groundwater professional certification number _____, am familiar with all applicable requirements of Iowa Code section 455B.474 and all rules and procedures adopted thereunder including, but not limited to, the Department of Natural Resources' guidance and specifications for corrective action design reports. Based on my knowledge of those documents and the information I have prepared and reviewed regarding this

site, UST registration number _____, LUST No. _____, I certify that this document is complete and accurate as provided in 135.12(9) and meets the applicable requirements of the corrective action design report, and that the recommended corrective action can reasonably be expected to meet its stated objectives.

Signature

Date

d. Review. A CADR submitted by a groundwater professional shall be accepted by the department and shall be primarily relied upon by the department to determine the corrective action response requirements of the site. However, if within 90 days of receipt of a CADR, the department identifies material information in the CADR that is inaccurate or incomplete, and if based upon information in the report the appropriate corrective action response cannot be reasonably determined by the department based on industry standards, the department may reject the report and require modifications. If the department does not reject the report within 90 days of receipt, the report shall be deemed approved as submitted unless changes to the report are requested by the groundwater professional. The department shall work with the groundwater professional and the owner or operator to correct any materially inaccurate information or to obtain the additional information necessary to determine the appropriate corrective action response as soon as practicable.

e. Memorandums of agreement. Owners or operators that fail to implement the actions or meet the activity schedule in a memorandum of agreement resulting from a corrective action meeting or other written corrective action plan agreement or that fail to implement the actions or meet the schedule outlined in an approved CADR are subject to legal action.

135.12(10) *Monitoring certificates and no further action certificates.*

a. Monitoring certificate. The department will issue a monitoring certificate to the owner or operator of an underground storage tank from which a release has occurred, the current property owner, or other responsible party who has undertaken the corrective action warranting issuance of the certificate. Sites classified as low risk or sites classified as high risk/monitoring shall be eligible for a monitoring certificate. The monitoring certificate will be valid until the site is reclassified to a high risk requiring active remediation or no action required site. A site that has been issued a monitoring certificate shall not be eligible to receive a certificate evidencing completion of remediation until the site is reclassified as no action required. The monitoring certificate may be invalidated and the site reclassified to high risk if it is determined by the department that the owner of the site is not in compliance with the requirements specified in the monitoring certificate.

b. No further action certificate. When the no action required site classification has been determined based on a recommendation of the certified groundwater professional as provided in 135.9(11), 135.10(11) and 135.12(6) (see also Iowa Code section 455B.474(1) “*a*”(8)(a) and (c)), the department shall issue a no further action certificate.

The department will issue a no further action certificate to an owner or operator of an underground storage tank from which a release has occurred, the current property owner, or other responsible party who has undertaken the corrective action warranting classification of the site as no action required. Prior to the issuance of a no further action certificate, an accurate legal description of the property on which the underground storage tanks are or were formerly located shall be submitted to the department. The following conditions apply:

(1) If free product is present, the department shall not issue a no further action certificate until the department has approved termination of all free product assessment and recovery in accordance with 135.7(4).

(2) The site has been determined by a certified groundwater professional not to present an unreasonable risk to the public health and safety or the environment.

(3) A person issued the certificate or a subsequent purchaser of the site cannot be required to perform further corrective action because action standards are changed at a later date. Action standards refer to applicable standards under this rule.

(4) The certified groundwater professional has certified that all groundwater monitoring wells have been permanently closed in accordance with 135.12(6) “f” with the exception of wells that are allowed to be maintained pursuant to 135.12(6) “f.” Wells not properly maintained shall be referred to the water supply section of the department that enforces 567—Chapters 39 and 49.

(5) The certificate shall not prevent the department from ordering remediation of a release identified subsequent to the release for which the no further action certificate was issued. The certificate shall not prevent the department from requiring corrective action of a release of a regulated substance from an unregulated tank.

(6) The certificate will not constitute a warranty of any kind to any person as to the condition, marketability or value of the described property.

(7) The certificate shall reflect any institutional control utilized to ensure compliance with any applicable Tier 2 level; and may include a notation that the classification is based on the fact that designated potential receptors are not in existence.

(8) The certificate shall be in a form provided by the department that is recordable in accordance with Iowa Code section 558.1 et seq.

(9) The owner or operator or other persons conducting corrective action shall be responsible for recording the no further action certificate with the county recorder and return a file-stamped copy to the department within 30 days of the issue date. At its discretion, the department may record the no further action certificate with the appropriate county recorder as authorized in Iowa Code section 455B.474(1)“a”(8)(c).

c. The department shall modify any issued no further action certificates containing institutional controls once the owner, operator or their successor or assign has demonstrated that the institutional control is no longer necessary to meet the applicable Tier 2 level as provided in 135.12(10).

135.12(11) *Expedited corrective action.* An owner, operator or responsible party of a site at which a release of regulated substance is suspected to have occurred may carry out corrective actions at the site so long as the department receives notice of the expedited cleanup activities prior to 30 calendar days of their commencement; the owner, operator, or responsible party complies with the provisions of these rules; and the corrective action does not include active treatment of groundwater other than:

- a. As previously approved by the department; or
- b. Free product recovery pursuant to 135.7(4).

c. Soil overexcavation. When undertaking overexcavation of contaminated soils, adequate field screening methods must be used to identify maximum concentrations during excavation. At a minimum one soil sample must be taken for field screening every 100 square feet of the base and each sidewall. Soil samples must be taken for laboratory analysis at least every 400 square feet of the base and each sidewall of the excavated area to confirm remaining concentrations are below Tier 1 levels. If the excavation is less than 400 square feet, a minimum of one sample must

be analyzed for each sidewall and the base. The owner or operator must maintain adequate records of the excavation area to document compliance with this procedure unless submitted to the department and must provide it to the department upon request.

567—135.13(455B) Public participation.

135.13(1) For each confirmed release that is classified as high or low risk, the department must provide notice to the public by means designated to reach those members of the public directly affected by the release and the recommended corrective action response. This notice may include but is not limited to public notice in local newspapers, block advertisements, public service announcements, publication in a state register, letters to individual households, or personal contacts by the staff.

135.13(2) The department must ensure site release information and decisions concerning the Tier 1 assessment report, Tier 2 and Tier 3 site cleanup reports are made available to the public for inspection upon request.

135.13(3) Before approving the Tier 2 or Tier 3 site cleanup report, the department may hold a public meeting to consider comments on the proposed corrective action response if there is sufficient public interest, or for any other reason.

135.13(4) The department must give a public notice that complies with 135.13(1) above if the implementation of the approved Tier 2 or Tier 3 site cleanup report does not achieve the established cleanup levels in the report and the termination of that report is under consideration by the department.

567—135.14(455B) Action levels. The following corrective action levels apply to petroleum-regulated substances as regulated by this chapter. These action levels shall be used to determine if further corrective action under 567—135.6(455B) through 567—135.12(455B) or 567—

135.15(455B) is required as the result of tank closure sampling under 135.15(3) or other analytical results submitted to the department. The contaminant concentrations must be determined by laboratory analysis as stated in 567—135.16(455B). Final cleanup determination is not limited to these contaminants. The contamination corrective action levels are:

	Soil (mg/kg)	Groundwater (µg/L)
Benzene	0.54	5
Toluene	3.2	1,000
Ethylbenzene	15	700
Xylenes	52	10,000
Total Extractable		
Hydrocarbons—Diesel	3,800	1,200
Total Extractable Hydrocarbons—Waste Oil		400

567—135.15(455B) Out-of-service UST systems, temporary closure, and permanent closure.

135.15(1) *Out-of-service UST systems and temporary closure.*

a. UST systems not meeting either the performance standards in 135.3(1) for new UST systems or the upgrading requirements in 135.3(2) by December 22, 1998, must be permanently closed according to 135.15(2). The tanks cannot be brought back into use.

b. When a UST system in compliance with new tank standards is out of service for less than three months, owners and operators must:

(1) Continue operation and maintenance of corrosion protection in accordance with 135.4(2);

(2) Continue operation and maintenance of any release detection in accordance with 567—135.5(455B) unless the system is empty. The UST system is empty when all materials have been

removed using commonly employed practices. No more than 2.5 centimeters (1 inch) of residue, or 0.3 percent by weight of the total capacity of the UST system, may remain in the system;

(3) Comply with 567—135.6(455B) through 567—135.12(455B) if a release is suspected or confirmed;

(4) Maintain financial responsibility in accordance with 567—Chapter 136.

(5) Continue to pay the tank management fee as required in 135.3(5).

(6) Continue to have compliance inspections conducted as required in 567—135.19(455B).

c. When a UST system is out of service for three months or more, an owner must submit a notification of temporary closure form to the department. Owners and operators must complete the requirements in 135.15(1)“b” for temporary closure and certify the following:

(1) The UST system is empty of all regulated substances (e.g., receipt of product removal).

(2) Vent lines are open and functioning.

(3) All other piping, pumps, accesses, and ancillary equipment are capped and locked.

(4) The corrosion protection system is being maintained in accordance with 135.4(2).

(5) Maintain financial responsibility (e.g., insurance) according to 567—Chapter 136.

d. When a tank system is temporarily closed for more than 12 months, the owner must remain in compliance with the department’s temporary closure requirements in 135.15(1)“c.” The department may provide an extension to the 12-month temporary closure period. Owners and operators must complete a site check in accordance with 135.6(3)“b” before such an extension can be applied for.

e. If a tank system is temporarily closed for more than 12 months, but the tank system has not been temporarily closed according to the requirements of 135.15(1)“c,” or the owner or operator

has failed to maintain out-of-service requirements in 135.15(1) “b,” the UST system must be permanently closed in accordance with 135.15(2).

f. Prior to returning a temporarily closed tank back into service, the owner or operator must complete and submit the department’s return-to-service form signed by the owner/operator and provide the following documentation unless otherwise approved by the department. The tank system cannot be operated or receive fuel until current tank tags have been issued.

(1) Where applicable, documentation that corrosion protection has been maintained continuously in accordance with 135.4(2). The owner or operator must provide an inspection log of the cathodic protection system and the inspection report of the cathodic protection system completed by an Iowa-certified cathodic protection tester.

(2) For lined tanks, provide a lining and tank integrity inspection report in accordance with 135.3(2)b.

(3) Results of precision tightness tests (0.1 gph) conducted on tanks in accordance with 567—135.5(455B).

(4) Results of precision tightness tests (0.1 gph) conducted on lines in accordance with 567—135.5(455B).

(5) Function test (3.0 gph) results of mechanical or electronic leak detectors conducted in accordance with 567—135.5(455B).

(6) Tank and piping leak detection is operational and in good condition.

(7) Provide test results of the periodic testing of spill and overflow prevention equipment and containment sumps used for interstitial monitoring in accordance with 135.4(12) in the last 12 months.

(8) Copy of the financial responsibility (e.g., UST insurance) mechanism in accordance with 567—Chapter 136.

(9) Copies of Class A and Class B operator training certificates.

(10) Change of ownership form (if the UST system was sold).

135.15(2) *Permanent closure and changes-in-service.* Permanent closure of an underground storage tank system must be conducted by an Iowa-certified tank remover. Closure sampling must be conducted by or under the supervision of an Iowa-certified groundwater professional.

a. At least 30 days before beginning either permanent closure or a change-in-service under 135.15(2) “*b*” and “*c*,” owners and operators must notify the department of their intent to permanently close or make the change-in-service. An owner or operator must seek prior approval to permanently close a tank in a time frame shorter than the 30-day notice. The required assessment of the excavation zone under 135.15(3) must be performed after notifying the department but before completion of the permanent closure or a change-in-service.

b. To permanently close a tank or piping, owners and operators must empty and clean them by removing all liquids and accumulated sludge. All tanks taken out of service permanently must also be removed from the ground, filled with an inert solid material, or closed in place by a method approved by the department. Piping must be removed from the ground or have the ends plugged with an inert solid material.

c. Continued use of a UST system to store a nonregulated substance is considered a change-in-service. Before a change-in-service, owners and operators must empty and clean the tank by removing all liquid and accumulated sludge and conduct a site assessment in accordance with 135.15(3).

d. Permanent closure procedures must be followed in the replacement of tanks or piping. Notification must be made using DNR Form 542-1308, "Notification of Tank Closure or Change-in-Service." The form must include the date scheduled for the closure. Confirmation of the closure date must be given to the DNR field office 24 hours prior to the actual closure. The required assessment of the excavation zone under 135.15(3) must be performed after notifying the department but before completion of the permanent closure or change-in-service.

NOTE: The cleaning and closure procedures listed in 40 CFR 280.71(c) may be used to comply with 135.15(2).

135.15(3) *Assessing the site at closure or change-in-service.*

a. Before permanent closure or a change-in-service is completed, owners or operators must measure for the presence of a release where contamination is most likely to be present at the UST site. This soil and groundwater closure investigation must be conducted or supervised by a groundwater professional certified under 567—Chapter 134 unless the department in its discretion grants an exemption and provides direct supervision of the closure investigation. In selecting the sample types, sample locations, and measurement methods, owners and operators must consider the method of closure, the nature of the stored substance, the type of backfill, the depth to groundwater, and other factors appropriate for identifying the presence of a release.

(1) At UST sites with a history of petroleum storage, soil and groundwater samples shall in every case be analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) with each compound reported separately in accordance with 567—135.16(455B). If there has been a history or suspected history of petroleum storage other than gasoline or gasoline blends (i.e., all grades of diesel fuels, fuel oil, kerosene, oil and mineral spirits), or such storage history is unknown or

uncertain, soil and groundwater samples shall also be analyzed for total extractable hydrocarbons in accordance with 567—135.16(455B).

(2) All such samples shall be collected separately and shipped to a laboratory certified under 567—Chapter 83 within 72 hours of collection. Samples shall be refrigerated and protected from freezing during shipment to the laboratory.

(3) When a UST is removed from an area of confirmed contamination, the department may waive closure sampling if written documentation is submitted with the closure notification. Documentation should include laboratory analytical reports and a site map showing tank and piping locations along with contamination plume and sampling locations.

b. For all permanent tank and piping closures or changes-in-service, at least one water sample must be taken from the first saturated groundwater zone via a developed monitoring well except as provided in 135.15(3)“g.” The well must be located downgradient from and as close as possible to the UST system but no farther away than 20 feet from system components. At some tank and piping closures, a minimum of one monitoring well may not be sufficient to represent a release where it is most likely to be present. An additional groundwater monitoring well or wells may be necessary.

If, however, the first saturated groundwater zone is not encountered within 10 feet below the lowest elevation of the tank excavation, the requirement for groundwater sampling shall not apply unless:

(1) Sands or highly permeable soils are encountered within 10 feet below the lowest level of the tank excavation that 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 feet below the lowest level of the tank excavation. The method of determining

highly permeable soil is found in the departmental guidance document entitled “Underground Storage Tank Closure Guidance.”

(2) 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.

c. For permanent closure by tank removal, the departmental guidance document entitled “Underground Storage Tank Closure Guidance” must be followed. The minimum number of soil samples that must be taken depends on the tank size and length of product piping. Samples must be taken at a depth of 1 to 2 feet beneath the tank fill area below the base of the tank along the tank’s centerline. Soil samples must also be taken at least every 10 feet along the product piping at a depth of 1 to 2 feet beneath the piping fill area below the piping, unless alternate sampling is approved by the department.

If sands or other highly permeable soils are encountered, alternative sampling methods may be required.

If contamination is suspected or found in any area within the excavation (i.e., sidewall or bottom), a soil sample must be taken at that location.

The numbers of samples required for tanks are as follows:

Nominal Tank Capacity (gallons)	Number of Samples	Location on Centerline
1,000 or less	1	center of tank
1,001 - 8,000	2	1/3 from ends
8,001 - 30,000	3	5 feet from ends and at center of tank
30,001 - 40,000	4	5 and 15 feet from ends
40,001 and more	5	5 and 15 feet from ends and at center of tank

d. 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 Guidance” must be followed. The minimum number of soil borings required for sampling depends on the size of the tank and the length of the product piping. Soil samples must be taken within 5 feet of the sides and ends of the tank at a depth of 2 to 4 feet below the base of the tank, but outside the backfill material, at equal intervals around the tank. Soil samples must also be taken at least every 10 feet along the product piping at a depth of 1 to 2 feet beneath the piping fill area below the piping, unless alternate sampling is approved by the department. If sands or other highly permeable soils are encountered, alternative sampling methods may be required.

The minimum numbers of soil borings and samples required are as follows:

Nominal Tank Capacity (gallons)	Number of Samples	Location of Samples
6,000 or less	4	1 each end and each side
6,001 - 12,000	6	1 each end and 2 each side
12,001 or more	8	1 each end and 3 each side

e. A closure report in a format prescribed by the department must be submitted to the department within 45 days of the tank removal or closure in place. Refer to the Underground Storage Tank Closure Guidance for reporting format. The tank tags must be returned with the closure report.

f. The requirements of this subrule are satisfied if one of the external release detection methods allowed in 135.5(4) “*e*” and “*f*” is operating in accordance with the requirements in 135.5(4) at the time of closure and indicates no release has occurred.

g. If contaminated soils, contaminated groundwater, or free product as a liquid or vapor is discovered during the site assessment or by any other manner, contact the department in

accordance with 135.6(1). Normal closure procedures no longer apply. Owners and operators must begin corrective action in accordance with 567—135.7(455B) through 567—135.12(455B). Identification of free product requires immediate response in accordance with 135.7(4). 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 in accordance with 135.15(4) may be allowed at the time of closure.

135.15(4) *Overexcavation of contaminated soils at closure.*

a. If contaminated soils are discovered while assessing a site at closure in accordance with 135.15(3), owners and operators may overexcavate up to one foot of the contaminated soils surrounding the tank pit. The contamination and overexcavation must be reported to the department in accordance with the requirements of 135.6(4) “a” prior to backfilling the excavation. If excavation is limited to one foot of contaminated soils, a soil sample shall be taken and laboratory analyzed in accordance with 567—135.16(455B) from the area showing the greatest contamination. Any overexcavation of contaminated soils beyond one foot of contaminated soils is considered expedited corrective action and must be conducted by or under supervision of a certified groundwater professional in accordance with the procedures in 135.12(11).

b. Excavated contaminated soils must be properly disposed in accordance with 567—Chapters 100, 101, 102, 120, and 121.

c. A report must be submitted to the department within 30 days of completion of the laboratory analysis. The report must include the requirements of 135.15(3) “e” and a dimensional drawing

showing the depth and area of the excavation prior to and after overexcavation. The area of contamination must be shown.

135.15(5) *Applicability to previously closed UST systems.* When directed by the department, the owner and operator of a UST system permanently closed before October 24, 1988, must assess the excavation zone and close the UST system in accordance with this rule if releases from the UST may, in the judgment of the department, pose a current or potential threat to human health and the environment.

135.15(6) *Closure records.* Owners and operators must maintain records in accordance with 135.4(5) that are capable of demonstrating compliance with closure requirements under this rule. The results of the excavation zone assessment required in 135.15(3) must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- a. By the owners and operators who took the UST system out of service;
- b. By the current owners and operators of the UST system site; or
- c. By mailing these records to the department if they cannot be maintained at the closed facility.

135.15(7) *Applicability to pre-1974 USTs.* The closure provisions of 567—135.15(455B) are not applicable to USTs that have been out of operation prior to January 1, 1974. For purposes of this subrule, out of operation means that no regulated substance has been deposited into or dispensed from the tanks and that the tanks do not currently contain an accumulation of regulated substances other than a de minimis amount as provided in 135.15(1) “a.”

Owners and operators or other interested parties are not required to submit documentation that USTs meet the exemption conditions and may rely on this subrule as guidance. However, should

a question arise as to whether USTs meet the exemption, or owners and operators or other interested parties request acknowledgment by the department that USTs are exempt, they must submit an affidavit on a form provided by the department. The affiant must certify that based on a reasonable investigation and to the best of the affiant's knowledge, the USTs were taken out of operation prior to January 1, 1974, the USTs have not contained a regulated substance since January 1, 1974, and the USTs do not currently contain an accumulation of regulated substances. If the department has a reasonable basis to suspect a release has occurred, the release investigation and confirmation steps of 567—135.6(455B) and the corrective action requirements as provided in 567—135.7(455B) through 567—135.12(455B) shall apply.

567—135.16(455B) Laboratory analytical methods for petroleum contamination of soil and water.

135.16(1) *General.* When analyzing for petroleum or hazardous substances, owners and operators of UST systems must use a laboratory certified under 567—Chapter 83. In addition they must ensure that all samples are properly preserved and shipped within 72 hours of collection to a laboratory certified under 567—Chapter 83. This rule provides acceptable analytical procedures for petroleum substances and required information that must be provided in all laboratory reports.

135.16(2) *Laboratory report.* All laboratory reports must contain the following information:

a. Laboratory name, address, telephone number and Iowa laboratory certification number. If analytical work is subcontracted to another laboratory, the analytical report from the certified laboratory that analyzed the sample must be submitted and include the information required in this subrule.

b. Medium sampled (soil, water).

- c.* Client submitting sample (name, address, telephone number).
- d.* Sample collector (name, telephone number).
- e.* UST site address.
- f.* Clients sample location identifier.
- g.* Date sample was collected.
- h.* Date sample was received at laboratory.
- i.* Date sample was analyzed.
- j.* Results of analyses and units of measure.
- k.* Detection limits.
- l.* Methods used in sample analyses (preparation method, sample detection method, and quantitative method).
- m.* Laboratory sample number.
- n.* Analyst name.
- o.* Signature of analyst's supervisor.
- p.* Condition in which the sample was received at the laboratory and whether it was properly sealed and preserved.
- q.* Note that analytical results are questionable if a sample exceeded an established holding time or was improperly preserved. (The recommended holding time for properly cooled and sealed petroleum contaminated samples is 14 days, except for water samples containing volatile organic compounds that have a 7-day holding time unless acid-preserved.)
- r.* Laboratory reports required by this chapter for tank closure investigations under 567—135.15(455B) and site checks under 135.6(3) or Tier 1 or Tier 2 assessments under 567—135.9(455B) through 567—135.11(455B) must include a copy of the chromatograms and

associated quantitation reports for the waste oil, diesel and gasoline standard used by the laboratory in analyzing submitted samples. The laboratory analytical report for each sample must state whether the sample tested matches the laboratory standard for waste oil, diesel or gasoline or that the sample cannot be reliably matched with any of these standards. A copy of the chromatograms and associated quantitation reports for only the soil and groundwater samples with the maximum concentrations of BTEX and TEH must be included.

135.16(3) *Analysis of soil and water for high volatile petroleum compounds (i.e., gasoline, benzene, ethylbenzene, toluene, xylene).* Sample preparation and analysis shall be by Method OA-1, “Method for Determination of Volatile Petroleum Hydrocarbons (gasoline),” revision 12/01/2019, state hygienic laboratory at the University of Iowa, or EPA Method 8260D, “Test Methods for Evaluating Solid Waste,” 3rd Edition–Update 6, July 2018. Copies of Method OA-1 are available from the department.

135.16(4) *Analysis of soil and water for low volatile petroleum hydrocarbon contamination (i.e., all grades of diesel fuel, fuel oil, kerosene, oil, and mineral spirits).* Sample preparation and analysis shall be by Method OA-2, “Determination of Extractable Petroleum Products (and Related Low Volatility Organic Compounds),” revision 12/01/2019, state hygienic laboratory at the University of Iowa. Copies of Method OA-2 are available from the department.

135.16(5) *Analysis of soil gas for volatile petroleum hydrocarbons.* Analysis of soil gas for volatile petroleum hydrocarbons shall be conducted in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 1501, Issue 3, March 15, 2003, or a department-approved equivalent method.

135.16(6) *Analytical methods for methyl tertiary-butyl ether (MTBE).* Analysis of water for MTBE must be conducted by a laboratory certified under 567—Chapter 83 for petroleum analyses.

a. Sample preparation and analysis shall be by U.S. Environmental Protection Agency Method 8260D, “Test Methods for Evaluating Solid Waste,” 3rd Edition—Update 6, July 2018.

b. Laboratories performing the analyses must run standards for MTBE on a routine basis, and standards for other possible compounds like ethyl tertiary-butyl ether (ETBE), tertiary-amyl methyl ether (TAME), di-isopropyl ether (DIPE), and tertiary-butyl alcohol (TBA) to be certain of their identification should they be detected.

c. Laboratories must run a method detection limit study and an initial demonstration of capability for MTBE. These records must be kept on file.

d. The minimum detection level for MTBE in water is 15 µg/L.

567—135.17(455B) Evaluation of ability to pay.

135.17(1) General. The ability to pay guidance procedures referenced in this rule will be used by the department when an owner or operator of an underground storage tank (UST) claims to be financially unable to comply with corrective action requirements under 567—135.7(455B) through 567—135.12(455B) or closure investigation requirements under 567—135.15(455B). If an owner or operator of a regulated UST claims to be financially unable to meet these departmental requirements, that responsible party must provide documentation of the party’s finances on forms provided by the department in order for the department to act on the claim of financial inability. The department may request additional financial documentation to verify or supplement reported information.

135.17(2) Individual claims. The financial ability of individual owners and operators of USTs, with or without an active business (including but not limited to sole proprietorships and general partnerships), may be evaluated using the most current version of “INDIPAY” developed by the U.S. Environmental Protection Agency and generally accepted principles of financial analysis. This guidance is only one tool the department may use in evaluating claims of financial inability.

135.17(3) Corporate claims. The financial ability of corporate owners and operators of USTs may be evaluated using the most current version of “ABEL” developed by the U.S. Environmental Protection Agency and generally accepted principles of financial analysis. This guidance is only one tool the department may use in evaluating claims of financial inability.

135.17(4) Federal LUST Trust Fund. The financial ability of owners and operators of USTs shall be evaluated for the purpose of determining if the department is authorized to use Federal LUST Trust Fund moneys as provided in the current cooperative agreement with the U.S. Environmental Protection Agency, Region VII. A determination of financial inability does not create an entitlement or any expectation interest on behalf of an owner or operator that Federal LUST Trust Fund moneys will be used for corrective action at any individual site.

135.17(5) The evaluation of financial ability will also be used by the department in making other administrative planning decisions including but not limited to decisions as to whether to pursue and when to pursue administrative or judicial enforcement of regulatory and statutory duties and the assessment of penalties. A determination of financial inability does not create an entitlement or expectation interest that enforcement actions will be deferred or suspended. The evaluation of this factor is only one of many affecting the department’s fully discretionary decisions regarding enforcement options and program planning.

135.17(6) An evaluation of financial inability as provided in this rule does not relieve any owner or operator of legal liability to comply with department rules or Iowa Code chapter 455B or provide a defense to any legal actions to establish liability or enforce compliance.

567—135.18(455B) Analyzing for methyl tertiary-butyl ether (MTBE).

135.18(1) *General.* The objective of analyzing for MTBE is to determine its presence in water samples collected as part of investigation and remediation of contamination for underground storage tank facilities.

135.18(2) *Required MTBE testing.* Water samples must be analyzed for MTBE when collected for risk-based corrective action as required in 567—135.8(455B) through 567—135.12(455B). These sampling requirements include but are not limited to Tier 2 and Tier 3 assessments where groundwater ingestion pathway evaluation and subsequent monitoring is required.

135.18(3) *MTBE testing not required.* Analysis for MTBE is not required for the following:

- a. Closure sampling under 567—135.15(455B).
- b. Site checks under 135.6(3).
- c. If prior analysis under 135.18(2) has not shown MTBE present.
- d. If the department determines MTBE analysis is no longer needed at a site.

135.18(4) *Reporting.* The analytical data must be submitted in a format prescribed by the department.

567—135.19(455B) Compliance inspection of UST system.

135.19(1) The owner or operator must have the UST system inspected and an inspection report submitted to the department by a UST compliance inspector certified by the department under 567—Chapter 134. An initial compliance site inspection shall be conducted within two

years after new tank installation. All subsequent compliance site inspections conducted after the initial compliance site inspection shall be conducted within 24 months of the prior compliance site inspection. Compliance site inspections must be separated by at least six months.

135.19(2) Compliance inspection requirements. The owner and operator must comply with the following as part of the inspection process.

a. Review and respond to the inspection report provided by the certified compliance inspector and complete the corrective actions specified in the compliance inspection report within the specified time frames.

b. Provide all records and documentation required by the certified compliance inspector and this chapter.

c. Upon notification of a suspected release by the certified compliance inspector pursuant to 567—paragraph 134.10(3)“b,” report the condition to the department and undertake steps to investigate and confirm the suspected release as provided in 567—135.6(455B).

d. Ensure that the compliance inspector completes and submits an electronic inspection form in accordance with 567—subrule 134.10(3).

135.19(3) The owner and operator shall do the following upon receipt of a compliance inspection report as provided in 567—paragraph 134.10(3)“b,” which finds violations of the department’s rules:

a. Take all actions necessary to correct any compliance violations or deficiencies in accordance with this chapter. Corrective action must be taken within 60 days of receipt of the inspector’s report or another reasonable time period approved by the department. The granting of time to remedy a violation does not preclude the department from exercising its discretion to assess penalties for the violation.

b. Within 60 days of receipt of the inspector's report, provide documentation to the compliance inspector that the violation or deficiencies have been corrected.

c. Conduct a follow-up inspection in instances where there are serious problems or a history of repeated violations when required by the department.

135.19(4) Conflict of interest. A compliance site inspection must be conducted by a certified compliance inspector who is not the owner or operator of the UST system being inspected, an employee of the owner or operator of the UST system being inspected, or a person having daily on-site responsibility for the operation and maintenance of the UST system.

567—135.20(455B) UST systems with field-constructed tanks and airport hydrant fuel distribution systems. The commission adopts by reference the definitions and requirements of 40 CFR 280 Subpart K.

567—135.21455B) Waivers. A request for a waiver to these rules will be reviewed in accordance with law and procedure of Iowa Code chapter 17A and 567--Chapter 13 (adopting by reference 561—Chapter 10).

These rules are intended to implement Iowa Code sections [455B.304](#), [455B.424](#) and [455B.474](#).

Appendix A - Tier 1 Table, Assumptions, Equations and Parameter Values

Iowa Tier 1 Look-Up Table

Media	Exposure Pathway	Receptor	Group 1				Group 2: TEH	
			Benzene	Toluene	Ethylbenzene	Xylenes	Diesel*	Waste Oil
(µg/L)	Groundwater	Actual	5	1,000	700	10,000	1,200	400
	Ingestion	Potential	290	7,300	3,700	73,000	75,000	40,000

	Groundwater Vapor to Enclosed Space	All	1,540	20,190	46,000	NA	2,200,000	NA
	Groundwater to Water Line	PVC or Gasketed Mains	7,500	6,250	40,000	48,000	75,000	40,000
		PVC or Gasketed Service Lines	3,750	3,120	20,000	24,000	75,000	40,000
		PE/PB/AC Mains or Service Lines	200	3,120	3,400	19,000	75,000	40,000
	Surface Water	All	290	1,000	3,700	73,000	75,000	40,000
Soil (mg/kg)	Soil Leaching to Groundwater	All	0.54	42	15	NA	3,800	NA
	Soil Vapor to Enclosed Space	All	1.16	48	79	NA	47,500	NA
	Soil to Water Line	All	2.0	3.2	45	52	10,500	NA

NA: Not applicable. There are no limits for the chemical for the pathway, because for groundwater pathways the concentration for the designated risk would be greater than the solubility of the pure chemical in water, and for soil pathways the concentration for the designated risk would be greater than the soil concentration if pure chemical were present in the soil.

TEH: Total Extractable Hydrocarbons. The TEH value is based on risks from naphthalene, benzo(a)pyrene, benz(a)anthracene, and chrysene. Refer to Appendix B for further details.

Diesel*: Standards in the Diesel column apply to all low volatile petroleum hydrocarbons except waste oil.

Assumptions Used for Iowa Tier 1 Look-Up Table Generation

1. Groundwater ingestion pathway. The maximum contaminant levels (MCLs) were used for Group 1 chemicals. The target risk for carcinogens for actual receptors is 10^{-6} and for potential receptors is 10^{-4} . A hazard quotient of one, and residential exposure and building parameters are assumed.
2. Groundwater vapor to enclosed space pathway. Residential exposure and residential building parameters are assumed; no inhalation reference dose is used for benzene; the capillary fringe is assumed to be the source of groundwater vapor; and the hazard quotient is 1 and target risk for carcinogens is 1×10^{-4} .
3. Groundwater to water line. This pathway uses the same assumptions as the groundwater ingestion pathway for potential receptors, including a target risk for carcinogens of 10^{-4} .
4. Surface water. This pathway uses the same assumptions as the groundwater ingestion pathway for potential receptors, including a target risk for carcinogens of 10^{-4} , except for toluene which has a chronic level for aquatic life of 1,000 as in the definition for surface water criteria in 567—135.2(455B).
5. Soil leaching to groundwater. This pathway assumes the groundwater will be protected to the same levels as the groundwater ingestion pathway for potential receptors, using residential exposure and a target risk for carcinogens of 10^{-4} .

6. Soil vapor to enclosed space pathway. The target risk for carcinogens is 1×10^{-4} ; the hazard quotient is 1; no inhalation reference dose is used for benzene; residential exposure factors are assumed; and the average of the residential and nonresidential building parameters is assumed.

7. Soil to water line pathway. This pathway uses the soil leaching to groundwater model with nonresidential exposure and a target risk for carcinogens of 10^{-4} .

In addition to these assumptions, the equations and parameter values used to generate the Iowa Tier 1 Look-Up Table are described below.

Groundwater Ingestion Equations

Carcinogens:

$$RBSL_w \left[\frac{mg}{L - H_2O} \right] = \frac{TR \times BW \times AT_c \times \frac{365 \text{ days}}{\text{year}}}{SF_o \times IR_w \times EF \times ED}$$

Noncarcinogens:

$$RBSL_w \left[\frac{mg}{L - H_2O} \right] = \frac{THQ \times Rfd_o \times BW \times AT_n \times \frac{365 \text{ days}}{\text{year}}}{IR_w \times EF \times ED}$$

Soil Leaching to Groundwater Equations

$$RBSL_{sl} \left[\frac{mg}{kg - soil} \right] = \frac{RBSL_w \left[\frac{mg}{L - H_2O} \right]}{LF}$$

$$LF \left[\frac{mg/L - H_2O}{mg/kg - soil} \right] = \frac{\rho_s}{\theta_{ws} + k_s \rho_s + H \theta_{as} \left(1 + \frac{U \delta}{IW} \right)}$$

Soil Vapor to Enclosed Space Equations

$$RBSL_{sv} \left[\frac{mg}{kg - soil} \right] = \frac{RBSL_{air} \left[\frac{\mu g}{m^3 - air} \right]}{VF_{sv}} \left(\frac{mg}{1000\mu g} \right)$$

$$VF_{sv} \left[\frac{mg/m^3 - air}{mg/kg - soil} \right] = \frac{\frac{H\rho_s}{\theta_{ws} + k_s\rho_s + H\theta_{as}} \left[\frac{D_s^{eff}/L_s}{ER L_B} \right]}{1 + \left[\frac{D_s^{eff}/L_s}{ER L_B} \right] + \left[\frac{D_s^{eff}/L_s}{(D_{crack}^{eff}/L_{crack})^\eta} \right]} \left(10^3 \frac{cm^3 - kg}{m^3 - g} \right)$$

$$D_{crack}^{eff} \left[\frac{cm^2}{s} \right] = D^{air} \frac{\theta_{acrack}^{3.33}}{\theta_T^2} + D^{wat} \frac{1}{H} \frac{\theta_{wcrack}^{3.33}}{\theta_T^2}$$

$$D_s^{eff} \left[\frac{cm^2}{s} \right] = D^{air} \frac{\theta_{as}^{3.33}}{\theta_T^2} + D^{wat} \frac{1}{H} \frac{\theta_{ws}^{3.33}}{\theta_T^2}$$

Indoor Air Inhalation Equations

Carcinogens:

$$RBSL_{air} \left[\frac{\mu g}{m^3 - air} \right] = \frac{TR \times BW \times AT_c \times \frac{365 \text{ days}}{\text{year}} \times \frac{1000\mu g}{mg}}{SF_i \times IR_{air} \times EF \times ED}$$

Noncarcinogens:

$$RBSL_{air} \left[\frac{\mu g}{m^3 - air} \right] = \frac{THQ \times RfD_i \times BW \times AT_n \times \frac{365 \text{ days}}{\text{year}} \times \frac{1000\mu g}{mg}}{IR_{air} \times EF \times ED}$$

Groundwater Vapor to Enclosed Space Equations

$$RBSL_{gw} \left[\frac{mg}{L - H_2O} \right] = \frac{RBSL_{air} \left[\frac{\mu g}{m^3 - air} \right]}{VF_{gw}} \left(\frac{mg}{1000\mu g} \right)$$

$$RBSL_{air} \left[\frac{\mu g}{m^3 - air} \right] = \frac{THQ \times RfD_i \times BW \times AT_n \times \frac{365 \text{ days}}{\text{year}} \times \frac{1000\mu g}{mg}}{IR_{air} \times EF \times ED}$$

Variable Definitions

Symbol		Definition
δ		groundwater mixing zone thickness (cm)
η		areal fraction of cracks in foundation/wall (cm ² -cracks/cm ² -area)
ρ_s		soil bulk density (g/cm ³)
θ_{acrack}		volumetric air content in foundation/wall cracks (cm ³ -air/cm ³ -soil)
θ_{as}		volumetric air content in vadose zone (cm ³ -air/cm ³ -soil)
θ_T		total soil porosity (cm ³ -voids/cm ³ -soil)
θ_{wcrack}		volumetric water content in foundation/wall cracks (cm ³ -H ₂ O/cm ³ -soil)
θ_{ws}		volumetric water content in vadose zone (cm ³ -H ₂ O/cm ³ -soil)
AT_c		averaging time for carcinogens (years)
AT_n		averaging time for noncarcinogens (years)
BW		body weight (kg)
D^{air}		chemical diffusion coefficient in air (cm ² /s)
D^{wat}		chemical diffusion coefficient in water (cm ² /s)
D	eff	effective diffusion coefficient through foundation cracks (cm ² /s)
	crack	
D	eff	effective diffusion coefficient in soil based on vapor-phase concentration (cm ² /s)

	s
ED	exposure duration (years)
EF	exposure frequency (days/year)
ER	enclosed space air exchange rate (s^{-1})
f_{oc}	fraction organic carbon in the soil (kg-C/kg-soil)
H	henry's law constant (L-H ₂ O)/L-air)
i	groundwater head gradient (cm/cm)
I	infiltration rate of water through soil (cm/year)
IR _{air}	daily indoor inhalation rate (m ³ /day)
IR _w	daily water ingestion rate (L/day)
K	hydraulic conductivity (cm/year)
K _{oc}	carbon-water sorption coefficient (L-H ₂ O/kg-C)
k _s	soil-water sorption coefficient (L-H ₂ O/kg-soil), $f_{oc} \times K_{oc}$
L _B	enclosed space volume/infiltration area ratio (cm)
L _{crack}	enclosed space foundation or wall thickness (cm)
LF	leaching factor from soil to groundwater ((mg/L-H ₂ O)/(mg/kg-soil))
L _{gw}	depth to groundwater from the enclosed space foundation (cm)
L _s	depth to subsurface soil sources from the enclosed space foundation (cm)
RBSL _{air}	Risk-Based Screening Level for indoor air ($\mu\text{g}/\text{m}^3\text{-air}$)
RBSL _{gw}	Risk-Based Screening Level for vapor from groundwater to enclosed space air inhalation (mg/L-H ₂ O)
RBSL _{sl}	Risk-Based Screening Level for soil leaching to groundwater (mg/kg-soil)
RBSL _{sv}	Risk-Based Screening Level for vapors from soil to enclosed space air inhalation (mg/kg-soil)
RBSL _w	Risk-Based Screening Level for groundwater ingestion (mg/L-H ₂ O)
RfD _i	inhalation chronic reference dose (mg/(kg-day))

RfD _o	oral chronic reference dose (mg/(kg-day))
SF _i	inhalation cancer slope factor ((kg-day)/mg)
SF _o	oral cancer slope factor ((kg-day)/mg)
THQ	target hazard quotient for individual constituents (unitless)
TR	target excess individual lifetime cancer risk (unitless)
U	groundwater Darcy velocity (cm/year), $U=Ki$
VF _{gw}	volatilization factor for vapors from groundwater to enclosed space ((mg/m ³ -air)/(mg/kg-soil))
VF _{sv}	volatilization factor for vapors from soil to enclosed space ((mg/m ³ -air)/(mg/kg-soil))
W	width of soil source area parallel to groundwater flow direction (cm)

Soil and Groundwater Parameter Values Used for Iowa Tier 1 Table Generation

Parameter		Iowa Tier 1 Table Value
K	hydraulic conductivity	16060 cm/year
i	groundwater head gradient	0.01 cm/cm
W	width of soil source area parallel to groundwater flow direction	1500 cm
I	infiltration rate of water through soil	7 cm/year
δ	groundwater mixing zone thickness	200 cm
ρ _s	soil bulk density	1.86 g/cm ³
θ _{as}	volumetric air content in vadose zone	0.2 cm ³ -air/cm ³ -soil
θ _{ws}	volumetric water content in vadose zone	0.1 cm ³ -H ₂ O/cm ³ -soil
θ _{acrack}	volumetric air content in foundation/wall cracks	0.2 cm ³ -air/cm ³ -soil
θ _{wcrack}	volumetric water content in foundation/wall cracks	0.1 cm ³ -H ₂ O/cm ³ -soil
θ _T	total soil porosity	0.3 cm ³ -voids/cm ³ -soil
f _{oc}	fraction organic carbon in the soil	0.01 kg-C/kg-soil

L_s	depth to subsurface soil sources from the enclosed space foundation	1 cm
L_{gw}	depth to groundwater from the enclosed space foundation	1 cm

Exposure Factors Used in Iowa Tier 1 Table Generation

Parameter		Residential	Nonresidential
AT_c (years)	averaging time for carcinogens	70	70
AT_n (years)	averaging time for noncarcinogens	30	25
BW (kg)	body weight	70	70
ED (years)	exposure duration	30	25
EF (days/year)	exposure frequency	350	250
IR_{air} (m^3/day)	daily indoor inhalation rate	15	20
IR_w (L/day)	daily water ingestion rate	2	1
THQ (unitless)	target hazard quotient for individual constituents	1.0	1.0

Building Parameters Used in Iowa Tier 1 Table Generation

Parameter		Residential	Nonresidential
ER (s^{-1})	enclosed space air exchange rate	0.00014	0.00023
L_B (cm)	enclosed space volume/infiltration area ratio	200	300
L_{crack} (cm)	enclosed space foundation or wall thickness	15	15
η	areal fraction of cracks in foundation/wall	0.01	0.01

Chemical-Specific Parameter Values Used for Iowa Tier 1 Table Generation

Chemical	D ^{air} (cm ² /s)	D ^{wat} (cm ² /s)	H (L-air/L-water)	log(K _{oc}), L/kg
Benzene	0.093	1.1e-5	0.22	1.58
Toluene	0.085	9.4e-6	0.26	2.13
Ethylbenzene	0.076	8.5e-6	0.32	1.98
Xylenes	0.072	8.5e-6	0.29	2.38
Naphthalene	0.072	9.4e-6	0.049	3.11
Benzo(a)pyrene	0.050	5.8e-6	5.8e-8	5.59
Benz(a)anthracene	0.05	9.0e-6	5.74e-7	6.14
Chrysene	0.025	6.2e-6	4.9e-7	5.30

Saturation Values Used to Determine “NA” for the Iowa Tier 1 Table

Chemical	Solubility in Water (mg/L) S	Saturation in Soil (mg/kg) C _s ^{sat}
Benzene	1,750	801
Toluene	535	765
Ethylbenzene	152	159
Xylenes	198	492
Naphthalene	31	401
Benzo(a)pyrene	0.0012	4.69
Benz(a)anthracene	0.014	193.3
Chrysene	0.0028	5.59

The maximum solubility of the pure chemical in water is listed in the table above. The equation below is used to calculate the soil concentration (C_s^{sat}) at which dissolved pore-water and vapor phases become saturated. Tier 1 default values are used in the equation. “NA” (for not applicable)

is used in the Tier 1 table when the risk-based value exceeds maximum solubility for water (S) or maximum saturation for soil (C_s^{sat}).

$$C_s^{sat} \left[\frac{mg}{kg - soil} \right] = \frac{S}{\rho_s} \times (H\theta_{as} + \theta_{ws} + k_s \rho_s)$$

Slope Factors and Reference Doses Used for Iowa Tier 1 Table Generation

Chemical	SF _i ((kg-day)/mg)	SF _o ((kg-day)/mg)	RfD _i (mg/(kg-day))	RfD _o (mg/(kg-day))
Benzene	0.029	0.029	----	----
Toluene	----	----	0.114	0.2
Ethylbenzene	----	----	0.286	0.1
Xylenes	----	----	2.0	2.0
Naphthalene	----	----	0.004	0.004
Benzo(a)pyrene	6.1	7.3	----	----
Benz(a)anthracene	0.61	0.73	----	----
Chrysene	0.061	0.073	----	----

Appendix B – Tier 2 Equations and Parameter Values (Revised Model)

All Tier 1 equations and parameters apply at Tier 2 except as specified below.

Equation for Tier 2 Groundwater Contaminant Transport Model

Equation (1)

$$C(x) = C_s \exp \left(\frac{X_m}{2a_x} \left[1 - \sqrt{1 + \frac{4\lambda a_x}{u}} \right] \right) \operatorname{erf} \left(\frac{S_w}{4\sqrt{a_y x_m}} \right) \operatorname{erf} \left(\frac{S_d}{4\sqrt{a_z x_m}} \right)$$

Equation (2)

Where $x_m = ax + bxc$

The value of X_m is computed from Equation (2), where the values for a, b and c in Equation (2) are given in Table 1.

Table 1. Parameter Values for Equation (2)

Chemical	a	b	c
Benzene	1	0.000000227987	3.929438689
Toluene	1	0.000030701	3.133842393
Ethylbenzene	1	0.0001	2.8
Xylenes	1	0.0	0.0
TEH-Diesel	1	0.000000565	3.625804634
TEH-Waste Oil	1	0.000000565	3.625804634
Naphthalene	1	0	0

Variable definitions

x: distance in the x direction downgradient from the source

erf(): the error function

C(x): chemical concentration in groundwater at x

C_s : Source concentration in groundwater (groundwater concentration at $x=0$)

S_w : width of the source (perpendicular to x)

S_d : vertical thickness of the source

u: groundwater velocity (pore water velocity); $u=Ki/\theta e$

K: hydraulic conductivity

i: groundwater head gradient

θ_e : effective porosity

λ : first order decay coefficient, chemical specific

$\alpha_x, \alpha_y, \alpha_z$: dispersivities in the x, y and z directions, respectively

For the following lists of parameters, one of three is required: site-specific measurements, defaults or the option of either (which means the default may be used or replaced with a site-specific measurement).

Soil parameters

Parameter		Default Value	Required
ρ_s	soil bulk density	1.86 g/cm ³	option
f_{oc}	fraction organic carbon in the soil	0.01 kg-C/kg-soil	option
θ_T	total soil porosity	0.3cm ³ -voids/cm ³ -soil	option
θ_{as}	volumetric air content in vadose zone	0.2cm ³ -air/cm ³ -soil	default
θ_{ws}	volumetric water content in vadose zone	0.1cm ³ -H ₂ O/cm ³ -soil	default
θ_{acrack}	volumetric air content in foundation/wall cracks	0.2cm ³ -air/cm ³ -soil	default
θ_{wcrack}	volumetric water content in foundation/wall cracks	0.1cm ³ -H ₂ O/cm ³ -soil	default
I	infiltration rate of water through soil	7 cm/year	default

If the total porosity is measured, assume 1/3 is air filled and 2/3 is water filled for determining the water and air fraction in the vadose zone soil and floor cracks.

Groundwater Transport Modeling Parameters

Parameter		Default Value	Required
K	hydraulic conductivity	16060 cm/year	site-specific
i	groundwater head gradient	0.01 cm/cm	site-specific
S _w	width of the source	use procedure specified in 135.10(2)	site-specific
S _d	vertical thickness of the source	3 m	default
α _x	dispersivity in the x direction	0.1x	default
α _y	dispersivity in the y direction	0.33α _x	default
α _z	dispersivity in the z direction	0.05α _x	default
θ _e	effective porosity	0.1	default

where $u=Ki/\theta_e$

First-order Decay Coefficients

Chemical	Default Value λ (d ⁻¹)	Required
Benzene	0.000127441	default
Toluene	0.0000208066	default
Ethylbenzene	0.0	default
Xylenes	0.0005	default
Naphthalene	0.00013	default
TEH-Diesel	0.0000554955	default
TEH-Waste Oil	0.0000554955	default

Other Parameters for Groundwater Vapor to Enclosed Space

Parameter		Default Value	Required
L _{gw}	depth to groundwater from the enclosed space foundation	1 cm	option
L _B	enclosed space volume/infiltration area ratio	200 cm	option
ER (s-1)	enclosed space air exchange rate	0.00014	default
L _{crack}	enclosed space foundation or wall thickness	15 cm	default
η	areal fraction of cracks in foundation/wall	0.01	default

Other Parameters for Soil Vapor to Enclosed Space

Parameter		Default Value	Required
L _s	depth to subsurface soil sources from the enclosed space foundation	1 cm	option
L _B	enclosed space volume/infiltration area ratio	250 cm *	option
ER (s-1)	enclosed space air exchange rate	0.000185 *	default
L _{crack}	enclosed space foundation or wall thickness	15 cm	default
η	areal fraction of cracks in foundation/wall	0.01	default

*These values are an average of residential and nonresidential factors.

Soil Leaching to Groundwater

Parameter		Default Value	Required
δ	groundwater mixing zone	2 m	default

Building Parameters for Iowa Tier 2

Parameter		Residential	Nonresidential
ER (s-1)	enclosed space air exchange rate	0.00014	0.00023
L _B	enclosed space volume/infiltration area ratio	200 cm	300 cm

Other Parameters

For Tier 2, the following are the same as Tier 1 values (refer to Appendix A): chemical-specific parameters, slope factors and reference doses, and exposure factors (except for those listed below).

Exposure Factors for Tier 2 Groundwater Vapor to Enclosed Space Modeling:

Potential Residential: use residential exposure and residential building parameters.

Potential Nonresidential: use nonresidential exposure and nonresidential building parameters.

Diesel and Waste Oil

Diesel and Waste Oil			Chemical-Specific Values for Tier 1			
Media	Exposure Pathway	Receptor	Naphthalene	Benzo(a) pyrene	Benz(a) anthracene	Chrysene
Groundwater (µg/L)	Groundwater	actual	150	0.012	0.12	1.2
	Ingestion	potential	150	1.2	12.0	NA
	Groundwater Vapor to Enclosed Space	all	4,440	NA	NA	NA
	Groundwater to Water Line	all	150	1.2	12.0	NA
	Surface Water	all	150	1.2	12.0	NA

Soil (mg/kg)	Soil Leaching to Groundwater	all	7.6	NA	NA	NA
	Soil Vapor to Enclosed Space	all	95	NA	NA	NA
	Soil to Water Line	all	21	NA	NA	NA

Due to difficulties with analytical methods for the four individual chemicals listed in the above table, Total Extractable Hydrocarbon (TEH) default values were calculated for each chemical, using the assumption that diesel contains 0.2% naphthalene, 0.001% benzo(a)pyrene, 0.001% benz(a)anthracene, and 0.001% chrysene. Resulting TEH Default Values are shown in the following table.

Diesel			TEH Default Values			
Media	Exposure Pathway	Receptor	Naphthalene	Benzo(a) pyrene	Benz(a) anthracene	Chrysene
Groundwater (µg/L)	Groundwater	actual	75,000	1,200	12,000	120,000
	Ingestion	potential	75,000	120,000	1,200,000	NA
	Groundwater	all	2,200,000	NA	NA	NA
	Vapor to Enclosed Space					
	Groundwater to Water Line	all	75,000	120,000	1,200,000	NA
	Surface Water	all	75,000	120,000	1,200,000	NA

Soil (mg/kg)	Soil Leaching to Groundwater	all	3,800	NA	NA	NA
	Soil Vapor to Enclosed Space	all	47,500	NA	NA	NA
	Soil to Water Line	all	10,500	NA	NA	NA

The lowest TEH default value for each pathway (shown as a shaded box) was used in the Tier 1 Table.

Due to difficulties with analytical methods for the four individual chemicals, Total Extractable Hydrocarbon (TEH) default values were calculated for each chemical, using the assumption that waste oil contains no naphthalene, 0.003% benzo(a)pyrene, 0.003% benz(a)anthracene, and 0.003% chrysene. Resulting TEH Default Values are shown in the following table.

Waste Oil			TEH Default Values			
Media	Exposure Pathway	Receptor	Naphthalene	Benzo(a) pyrene	Benz(a) anthracene	Chrysene
Groundwater (ug/L)	Groundwater	actual	NA	400	4,000	40,000
	Ingestion	potential	NA	40,000	400,000	NA
Groundwater (µg/L)	Groundwater Vapor to Enclosed Space	all	NA	NA	NA	NA
	Groundwater to Water Line	all	NA	40,000	400,000	NA
	Surface Water	all	NA	40,000	400,000	NA

Soil (mg/kg)	Soil Leaching to Groundwater	all	NA	NA	NA	NA
	Soil Vapor to Enclosed Space	all	NA	NA	NA	NA
	Soil to Water Line	all	NA	NA	NA	NA

The lowest TEH default value for each pathway (shown as a shaded box) was used in the Tier 1 Table.

Water Line Calculations

Explanation of Target Levels for

Petroleum Fuel-Derived BTEX Compounds in Groundwater and Soil

GROUNDWATER

PVC or Gasketed Mains

Benzene: 7,500 µg/L

Gasoline-saturated groundwater was considered to be an extreme condition of environmental contamination, and it was considered unacceptable to leave water lines, regardless of material, in contact with this level of benzene contamination. While Ong et al. (2008) showed that gasoline-saturated groundwater would not pose a significant risk of permeation exceeding the 5 µg/L MCL for benzene of gasketed DI or PVC water mains, a safety factor of 1/8th was applied to the level of benzene in premium gasoline-saturated water determined by Ong et al. (2008). A 1/2 safety factor was compounded for each of four potential safety risks: material defects in the pipe (= 1/2), presence of service line taps (= 1/4), stagnation of water (= 1/6), and water line breaks (= 1/8). This was an average of 67.5 mg/L ± 4.9 mg/L for multiple preparations of gasoline-saturated

water and was rounded to 60.0 mg/L to conservatively account for the statistical uncertainty. Hence,

$$\text{Target Level} = \frac{1}{8} \times 60,000 \mu\text{g/L} = 7,500 \mu\text{g/L benzene}$$

Toluene: 6,250 $\mu\text{g/L}$

The target level for toluene was determined similarly to that for benzene. The level of toluene in premium gasoline-saturated water was determined by Ong et al. (2008) to be 56.2 mg/L \pm 4.9 mg/L and conservatively rounded to 50.0 mg/L. Hence,

$$\text{Target Level} = \frac{1}{8} \times 50,000 \mu\text{g/L} = 6,250 \mu\text{g/L toluene}$$

Ethylbenzene: 40,000 $\mu\text{g/L}$

The target level was set to be double that for PVC or Gasketed Service Lines (20,000 $\mu\text{g/L}$ – see below).

Total Xylenes: 48,000 $\mu\text{g/L}$

The target level was set to be double that for PVC or Gasketed Service Lines (24,000 $\mu\text{g/L}$ – see below).

PVC or Gasketed Service Lines

Benzene: 3,750 $\mu\text{g/L}$

The target level was set to be one-half of that for PVC or Gasketed Mains (7,500 $\mu\text{g/L}$ as above) since service lines tend to be of higher risk than mains owing to their smaller diameter and greater potential for stagnation.

Toluene: 3,120 µg/L

Similar to benzene, the target level was set to be one-half of that for PVC or Gasketed Mains (6,250 µg/L as above) since service lines tend to be of higher risk than mains owing to their smaller diameter and greater potential for stagnation. Odd-even rounding to 3 significant figures was applied.

Ethylbenzene: 20,000 µg/L

The target level was based on two observations by Ong et al. (2008): (1) premium gasoline-saturated water has an average concentration of 3.4 mg/L ethylbenzene and (2) ethylene permeates high density polyethylene 46 times slower than does benzene (presumably, this is reasonably representative of other materials such as rubber gaskets). The 1/8 safety factor was also applied, as above. Odd-even rounding to 2 significant figures was applied. Hence:

$$\text{Target Level} = 3,400 \mu\text{g/L} \times 46 \times \frac{1}{8} = 19,550 \mu\text{g/L} = 20,000 \mu\text{g/L}$$

Total Xylenes: 24,000 µg/L

Similar to ethylbenzene, the target level was based on (1) premium gasoline-saturated water has an average concentration of 19 mg/L total xylenes and (2) total xylenes permeate high density polyethylene 10 times slower than does benzene. The 1/8 safety factor was also applied, as above. Odd-even rounding to 2 significant figures was applied. Hence:

$$\text{Target Level} = 19,000 \mu\text{g/L} \times 10 \times \frac{1}{8} = 23,750 \mu\text{g/L} = 24,000 \mu\text{g/L}$$

PE/PB/AC

Benzene: 200 µg/L

The target level was set at the concentration of benzene in groundwater surrounding a 1" HDPE service line (SIDR 9 IPS) that would result in a concentration of 2 µg/L benzene in the service line after a 24 hr stagnation period. This level was chosen because 2 µg/L is generally the minimum reportable concentration of benzene in laboratory reports received by the department.

The permeation rate is a function of the concentration of benzene in the groundwater as described by Ong et al. (2008), equation 3.4a:

$$P_m = 0.0079C_{bulk}^{1.1323}$$

where P_m is the benzene permeation rate in µg/cm²/day through the pipe described above (cm² refers to the inner surface of the pipe) and C_{bulk} is the concentration of benzene in the groundwater (mg/L).

For any length of exposed 1" SIDR 9 IPS pipe, l (cm), the concentration in the pipe after 24 hr stagnation, C_{24hr} (µg/L), can be computed from P_m and the ratio of the inner surface of the pipe to the internal volume:

$$C_{24hr} = P_m \times \left(\frac{2\pi r l}{\pi r^2 l / 1000} \right) = 0.0079C_{bulk}^{1.1323} \times \frac{2000}{r}$$

where r is the inside radius of the pipe (cm), l is the length of exposed pipe (cm), and dividing by 1000 converts from cm³ to liters (and, therefore, 2000/ r converts µg/cm²/day to µg/L/day).

Solving for C_{bulk} (mg/L) with $C_{24hr} = 2$ µg/L and $r = 1.28$ cm (per manufacturer's specifications):

$$C_{bulk}^{1.1323} \times \frac{2 \times 1.28}{0.0079 \times 2000}$$

and

$$C_{bulk} = \sqrt[1.1323]{0.162} = 0.200 \text{ mg/L} = 200 \text{ } \mu\text{g/L}$$

While the target level is expressed as 200 $\mu\text{g/L}$ for clarity, the underlying data support only two significant figures. In a stricter treatment of the data, this would be expressed as $20 \times 10^1 \mu\text{g/L}$.

Toluene: 3,120 $\mu\text{g/L}$

The target level was set to be equal to that for PVC or Gasketed Service Lines. Calculations similar to those used above for benzene (Ong et al. (2008), equation 3.4b) indicate that 3,120 $\mu\text{g/L}$ toluene in groundwater would result in 50 $\mu\text{g/L}$ inside a 1" SIDR 9 IPS HDPE pipe after 24 hours of stagnation, which is 1/20th of the 1,000 $\mu\text{g/L}$ MCL for toluene.

Ethylbenzene: 3,400 $\mu\text{g/L}$

The target level was set to be equal to the concentration of ethylbenzene in premium gasoline-saturated water (see discussion above for PVC or Gasketed Mains/Benzene). Unlike other target levels based on contaminant concentrations in gasoline-saturated water, the 1/8th safety factor was not applied because of the very low permeation rate of ethylbenzene through HDPE, the relatively low solubility of ethylbenzene in water, and the relatively high MCL (700 $\mu\text{g/L}$). Ong et al. (2008) found that permeation of HDPE by aqueous ethylbenzene was minimal and of no consequence for public health.

Total Xylenes: 19,000 µg/L

The target level was set to be equal to the concentration of ethylbenzene in premium gasoline-saturated water following the same reasoning for ethylbenzene (above). The permeation rate and water solubility are also very low, and the MCL is 10,000 µg/L. Ong et al. (2008) found that permeation of HDPE by aqueous xylenes was minimal and of no consequence for public health.

SOIL

Target levels for soil were set to be the same for mains and service lines of any material discussed above under “Groundwater.” The underlying data support two significant figures for target levels in soil. Odd-even rounding was applied where appropriate.

Benzene: 2.0 mg/Kg

The target level was derived from the concentration of benzene (mg/Kg) that would result if soil that was 10% moisture and 1% organic matter was equilibrated with premium gasoline-saturated water (60 mg/L benzene – as per discussion of PVC or Gasketed Mains/Benzene above). The equilibrium concentration in soil was calculated using the approach of Chiou et al. (1983). The 1/8th safety factor discussed previously for groundwater was applied. Accordingly:

$$C_T = C_w K_d + C_w \theta$$

where C_T is the total concentration of benzene in soil (mg/Kg), θ is the fraction of moisture in the soil (Kg/Kg), and K_d is the partition coefficient from water to soil (L/Kg). Further:

$$K_d = K_{om} f_{om}$$

where K_{om} is the partition coefficient from water to organic matter in the soil, which is 16.8 L/Kg for benzene in soils with naturally occurring organic matter (Chiou et al. (1983)), and f_{om} is the fraction of organic matter in the dry soil (Kg/Kg).

For soil containing 1% naturally occurring organic matter and 10% moisture, the total concentration of benzene upon exposure to premium gasoline-saturated groundwater (60 mg/L benzene, as per above discussion of PVC or Gasketed Mains) would be:

$$C_T = \left(\frac{60mg}{L} \times \left(\frac{16.8L}{Kg} \times \frac{0.01Kg}{Kg} \right) \right) + \left(\frac{60mg}{L} \times \frac{0.1Kg}{Kg} \right) = \frac{16mg}{Kg}$$

Applying the 1/8th safety factor:

$$Target\ Level = \frac{1}{8} \times \frac{16mg}{Kg} = \frac{2.0mg}{Kg}$$

Toluene: 3.2 mg/Kg

The target level was derived in the same manner as for benzene except that the concentration of toluene in premium gasoline-saturated water is 50 mg/L and K_{om} is 42 L/Kg. Accordingly:

$$C_T = \left(\frac{50mg}{L} \times \left(\frac{42L}{Kg} \times \frac{0.01Kg}{Kg} \right) \right) + \left(\frac{50mg}{L} \times \frac{0.1Kg}{Kg} \right) = \frac{26mg}{Kg}$$

and

$$Target\ Level = \frac{1}{8} \times \frac{26mg}{Kg} = \frac{3.2mg}{Kg}$$

Ethylbenzene: 45 mg/Kg

The target level was based on the target level set for Groundwater/PVC or Gasketed Mains (40,000 µg/L, rounded from 39,100 µg/L, or 39.1 mg/L) and the principles of Chiou et al. (1983) discussed above. In a manner similar to that for benzene in soil, C_W was 3.4 mg/L, K_d was 0.106 L/Kg, and C_T was calculated to be 3.9 mg/Kg. The target level for soil that is equivalent to the target level set for groundwater was calculated as follows:

$$\text{Target Level mg/Kg} = 39.1 \text{ mg/L} \times \frac{3.9 \text{ mg/Kg}}{3.4 \text{ mg/L}} = 45 \text{ mg/Kg}$$

Total Xylenes: 52 mg/Kg

The target level was set in the same manner as for ethylbenzene (above), based on the groundwater target level of 48,000 µg/L (rounded from 47.5 mg/L). C_W was 19 mg/L, K_d was 1.001 L/Kg (assuming a mixture of m-, o-, and p-xylenes which is 60%, 20%, and 20%, respectively, which is typical of xylenes derived from petroleum), and C_T was calculated to be 21 mg/Kg. Hence:

$$\text{Target Level mg/Kg} = 47.5 \text{ mg/L} \times \frac{21 \text{ mg/Kg}}{19 \text{ mg/L}} = 52 \text{ mg/Kg}$$

NOTE: The 1/8th safety factor was applied above to the target levels for ethylbenzene and total xylenes for Groundwater, PVC or Gasketed Service Lines, thence the target levels for Groundwater, PVC or Gasketed Mains, were derived. Consequently, the 1/8th safety factor has also been applied to the target levels for both ethylbenzene and total xylenes in soil.

REFERENCES

Chiou, C. T., P. E. Porter and D. W. Schmedding. 1983. Partition equilibria of nonionic organic compounds between soil organic matter and water. *Environ. Sci. Technol.*, 17(4)227-231.

Ong, S. K., J. A. Gaunt, F. Mao, C. L. Cheng, L. Esteve-Agelet, and C. R. Hurburgh. 2008. Impact of hydrocarbons on PE/PVC pipes and pipe gaskets, Publication 91204. Awwa Research Foundation (presently Water Research Foundation), Denver, CO.

Appendix B-1 – Tier 2 Equations and Parameter Values (Old Model)

All Tier 1 equations and parameters apply at Tier 2 except as specified below.

Equation for Tier 2 Groundwater Contaminant Transport Model

$$C(x) = C_s \exp\left(\frac{X}{2a_x} \left[1 - \sqrt{1 + \frac{4\lambda a_x}{u}}\right]\right) \operatorname{erf}\left(\frac{S_w}{4\sqrt{a_y x}}\right) \operatorname{erf}\left(\frac{S_d}{4\sqrt{a_z x}}\right)$$

Variable definitions

x: distance in the x direction downgradient from the source

erf(): the error function

C(x): chemical concentration in groundwater at x

C_s: Source concentration in groundwater (groundwater concentration at x=0)

S_w : width of the source (perpendicular to x)

S_d : vertical thickness of the source

u: groundwater velocity (pore water velocity); $u=Ki/\theta_e$

K: hydraulic conductivity

i: groundwater head gradient

θ_e : effective porosity

λ : first-order decay coefficient, chemical specific

$\alpha_x, \alpha_y, \alpha_z$: dispersivities in the x, y and z directions, respectively

For the following lists of parameters, one of three is required: site-specific measurements, defaults or the option of either (which means the default may be used or replaced with a site-specific measurement).

Soil parameters

Parameter		Default Value	Required
ρ_s	soil bulk density	1.86 g/cm ³	option
f_{oc}	fraction organic carbon in the soil	0.01 kg-C/kg-soil	option
θ_T	total soil porosity	0.3cm ³ -voids/cm ³ - soil	option
θ_{as}	volumetric air content in vadose zone	0.2cm ³ -air/cm ³ -soil	default
θ_{ws}	volumetric water content in vadose zone	0.1cm ³ -H ₂ O/cm ³ -soil	default

θ_{acrack}	volumetric air content in foundation/wall cracks	$0.2\text{cm}^3\text{-air}/\text{cm}^3\text{-soil}$	default
θ_{wcrack}	volumetric water content in foundation/wall cracks	$0.1\text{cm}^3\text{-H}_2\text{O}/\text{cm}^3\text{-soil}$	default
I	infiltration rate of water through soil	7 cm/year	default

If the total porosity is measured, assume 1/3 is air filled and 2/3 is water filled for determining the water and air fraction in the vadose zone soil and floor cracks.

Groundwater Transport Modeling Parameters

Parameter		Default Value	Required
K	hydraulic conductivity	16060 cm/year	site-specific
i	groundwater head gradient	0.01 cm/cm	site-specific
S_w	width of the source	use procedure specified in 135.10(2)	site-specific
S_d	vertical thickness of the source	3 m	default
α_x	dispersivity in the x direction	$0.1x$	default
α_y	dispersivity in the y direction	$0.33\alpha_x$	default
α_z	dispersivity in the z direction	$0.05\alpha_x$	default
θ_e	effective porosity	0.1	default

where $u=Ki/\theta_e$

First-order Decay Coefficients

Chemical	Default Value λ (d ⁻¹)	Required
Benzene	0.0005	default

Toluene	0.0007	default
Ethylbenzene	0.00013	default
Xylenes	0.0005	default
Naphthalene	0.00013	default
Benzo(a)pyrene	0	default
Benz(a)anthracene	0	default
Chrysene	0	default

Other Parameters for Groundwater Vapor to Enclosed Space

Parameter		Default Value	Required
L _{gw}	depth to groundwater from the enclosed space foundation	1 cm	option
L _B	enclosed space volume/infiltration area ratio	200 cm	option
ER (s-1)	enclosed space air exchange rate	0.00014	default
L _{crack}	enclosed space foundation or wall thickness	15 cm	default
η	areal fraction of cracks in foundation/wall	0.01	default

Other Parameters for Soil Vapor to Enclosed Space

Parameter		Default Value	Required
L _s	depth to subsurface soil sources from the enclosed space foundation	1 cm	option
L _B	enclosed space volume/infiltration area ratio	250 cm *	option

ER (s-1)	enclosed space air exchange rate	0.000185 *	default
L _{crack}	enclosed space foundation or wall thickness	15 cm	default
η	areal fraction of cracks in foundation/wall	0.01	default

*These values are an average of residential and nonresidential factors.

Soil Leaching to Groundwater

Parameter		Default Value	Required
δ	groundwater mixing zone	2 m	default

Building Parameters for Iowa Tier 2

Parameter		Residential	Nonresidential
ER (s-1)	enclosed space air exchange rate	0.00014	0.00023
L _B	enclosed space volume/infiltration area ratio	200 cm	300 cm

Other Parameters

For Tier 2, the following are the same as Tier 1 values (refer to Appendix A): chemical-specific parameters, slope factors and reference doses, and exposure factors (except for those listed below).

Exposure Factors for Tier 2 Groundwater Vapor to Enclosed Space Modeling:

Potential Residential: use residential exposure and residential building parameters.

Potential Nonresidential: use nonresidential exposure and nonresidential building parameters.

Diesel and Waste Oil

Diesel and Waste Oil			Chemical-Specific Values for Tier 1			
Media	Exposure Pathway	Receptor	Naphthalene	Benzo(a) pyrene	Benz(a) anthracene	Chrysene
Groundwater (ug/L)	Groundwater Ingestion	actual	150	0.012	0.12	1.2
		potential	150	1.2	12.0	NA
	Groundwater Vapor to Enclosed Space	all	4,440	NA	NA	NA
	Groundwater to Plastic Water Line	all	150	1.2	12.0	NA
	Surface Water	all	150	1.2	12.0	NA
Soil (mg/kg)	Soil Leaching to Groundwater	all	7.6	NA	NA	NA
	Soil Vapor to Enclosed Space	all	95	NA	NA	NA
	Soil to Plastic Water Line	all	21	NA	NA	NA

Due to difficulties with analytical methods for the four individual chemicals listed in the above table, Total Extractable Hydrocarbon (TEH) default values were calculated for each chemical, using the assumption that diesel contains 0.2% naphthalene, 0.001% benzo(a)pyrene, 0.001% benz(a)anthracene, and 0.001% chrysene. Resulting TEH Default Values are shown in the following table.

Diesel	TEH Default Values
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Media	Exposure Pathway	Receptor	Naphthalene	Benzo(a) pyrene	Benz(a) anthracene	Chrysene
Groundwater (ug/L)	Groundwater Ingestion	actual	75,000	1,200	12,000	120,000
		potential	75,000	120,000	1,200,000	NA
	Groundwater Vapor to Enclosed Space	all	2,200,000	NA	NA	NA
	Groundwater to Plastic Water Line	all	75,000	120,000	1,200,000	NA
	Surface Water	all	75,000	120,000	1,200,000	NA
Soil (mg/kg)	Soil Leaching to Groundwater	all	3,800	NA	NA	NA
	Soil Vapor to Enclosed Space	all	47,500	NA	NA	NA
	Soil to Plastic Water Line	all	10,500	NA	NA	NA

The lowest TEH default value for each pathway (shown as a shaded box) was used in the Tier 1 Table.

Due to difficulties with analytical methods for the four individual chemicals, Total Extractable Hydrocarbon (TEH) default values were calculated for each chemical, using the assumption that waste oil contains no naphthalene, 0.003% benzo(a)pyrene, 0.003% benz(a)anthracene, and 0.003% chrysene. Resulting TEH Default Values are shown in the following table.

Waste Oil			TEH Default Values			
Media	Exposure Pathway	Receptor	Naphthalene	Benzo(a)pyrene	Benz(a)anthracene	Chrysene
Groundwater (µg/L)	Groundwater Ingestion	actual	NA	400	4,000	40,000
		potential	NA	40,000	400,000	NA
Groundwater (µg/L)	Groundwater Vapor to Enclosed Space	all	NA	NA	NA	NA
	Groundwater to Plastic Water Line	all	NA	40,000	400,000	NA
	Surface Water	all	NA	40,000	400,000	NA
Soil (mg/kg)	Soil Leaching to Groundwater	all	NA	NA	NA	NA
	Soil Vapor to Enclosed Space	all	NA	NA	NA	NA
	Soil to Plastic Water Line	all	NA	NA	NA	NA

The lowest TEH default value for each pathway (shown as a shaded box) was used in the Tier 1 Table.