Agenda

Environmental Protection Commission

Tuesday, June 17, 2025

Teleconference: 661-615-8170 PIN: 219 411 781#

Video Conference: meet.google.com/fdw-vjzq-wcs

6200 Park Ave, Des Moines, IA

Walnut Woods Conf Room

Tuesday, June 17, 2025
10:00 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	Approval of the Minutes	
3	Monthly Reports	Ed Tormey (Information)
4	Director's Remarks	Kayla Lyon (Information)
5	Chapter 40, Scope of Division, Definitions, Forms, Public Notice and Education, Consumer Confidence Reports, Reporting, and Record Maintenance – Final Rule	Lori McDaniel (Decision)
6	Chapter 41, Water Supplies – Final Rule	Lori McDaniel (Decision)
7	Chapter 43, Water Supplies—Design and Operation – Final Rule	Lori McDaniel (Decision)
8	Grant funding for four Environmental Management System (EMS) Proposals	Laurie Rasmus (Decision)
9	Contract with The University of Northern Iowa- Iowa Air Emissions Assistance Program	Christine Paulson (Decision)
10	Contract with Linn County-Linn County Air Quality Program	Christine Paulson (Decision)
11	Contract with Polk County-Polk County Air Quality Program	Christine Paulson (Decision)
12	Contract with The University of Iowa State Hygienic Lab-Ambient Air Monitoring	Wendy Walker (Decision)
13	Contract with The University of Iowa State Hygienic Lab-Lab Certification Program	Kathleen Lee (Decision)
14	Contract with Iowa Department of Agriculture and Land Stewardship-Linked Deposit Programs	Theresa Enright (Decision)
15	Contract with The University of Iowa- Interstate Water Quality Monitoring – Fixed Site Network Implementation Project	Daniel Kendall (Decision)
16	Contract with The Department of Agriculture and Land Stewardship- Palo Alto Shallow Lakes project	Ginger Murphy (Decision)
17	Clean Water and Drinking Water State Revolving Loan Fund – FY 2026 Intended Use Plans	Theresa Enright (Decision)
18	General Discussion	
19	Upcoming Meetings • Tuesday, July 15, Des Moines • Tuesday, August 19, Des Moines	

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

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[1]Comments 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

May 21, 2025

Video Teleconference
and
Hotel Winneshiek
104 E Water St
Decorah, IA
Meeting Room B

Approved by the Commission TBD

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Table of Contents

Meeting Minutes

CALL TO ORDER

The meeting of the Environmental Protection Commission (Commission or EPC) was called to order by Chairperson Mark Stutsman at 8:30 am on May 21, 2025 via video/teleconference attendees.

COMMISSIONERS PRESENT

Patricia Foley
Roger Zylstra
Jason Ballard
Kyle Tobiason
Dawn Refsell
Rebecca Dostal
Jim Christensen
Amy Echard

COMMISSIONERS ABSENT

None

APPROVAL OF AGENDA

Motion was made by Kyle Tobiason to approve the agenda as presented. Seconded by Amy Echard.
The Chairperson asked for the Commissioners to approve the agenda by saying aye. There were no nay votes.

APPROVED AS PRESENTED

ENVIRONMENTAL PROTECTION COMMISSION OATH OF OFFICE FOR NEW COMMISSIONERS

Division Administrator Ed Tormey swore in Dawn Refsell and Jason Ballard as new EPC Commissioners

ELECTION OF OFFICERS

Motion was made by Amy Echard to nominate Mark Stutsman as Chair of the Environmental Protection Commission. Seconded by Patricia Foley.
The Chairperson asked for the Commissioners to approve the nomination by saying aye. There were no nay votes.

Motion was made by Roger Zylstra to nominate Amy Echard as Vice Chair of the Environmental Protection Commission.
The Chairperson asked for the Commissioners to approve the nomination by saying aye. There were no nay votes.

Motion was made by Jim Christensen to nominate Patricia Foley as Secretary of the Environmental Protection Commission.
The Chairperson asked for the Commissioners to approve the nomination by saying aye. There were no nay votes.

APPROVAL OF MINUTES

Motion was made by Roger Zylstra to approve the item as presented. Seconded by Jim Christensen.
The Chairperson asked for the Commissioners to approve the Minutes of the April 15, 2025 meeting by saying aye. There were no nay votes.

APPROVED AS PRESENTED

MONTHLY REPORTS

- Divisional Administrator Ed Tormey informed Commissioners that the 2025 Legislative Session has ended. Overall, there were few bills that passed the Legislature that impacted ESD. Mr. Tormey mentioned that there are some legislative bills that did not pass, but are likely to remain relevant next legislative session.
- Mr. Tormey shared that the quarterly reports detailing current information on DNR enforcement, rulemaking, and other division priorities were published as part of the May EPC packet and entertained questions on the reports.
- Mr. Tormey concluded his remarks by reminding Commissioners that the DNR provided a draft air quality budget for SFY 2026 at the March EPC meeting. He noted that if any changes to the draft are made, the Department is tasked with coming back to the Commission during the May meeting to present any fee changes. Mr. Tormey reported that there are no changes from the draft air quality budget presented at the March meeting.

INFORMATION

DIRECTOR'S REMARKS

- None

CONTRACT WITH IOWA STATE UNIVERSITY FOR MANURE APPLICATOR CERTIFICATION (MAC) TRAINING

Christina Iiams requested Commission approval for a contract with Iowa State University for MAC training. Chairperson Stutsman invited Daniel Anderson from Iowa State to share a few remarks regarding the training.

Public Comments – Larry Stone: Increased funds for more field staff to help with MMPs and inspections
Written Comments – None

Motion was made by Rebecca Dostal to approve the items as presented. Seconded by Patricia Foley.
Roger Zylstra-aye, Jason Ballard-aye, Dawn Refsell-aye, Rebecca Dostal-aye, Kyle Tobiason-aye, Jim Christensen-aye, Patricia Foley-aye, Amy Echard-aye, Mark Stutsman-aye. Motion passes.

APPROVED AS PRESENTED

CONTRACT WITH THE UNIVERSITY OF IOWA ON BEHALF OF THE STATE HYGIENIC LAB (SHL)-LAB SERVICES FOR THE FIELD SERVICES AND COMPLIANCE BUREAU.

Christina Iiams requested Commission approval for a contract with SHL for lab services for the Field Services and Compliance Bureau.

Public Comments – None
Written Comments – None

Motion was made by Roger Zylstra to approve the items as presented. Seconded by Kyle Tobiason.
Roger Zylstra-aye, Jason Ballard-aye, Dawn Refsell-aye, Rebecca Dostal-aye, Kyle Tobiason-aye, Jim Christensen-aye, Patricia Foley-aye, Amy Echard-aye, Mark Stutsman-aye. Motion passes.

CONTRACT WITH THE UNIVERSITY OF TEXAS AT DALLAS (UT DALLAS)-E-PLAN SYSTEM

Christina Iiams requested Commission approval for a contract with UT Dallas for Iowa's E-Plan system. Adam Broughton responded to questions regarding the systems that other states use to fulfill this information sharing requirement.

Public Comments – None
Written Comments – None

Motion was made by Kyle Tobiason to approve the items as presented. Seconded by Patricia Foley.
Roger Zylstra-aye, Jason Ballard-aye, Dawn Refsell-aye, Rebecca Dostal-aye, Kyle Tobiason-aye, Jim Christensen-aye, Patricia Foley-aye, Amy Echard-aye, Mark Stutsman-aye. Motion passes.

APPROVED AS PRESENTED

CONTRACT WITH WINDSOR SOLUTIONS-SLEIS

Wendy Walker requested Commission approval for a contract with Windsor Solutions for the SLEIS database. Ms. Walker responded to several questions regarding the QA process for the information submitted into the SLEIS database and explained the onsite assistance available to smaller facilities. Sarah Piziali also assisted with questions pertaining to the types of emissions tracked and reported.

Public Comments – None

Written Comments – None

Motion was made by Jim Christensen to approve the items as presented. Seconded by Amy Echard.
Roger Zylstra-aye, Jason Ballard-aye, Dawn Refsell-aye, Rebecca Dostal-aye, Kyle Tobiason-aye, Jim Christensen-aye, Patricia Foley-aye, Amy Echard-aye, Mark Stutsman-aye. Motion passes.

APPROVED AS PRESENTED

CONTRACT WITH THE UNIVERSITY OF IOWA-AMBIENT STREAM MONITORING

Mark Moeller requested Commission approval for contract with The University of Iowa for sample collection and lab analysis for the Ambient Stream Monitoring program. Mr. Moeller responded to general questions regarding the contract.

Public Comments –

Melissa O'Lart: Importance of water quality to Winneshiek County and increased funding for water quality

Birgitta Mead: Referenced increased nitrates in water sampling and poor soil test results

Joe Scirota: Low fines for water quality violations, encourage continuation of stream monitoring

Tim Wagner: Increased funding for environmental work, communication concerns with DNR regarding a recent fish kill, low fines for water quality violations

Mike Vermace-Inclusion of metabolites in water sampling, measure what matters

Jodi Enos-Berlage-Water quality directly related to soil quality, provided overview of the Dry Creek Watershed study results (attached)

Written Comments – See attached

Motion was made by Patricia Foley to approve the items as presented. Seconded by Rebecca Dostal.
Roger Zylstra-aye, Jason Ballard-aye, Dawn Refsell-aye, Rebecca Dostal-aye, Kyle Tobiason-aye, Jim Christensen-aye, Patricia Foley-aye, Amy Echard-aye, Mark Stutsman-aye. Motion passes.

APPROVED AS PRESENTED

CONTRACT WITH THE UNIVERSITY OF IOWA-AMBIENT STREAM BIOLOGICAL MONITORING

Mark Moeller requested Commission approval for a contract with The University of Iowa for sample collection and lab analysis for the Ambient Stream Biological Monitoring program. Mr. Moeller responded to several questions about the contract

Public Comments –

Larry Stone-Increase funding for monitoring projects

Birgitta Mead-Increase monitoring, people care about monitoring work

Jodi Enos-Berlage-Increased funding for biological monitoring for things you can't see in the water

Written Comments – See attached

Motion was made by Rebecca Dostal to approve the items as presented. Seconded by Jason Ballard.
Roger Zylstra-aye, Jason Ballard-aye, Dawn Refsell-aye, Rebecca Dostal-aye, Kyle Tobiason-aye, Jim Christensen-aye, Patricia Foley-aye, Amy Echard-aye, Mark Stutsman-aye. Motion passes.

APPROVED AS PRESENTED

CONTRACT WITH IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP (IDALS)-TROUT RUN/SIEWERS SPRING WATERSHED

Miranda Haes requested Commission approval for a contract with IDALS for the Trout Run/Siewers Spring Watershed project.

Public Comments – Members of the public in attendance stated they are looking forward to community engagement and emphasized the importance of the project.

Written Comments – None

Motion was made by Jim Christensen to approve the items as presented. Seconded by Patricia Foley.
Roger Zylstra-aye, Jason Ballard-aye, Dawn Refsell-aye, Rebecca Dostal-aye, Kyle Tobiason-aye, Jim Christensen-aye, Patricia Foley-aye, Amy Echard-aye, Mark Stutsman-aye. Motion passes.

APPROVED AS PRESENTED

CONTRACT AMENDMENT WITH SHIVE-HATTERY-DESIGN SERVICES FOR STORMWATER AND INFILTRATION-BASED PRACTICES AT STATE PARK BEACHES

Steve Konrady requested Commission approval for a contract with Shive-Hattery for additional design services for infiltration-based practices at several State Park beaches.

Public Comments – None

Written Comments – None

Motion was made by Patricia Foley to approve the items as presented. Seconded by Roger Zylstra.
Roger Zylstra-aye, Jason Ballard-aye, Dawn Refsell-aye, Rebecca Dostal-aye, Kyle Tobiason-aye, Jim Christensen-aye, Patricia Foley-aye, Amy Echard-aye, Mark Stutsman-aye. Motion passes.

APPROVED AS PRESENTED

GENERAL DISCUSSION

- Chairperson Stutsman thanked members of the public for their attendance and encouraged them to contact their Legislators regarding topics that require legislative action.
- Chairperson Stutsman entertained comments on the March fish kill and on Pattison Sand water use permit application in Clayton County.
- Brigida: Pattison Sand-concerns related to the process, timeline and water availability in the area; encourage better communication with locals, including well owners
- Decorah City Manager: March fish kill: Concerned that City not notified directly of major spill, cities can serve as a resource to DNR when spills occur

ADJOURN

Chairperson Mark Stutsman adjourned the Environmental Protection Commission meeting at 11:28 am on May 21, 2025.

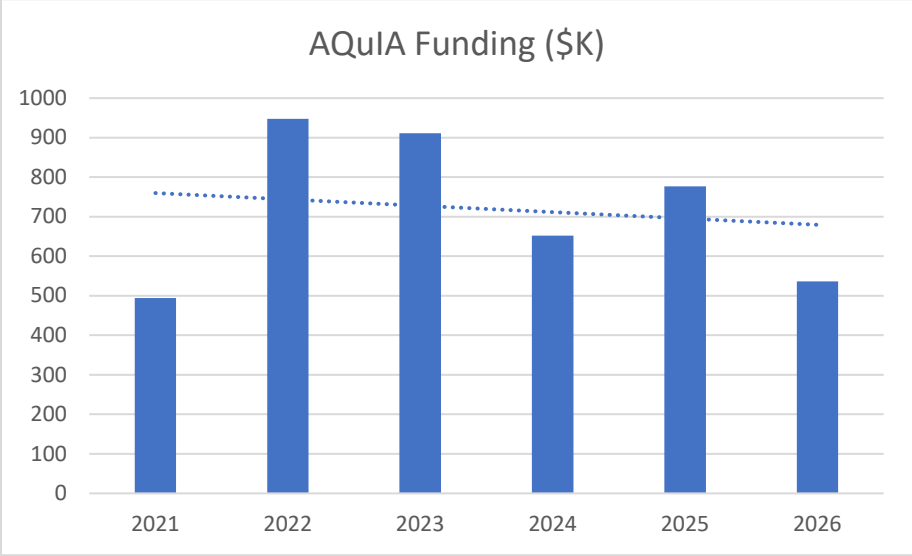
ADJOURNED

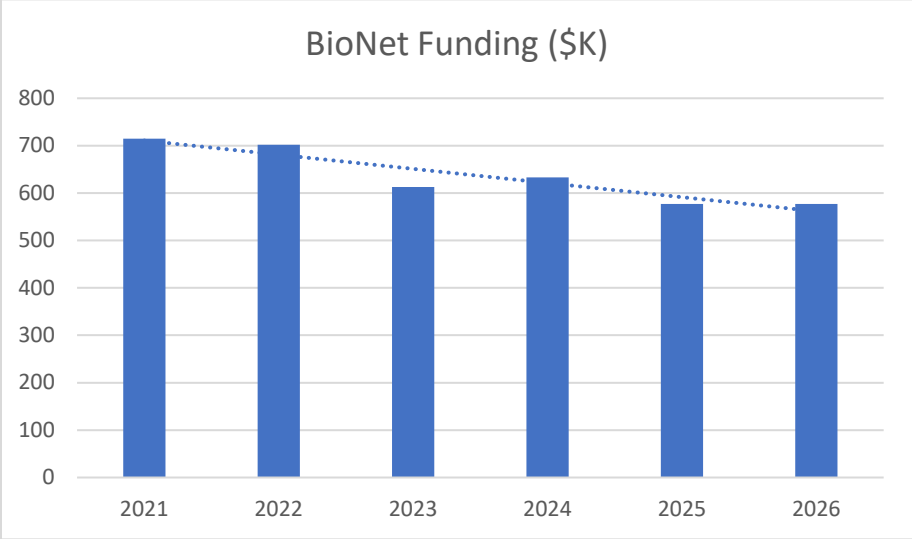
Comments – Agenda Items 11 and 12 – Contract with SHL for Stream Monitoring

May 20, 2025

Steve Veysey
Protecting Outstanding Iowa Waters
919 Murray Drive
Ames, IA 50010

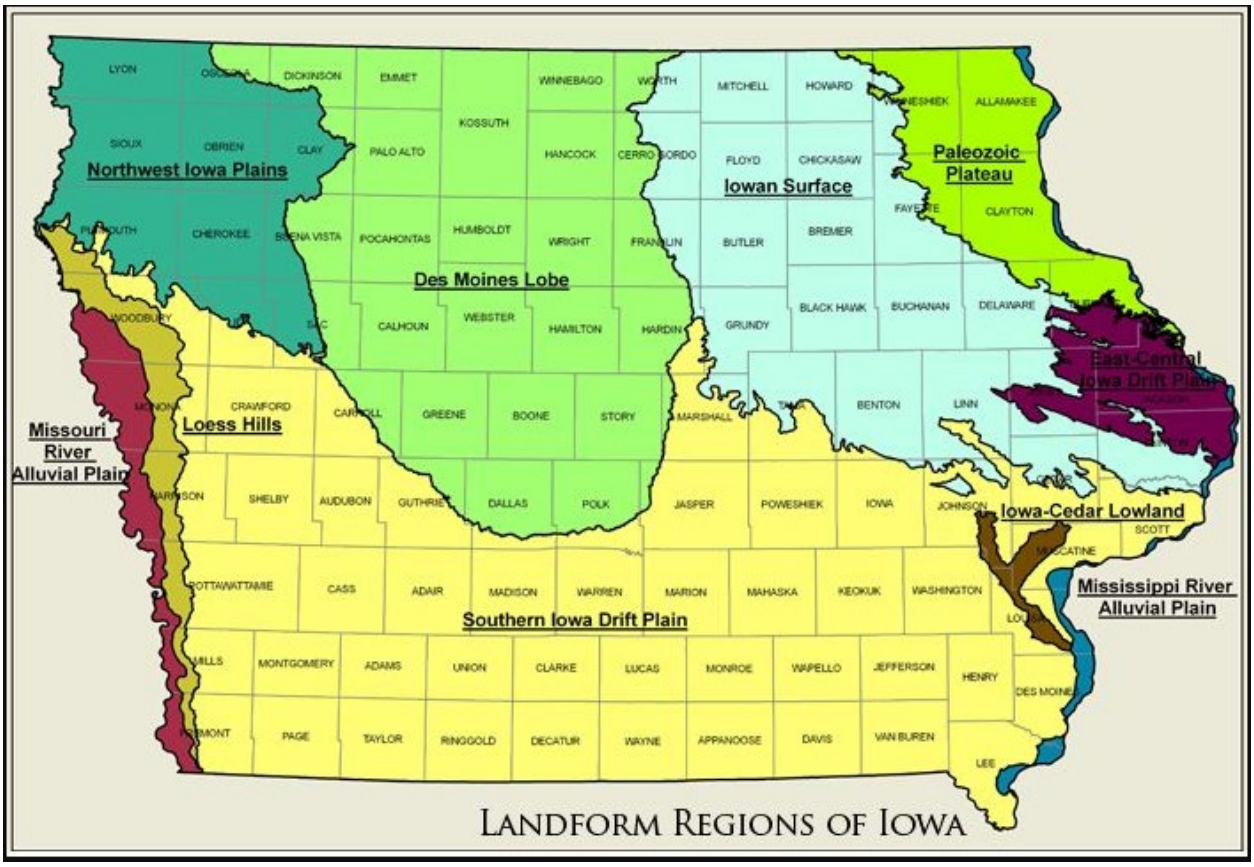
Thank you for giving me the opportunity to submit brief written comments regarding the agenda items pertaining to professional water sampling. These include the sites listed in AQuIA where water samples are collected for chemical/physical monitoring, and sites listed in BioNet for benthic macroinvertebrate and/or fish population sampling. I fully support funding these budget items. In fact, additional funding should be obtained to expand these programs, which clearly have been shrinking in recent years.





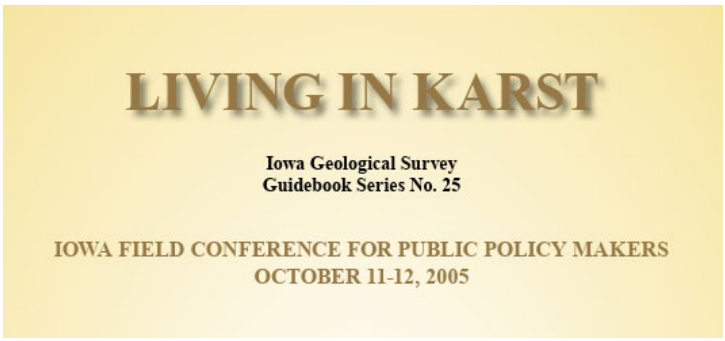
I'm going to pitch why we need more monitoring sites and more longitudinal studies for NE Iowa streams, but my windup is admittedly long.

All streams in Iowa should be protected and restored to fully support their beneficial uses, but in this discussion, I will focus on a very special set of streams, the cold-water trout streams of the Iowa Driftless ecoregion. Many of these are in Winneshiek county. Sadly, most rivers and streams in Iowa suffer from the impairments of siltation, excess nutrients, and pathogens, including many of the streams of NE Iowa. However, the difference between the streams of the Paleozoic Plateau (PP) and the streams in the Northwest Iowa Plains is stark. Those streams are virtually beyond repair unless there is a major shift in farming practices. Although I may wish for that, I don't see it happening anytime soon. The streams of Northeast Iowa are a different matter. They can be saved, and they should be saved. At all cost.



It is a fact that the corn/soy/CAFO (c/s/C) farming model vigorously implemented in most of the ecoregions of Iowa is NOT a good fit for the Loess Hills, Paleozoic Plateau and the Silurian Escarpment ecoregions. It's literally like trying to fit a square peg in a round hole. These regions have special environmental attributes that make them uniquely precious, but they also have vulnerabilities. All aspects of living and farming in Iowa's karst region is described in great detail in the 2005 publication "Living in Karst". This document was prepared for public policy makers attending the field conference. It can be found using the search term: *"Living in Karst Iowa Geological Series Guidebook 25".*

The 21 contributing authors represent the most authoritative Iowa scientists and DNR staff that have ever collaborated on a technical document intended to truthfully guide policy makers in an area of great interest and concern.



In the early 2000's, it became clear that the corn/soy/CAFO model would predominate the landscape of most of Iowa. The legislature passed laws that would support agri-business endeavors with virtually no impediment in most ecoregions, but included provisions that SHOULD have minimized the expansion of the c/s/C model into the fragile karst-dominated landscape of Winneshiek, Allamakee, Clayton, and parts of several other counties. Those laws were expressed in Chapter 65 rules the EPC created at the time; rules that have been modified (never for the better) on several occasions. In 2005, as it pertained to the Paleozoic Plateau counties, the shape of the hole was clearly circular, and the shape of the peg was clearly square. Unfortunately, things didn't stay that way.

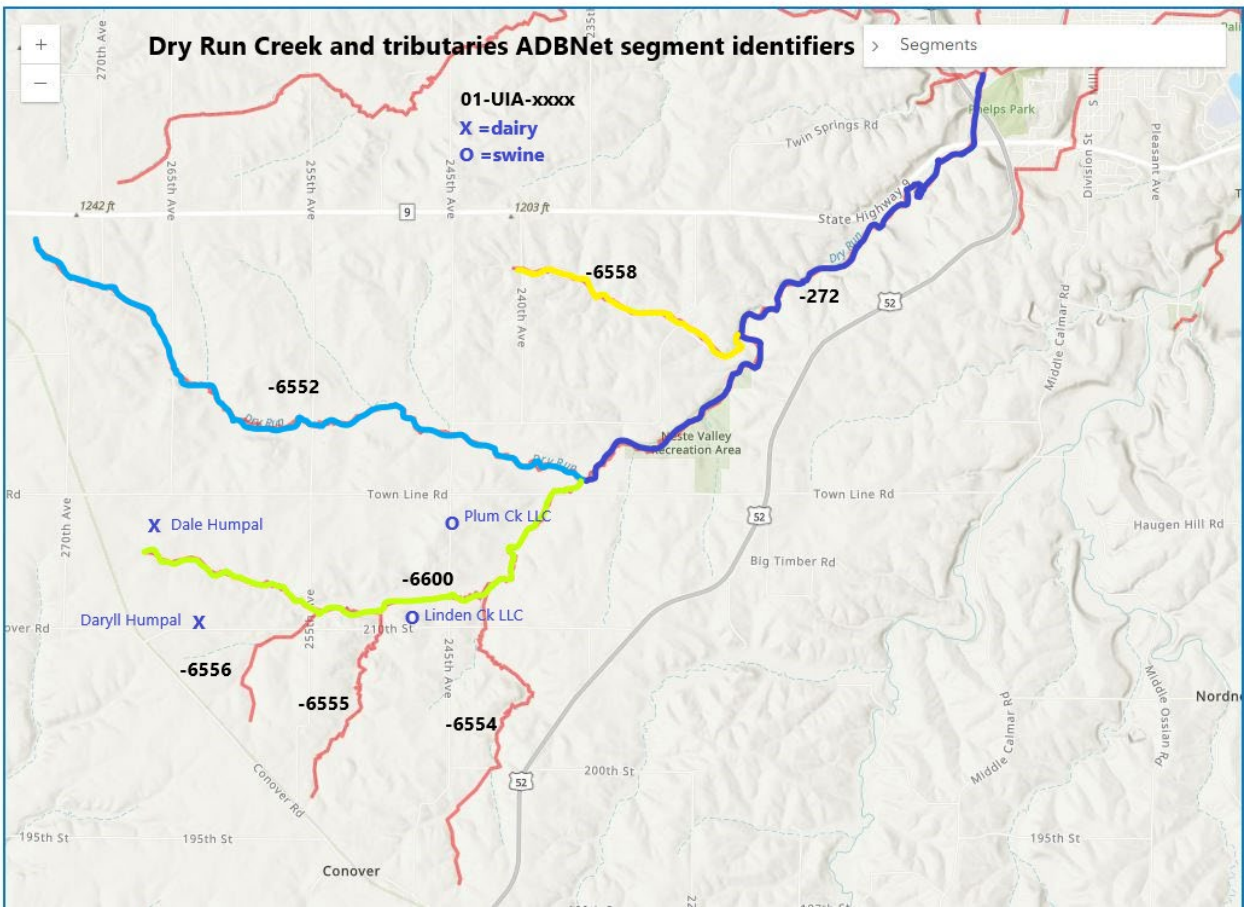
One of the protective features of the early version of Chapter 65 was that it recognized there was an obligation to follow federal law – specifically the provisions of the 1985 Food Security Act pertaining to row-cropping HEL fields (highly erodible land). Manure plans that proposed to spread on HEL fields were required to include verified NRCS Conservation Compliance plans with their application. Conservation practices, structures, and the farming operation entries used in the RUSLE2 soil loss calculations, were certified by NRCS staff to be truthful and in compliance with T-value soil loss goals.

From the perspective of the environmentally conscious public, this generally did what it was supposed to do. It kept highly sloped land, land extremely prone to runoff, from being row-cropped without adequate field-edge buffers, detention basins, and terraces. It presumably kept new or expanding c/s/C operations few and properly sited. From the perspective of the agribusiness industry, it meant potential untapped. For the struggling farmer not being able to fully implement the agribusiness c/s/C model, it seemed unfair.

The solution? Round the edges of the peg and square up the sides of the hole. Then jam it in! That's what happened beginning circa 2010 when the requirement that manure plans with HEL fields submit NRCS certified conservation plans was removed by legislation and rule. Manure plans could now be written by anyone and certified by no one. It was a race to the bottom. Instead of writing plans based on a responsible conservation-minded use of manure as a resource, the plan writers' goal was to write an "approvable" plan allowing the maximum amount of manure to be spread on the minimum number of acres. I don't know the full history, but at some point DNR Field Office staff realized they were simply meant to be spectators in the process. Administratively review the manure plans. Make sure the fee is paid. Do a complete technical review only on a small fraction of plans…. usually when an external event makes the plan high profile. Verify that boxes are checked and tables are completed, but NEVER check the validity of the entries.

In 2025 that's the reality of DNR's manure program, at least in Winneshiek, Allamakee, and Clayton counties where I've reviewed more than 50 plans. I've never found one that was done completely

correctly. Some are a complete mess. I've included in Appendix A three summary examples for AFO's in Winneshiek county's Dry Run Creek watershed which recently experienced a manure related fish kill – the third or fourth documented event. Full reviews can be much longer and sometimes require redoing the RUSLE2 and P-Index calculations using correct and/or more reasonable values.



Both the Dale Humal Dairy and the Daryll Humpal Dairy have been cited for manure fish-kills. Plum Ck and Linden Ck LLCs are swine facilities under common ownership and share the same manure application fields. My evaluation of their manure plans found serious problems. Longitudinal studies of benthic macroinvertebrates and fish populations as well as regular chemical and biological monitoring is needed to confirm whether the swine facilities and/or the dairy facilities may be contributing to chronic impairment of Dry Run Creek.

During that same period, circa 2010, when manure plans became a Wild West show, dairy and cattle operations that traditionally used open feedlots saw the savings possible by raising animals in confinement. They wanted in, but they did NOT want the onerous rules that had been imposed on the agribusiness swine industry. Cattlemen have clout in the legislature. The definition of an "open feedlot" was expanded from its traditional meaning to include confinement buildings that were not fully roofed. An operation was deemed an open feedlot as long as 10% of the area was unroofed, even if the operation was in every other respect, including liquid manure pits under the buildings, operated and managed as a confinement. Quite literally, operators build confinement structures but then leave one end open to a small pen so that they can take advantage of less restrictive rules, like:

- no Master Matrix review (therefore no public comment) if it's an "open feedlot" structure

- no restriction against spreading manure during the winter
- no separation distance requirement from a sinkhole

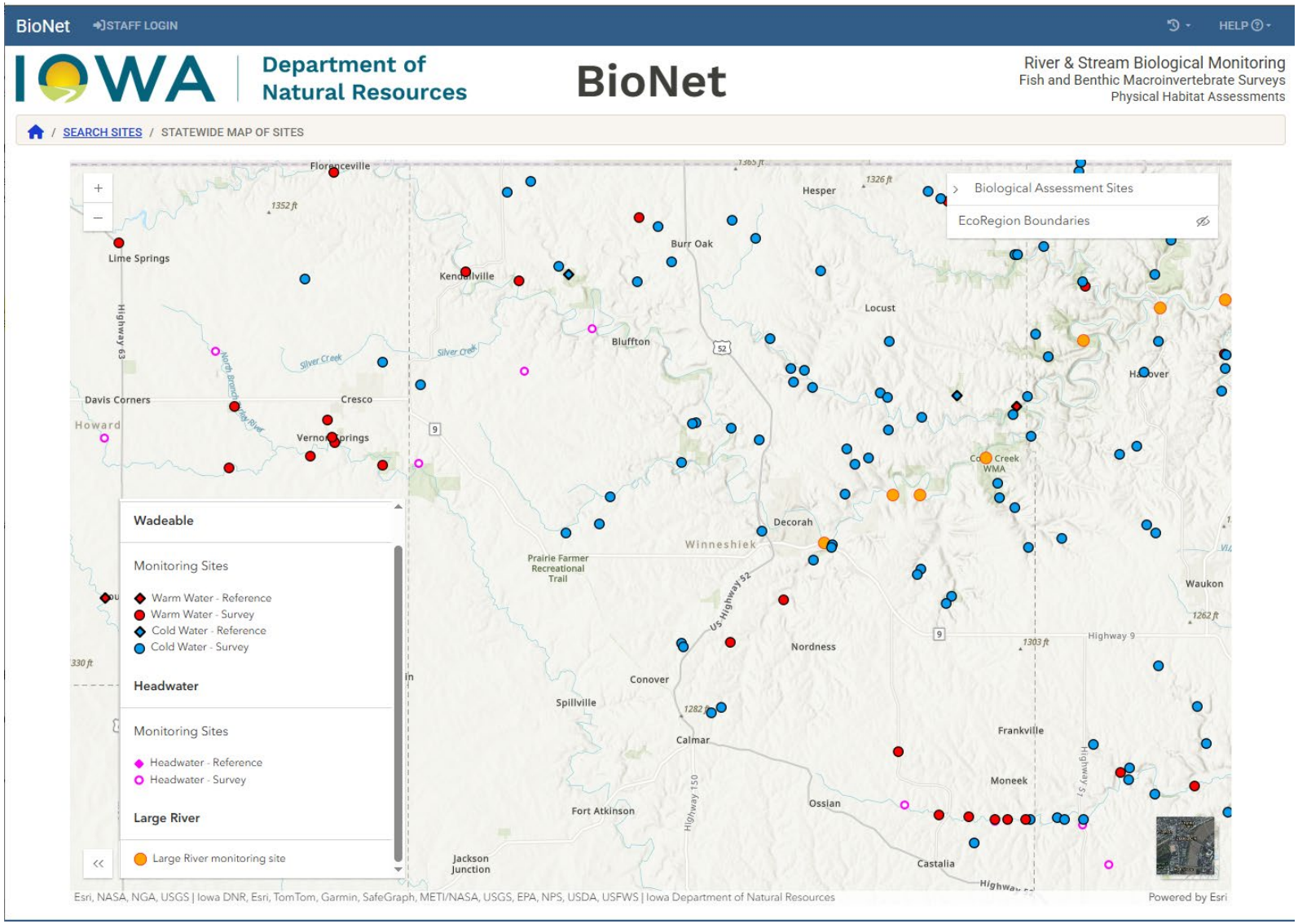
The list goes on.

That's the windup for why we need more stream monitoring. NRCS is not enforcing conservation compliance plans. In fact, one cannot FOIA information about a conservation compliance plan or any investigative or enforcement actions pertaining to a conservation compliance plan. DNR is not properly requiring, reviewing, or enforcing truthful and accurate manure plans. DNR is not characterizing the effect of large AFO water withdrawal permits on neighboring wells, springs, or streams, nor considering the ramifications of the disposal of the polluted water. Manure is at least 92% water, and water-in becomes manure-out in about six hours. Where it finally goes needs to be considered.

Change requires truth. Truth comes from having data. Enough data in quantity and quality that the truth emerges and cannot be denied. While we may wish that state agencies would do the heavy lifting that change requires, that's not happening. The overwhelming response I get from people when I show them bad manure plans, or ridiculous water withdrawal permits is: *"Wow. Now that I know, I'll tell the DNR and they'll make it right!"* No they won't. DNR works for their clients. The people are not their clients; the businesses they regulate are. "Coach for Compliance" is the mantra. Except DNR generally does not coach with any conviction and compliance is literally seen as voluntary.

The map below presents the BioNet sites in Winneshiek County. These are locations where benthic macroinvertebrate or fish sampling has been done. Benthic sampling results in the calculation of a Benthic Macroinvertebrate Index of Biotic Integrity (BMIBI). Scores above 50 support the conclusion that the "biological" beneficial use is attained; score below 50 indicate that the biological use might not be attained. This can lead to the segment being put on the 303D list of impaired waters. Similarly, fish sampling results in the calculation of a Fish Index of Biotic Integrity (FIBI), which also has a pass/fail threshold and can lead to the segment being put on the 303D list. From the map it looks like a lot of sampling! But the devil is in the details.

The map has dots for <u>all</u> the historical sampling and also includes partial fish sampling – where the data cannot be used to calculate an FIBI score and therefore determine impairment. Item 12 Table 1 shows that for the entire state, only 66 sites will be sampled in 2026 with the funds requested. There is no way to know from the data presented which cold water streams will be sampled in 2026. It may be as few as half a dozen. There are more than 150! Clearly we should do better.


BioNet
STAFF LOGIN
HELP
IOWA
Department of Natural Resources
BioNet
River & Stream Biological Monitoring
Fish and Benthic Macroinvertebrate Surveys
Physical Habitat Assessments
SEARCH SITES / STATEWIDE MAP OF SITES
Biological Assessment Sites
EcoRegion Boundaries
Wadeable
Monitoring Sites
Warm Water - Reference
Warm Water - Survey
Cold Water - Reference
Cold Water - Survey
Headwater
Monitoring Sites
Headwater - Reference
Headwater - Survey
Large River
Large River monitoring site
Florenceville
Lime Springs
Kendallville
Burr Oak
Hesper
Locust
Bluffton
Davis Corners
Cresco
Howard
Decorah
Winneshiek
Prairie Farmer Recreational Trail
Waukon
Nordness
Conover
Spillville
Calmar
Frankville
Moneek
Ossian
Fort Atkinson
Jackson Junction
Castalia
Highway 63
Silver Creek
US Highway 52
Highway 9
Highway 150
Esri, NASA, NGA, USGS | Iowa DNR, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, USFWS | Iowa Department of Natural Resources
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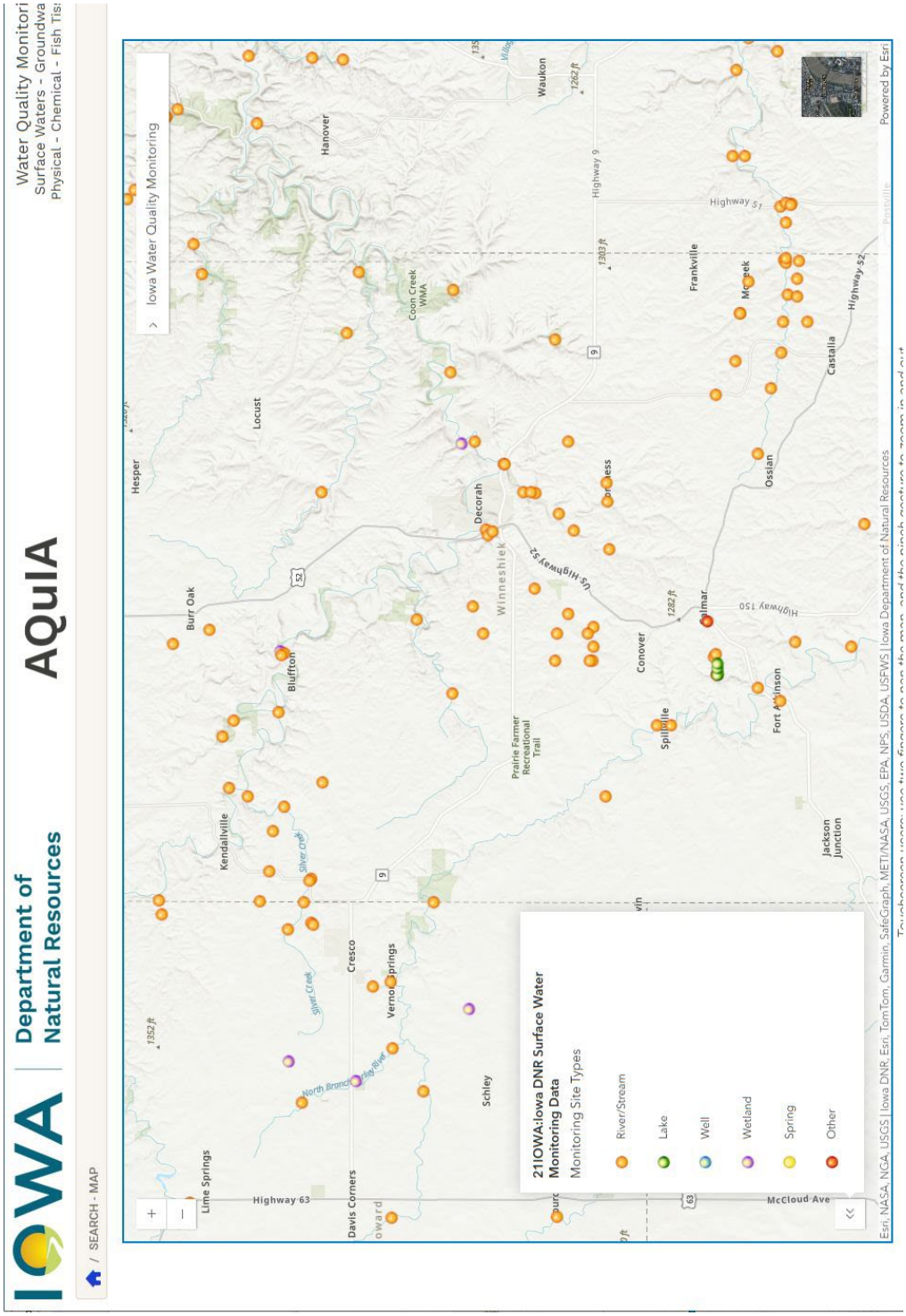
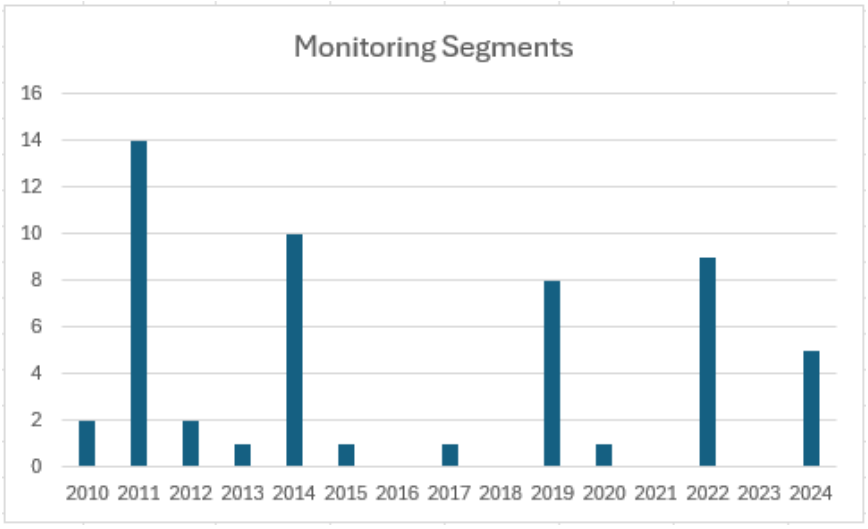
The map below represents the AQuIA sites in Winneshiek County. AQuIA sites are the locations where water is sampled and tested onsite or in the lab for chemical, physical, and biological parameters. Again, it looks like a lot of sampling, but again, dots are shown for all the historical sites as well as current sites.

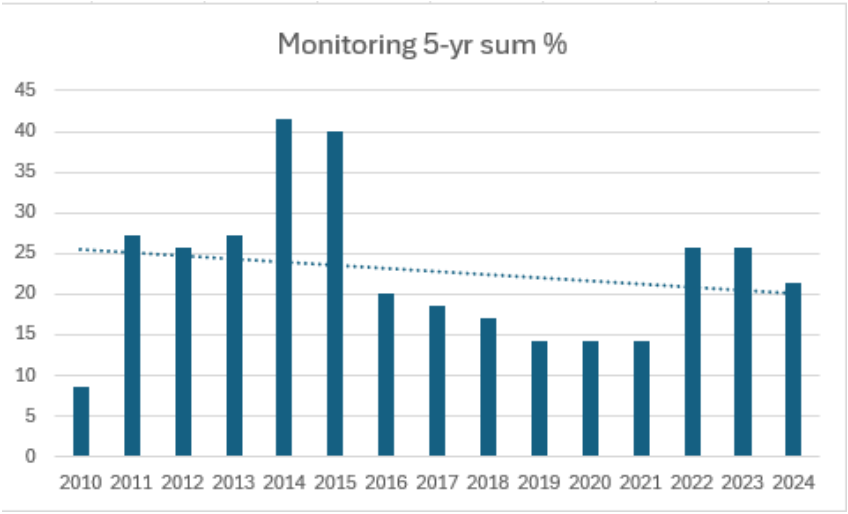


Agenda item 11 does contain a list of all the proposed AQuIA sites. There are only 60 listed for the entire state! There are NONE listed for Winneshiek County! The dots you see in the map above represent OLD data. Most of it is more than 5 years old, compromised for 303D listing and other

regulatory decisions. Sorting the AQuIA database by county shows 70 sites in Winneshiek County that have monitoring data acquired by DNR (coded as 21IOWA), historical or current. The graph below shows that in 2024 only FIVE of the 70 sites were still being monitored, and we know that in 2026 that number for Winneshiek County will be ZERO. What is happening?



The Iowa Credible Data law put limits on the usefulness of stream monitoring data that is more than 5 years old. The graph below shows the 5-year sum of monitoring sites as a percentage of the 70 sites in Winneshiek County with monitoring data. This clearly shows that at any point in time only about 20% of the sites have defensible data usable for 303D listing or other regulatory purposes. The numbers are a bit better than the abysmal 2016 thru 2021 numbers, but are again trending downward, especially when you include the projected ZERO monitoring sites for 2026.



We must find a way to sample more streams consistently so that sufficient quality data is present to allow citizens to present the truth about the water quality in our cold water streams and demand improvements.

Appendix B includes a summary of relevant emails with Mr. Krier and Mr. Moeller. You will see that after the most recent Dry Run Creek fish kill, on March 30, I requested that a benthic macroinvertebrate site, annually monitored, be established on Dry Run Creek in the Neste Valley county park. I was informed that it would not be put on the monitoring schedule for this year but would be considered for next year.

You will also note an email discussion regarding the DNR's Fish Kill Follow up Program, established in 2011. Appendix C contains a discussion of the program. This mandates BioNet fish surveys to track the recovery of manure impacted streams based upon FIBI scores. You will note that the Fish Kill Follow Up Program has never been implemented for cold-water streams! A cold-water assessment protocol, analogous to the warmwater protocol is "under development". When you visit the information page about the program and view the initiation and last change dates, it is apparent that "development" has been occurring since either 2009 or 2021. This protocol needs to be finalized and implemented for manure-caused fishkills on cold water streams like Dry Run Creek. Please establish that as a priority.

There is also a discussion of "Waters in Need of Further Investigation" (WINOFI). The 303D list is referred to as the Impaired Waters List. But there are multiple categories of streams, and only "Category 5" streams are reported as Impaired. Many streams are in impairment limbo for various reasons, including the WINOFI status. Without getting into the details of how the 303D list is prepared and the various categories within the 303D list, it seems like reduced monitoring will put even more possibly impaired streams into WINOFI limbo. Establishing the necessary monitoring for these streams to be definitively included or excluded from the impaired waters list should also be a priority.

APPENDIX A – MMP's in the DRC Watershed

Critique of the Daryll Humpal Dairy MMP – partial draft 3/26/25

Page 1 Table 1 correctly lists the DNR / IAC table values for the N and P2O5 concentrations to be used in the calculations as N= 25 and P2O5 = 12 lbs per 1000 gallons. Gallons of manure per space per day is the table value of18.

Table 1. Information about livestock production and manure management system

1	2	3	4	5	6	7	8
Animal type/ Production phase[a]	Max # of animals confined	Manure Storage Structure [b]	N[c]	P_2O_5[c]	gal/space/dy[d]	Days/yr Facility occupied	Annual Manure Produced[e]
Dairy Cows, 1200 & up l	386	Earthen Basin	25	12	18.0	365	2,536,020
Select production phas			0	0	0.0		000
Select production phas			0	0	0.0		000
							000
						Total Gallons	**2,536,020**

Estimated annual animal production 386 animals/year

Source of Manure Nutrient Content Data (standard tables, manure analysis, other): Standard Tables

HOWEVER, on Page 2 Table 2 for liquids, **it transposes the numbers** and proceeds to use N= 12 and P2O5= 25 lbs per 1000 gallons.

Table 2. Manure nutrient concentration

Manure Nutrient Content (lbs/1000gal or lbs/ton)					
Manure Storage Structure(s) [k]	Deep Pit - Swine				
Total N [l]	12		**P_2O_5**	25	
%TN Available 1st year	30%	**2nd year**	10%	**3rd year**	5%
Available N 1st year[m]	3.5	**2nd year[n]**	1.2	**3rd year[o]**	0.6

It's using grossly WRONG numbers for all of the manure spreading calculations in the plan. This results in allowed over application of N and gross over application of P to the fields receiving liquid manure. Even a simple "administrative review" of the plan should have caught this glaring error. I was tempted to stop my review after being gobsmacked by this.

There are lots of things wrong with the RUSLE2 and P-Index calculations as well. As usual, no ephemeral gully erosion is included, even though this plan was reviewed and approved by DNR well after the judicial ruling in the SB case that EG must be included. DNR did require it in the Fawn Hollow NMP submitted after the ruling, probably because it was high profile, and we were commenting. But they have not required it in any other NMP or MMP I've reviewed since then. The judicial ruling is simply being ignored.

Critique of the Reicks "Plum Creek" and "Linden Creek" LLC MMP's partial draft 3/26/25

The two facilities are located ½ mile apart. Both claim the same three fields for manure disposal. Both claim N and P2O5 content much lower that table values, and both include the lab tests showing those values. There is NO WAY to confirm the accuracy of these tests. Two glaring ways to achieve low values:

- Just add some water to the samples before you send them. This will result in lower N and P2O5 test values. The lab results showed very high water content.
- Take the samples from near the surface of the pit. The manure always stratifies in the pit, with less nutrients in the top layer. The pits get agitated before pumping to be more homogeneous, but if you take the samples before agitation, the N and P2O5 test values will come back much lower.

For all three fields in both plans they claim a tillage credit based on 1% absolute row grade. I've looked. This is false. They do not claim any terrace or other conservation practice credits in RUSLE2, so soil loss does calculate high for 2 of the 3 fields. But they contradict this in the P-Index calculation by claiming "level terraces", even though I can't see any. **This allows them to claim a STF factor of 0.0**. This gets multiplied by the R2+EG soil loss value (and a few other factors) to get the erosive component of the P-Index – the most significant component for sloped fields. A big number multiplied by zero is not a big number, it's ZERO. This is the equivalent of claiming that muddy water NEVER runs off those fields. That's how they achieve much lower values in the P-Index calculation.

If the P-Index terrace claim is disallowed, they will have to use the SDR factor instead of the STF factor. The magnitude of SDR depends on the distance from the field to the nearest intermittent stream. Streams flow right through two of these fields. If the calculations are done correctly, those fields might not qualify for <u>any</u> manure, and would certainly have phosphorous-based limits.

CONCLUSION

I wish I could say I was surprised, but terrible MMPs are not a bug, they are a feature of how DNR implements and enforces the manure program. I've proved this many times. I'm hopeful a legal pathway appears to challenge the MMP program. I've previously expressed my concern that forcing some facilities to get federal NPDES permits may simply result in the feds shrink-wrapping the terribly flawed state manure program and calling it good. It's a conundrum.

Appendix B

Initial email sent 03/30/2025 from Steve Veysey to:

Ken Krier,

Environmental Specialist Senior

Water Quality Monitoring and Assessment Section

Hello Ken,

As you may know, there recently was a fish kill event on Dry Run Creek just SW of Decorah. Sadly, this is at least the third documented fish kill on that stretch. I understand that 303D listing as biologically impaired, based just on fish kills, is controlled by specific policy decisions. For this discussion, I would like to put that aside.

Dry Run Creek is listed in the IAC rule-referenced stream classification document and ADBNet as B(CW1). In the 2008-2024 period it's been more or less listed as "not-supporting" for contact recreation or kids play based upon bacteria measurements. The longest segment, 01-UIA-272, includes the areas impacted by fish kills in 1998 and 2017, and we think the current fish kill also affected that segment. However, it doesn't appear that BioNET includes any benthic macroinvertebrate data for that segment, or the 01-UIA-6552 segment upstream, or the major unnamed tributary 01-UIA-6600.

There may have been limited public access points in the past (I don't really know), but the County has acquired and is developing a property called Neste Valley Recreation Area that will provide public access to about 1.2 miles of DRC, not far from the areas where fish kills have been documented.

In addition to the continuing contact recreation issues, the 2024 assessment lists DRC segment 272 as *Class B(CW1) - Not Supported*. There are some minor temperature excursions, which in the past seem to have led to a "partially supporting" status, and there is the 2017 fish kill event. For the first time, in the 2024 biennial report there is the *"Waters in Need of Further Investigation flag* (WINOFI). The descriptor for that flag has the following wording:

"In recent years, the Iowa Department of Natural Resources has begun several efforts to reduce the number of waters on the WINOFI list and investigate these waters so that they may be fully assessed."

"In 2011, the DNR developed the Fish Kill Follow-up program to conduct biological sampling on segments where fish kills had occurred. The results of these surveys provide data on the recovery of fish communities after a fish kill."

In light of the 2024 WINOFI status and the fish kill that occurred a few weeks ago, I would like to request that the segment 01-UIA-272 be included for biological sampling using the Iowa Coldwater Benthic Index protocol. Is there a specific form or petition I need to submit for consideration? Thanks.

As it turns out, a Luther College group did extensive chemical/physical/ bacteriological studies at more than a dozen sites on Dry Run Creek in the 2010-2011 time frame. Publication attached. It looks like ADBNet incorporated much of that data in the preparation of the 2014 305B report. But the study also included detailed benthic collection and analysis at 9 sites. Full disclosure, the specific Iowa benthic analysis protocol wasn't followed, and when Todd looked at the raw data he did find one or two possible misidentifications. Still, the data was published in a peer-reviewed journal. Is there any way the data could be included in the next 305B report?

If the *Fish Kill Follow-up* program could fund benthic studies at a couple of points over the next two seasons, you might have enough benthic data to meet the "Further Investigation" mandate for the 2026 305B report. Thanks for considering my request.

Please forward this email to whomever you feel is appropriate. One final, less pleasant, point I need to make. Based upon the DNR AFO Siting Atlas, there are three AFO's with MMPs In the watershed, and one that is just under the threshold. There are other smaller operations that are not shown in the Atlas. So far DNR has not released the name of the party responsible for the current fishkill, but the responsible parties for the previous two are known. Without pointing the finger at any of these operations, I've just done a quick review of the three MMPs available to me. All three are riddled with errors and in my opinion allow much more manure to be spread in the watershed than should be allowed. I wish I could say that flawed MMPs allowing excessive manure application were rare, but it is generally the norm when I do technical reviews of plans in NE Iowa. Not something you can do anything about, but perhaps it explains some of the urgency I and others feel about identifying and fixing impairments to Dry Run Creek.

Cheers,

Steve V.

****

Email received 03/30/2025 from Ken Krier:

Steve,

I am aware of the Dry Run Creek situation and I acknowledge receipt of your email. It will take me some time to review your requests and then discuss them with DNR management. Thanks.

Regards,

Ken

Email received 04/15/2025 from Mark Moeller, P.E., WQMA Supervisor:

Mr. Veysey,

The CY2025 biological monitoring and assessment program sampling locations, including benthic macroinvertebrate sites, have already been finalized. Your request for additional benthic macroinvertebrate sampling will be reconsidered during next year's planning process.

Department staff reviewed the 2013 publication titled "Evaluation of land use and water quality in an agricultural watershed in the USA indicates multiple sources of bacterial impairment," which utilized 2010–2011 Dry Run Creek watershed water quality data and 2011 benthic macroinvertebrate data. The 2011 data were not used for Integrated Report (IR) aquatic life assessments, as the protocols and analysis methods differ from DNR protocols. The IR team supported the decision to exclude this dataset from IR assessments.

We appreciate your understanding and your request and interest in the DNR's biological monitoring programs.

Sincerely,

Mark

****

Email sent 4/15/25 from Steve Veysey to Mark Moeller:

Hello,

What is the status of DNRs Fishkill Followup Program announced in 2011 and referenced in the ADBNet recent evaluation of Dry Run Creek? Please provide details of that program. Thank you.

Steve Veysey

Email received 04/15/2025 from Mark Moeller, P.E.:

Mr. Veysey,

The Fish Kill Follow-up (FKF) program is conducted by Water Quality Monitoring and Assessment (WQMA) Section and exclusively collects fish community samples in assessment units (segments) that have an aquatic life use fish kill impairment. A detailed explanation of the FKF program can be found starting on page 76 in the 2020 Integrated Report (IR) Methodology document. Although not explicitly mentioned, DNR only applies the FKF program, and associated data, to warm water (WW) streams. WQMA is currently working with the DNR Fisheries Bureau to develop coldwater (CW) species richness and fish abundance metrics similar to the WW metrics developed for the FKF program. The FKF program was not referenced in the 2024 Integrated Report BCW1 aquatic life assessment for Dry Run Segment 272. The language used in the assessment explanation section means that the Class BCW1 aquatic life assessment included an assessment based on the occurrence of a fish kill in the segment.

Thanks,

Mark Moeller, P.E

Appendix C Excerpts from:

Methodology for Iowa's 2020 Water Quality Assessment, Listing, and Reporting Pursuant to Sections 305(b) and 303(d) of the Federal Clean Water Act

Prepared by:
Iowa Department of Natural Resources
Environmental Services Division
Water Quality Bureau
Water Quality Monitoring & Assessment Section
November 9, 2020

Attachment 5 Methodology for Identifying Recovery of Iowa Stream Fish Communities from Pollutant Caused Fish Kills

Water Quality Monitoring & Assessment Section and

Watershed Improvement Section,

Water Quality Bureau,

Iowa Department of Natural Resources

Introduction

The following protocol is designed to provide the biological information needed to determine whether a fish community impacted by a fish kill event has recovered from that event. This protocol defines thresholds for numbers of fish species (species richness) and fish abundance (catch per unit effort or fish density) that indicate a stream fish community is similar to non-fish kill impacted fish communities in a given ecoregion or watershed. Fish communities in fish kill-impaired stream segments that meet or exceed both these thresholds will be considered to have recovered from a fish kill event, and the associated stream segment will be moved from an impairment category of Iowa's Integrated Report (IR Categories 5 or 4) to a non-impairment category (IR Category 3a).

Background

Iowa DNR began adding stream segments with pollutant-caused fish kills to the Iowa Section 303(d) lists during the 2002 reporting/listing cycle. Waterbody segments with fish kills where Iowa DNR investigators identified or suspected a

pollutant cause were added to the state's impaired waters list. The pollutant-caused fish kill was considered an impairment of the stream's designated Class B aquatic life use. According to Iowa DNR's methodology for the 2002 assessment/listing cycle, if no subsequent kills occurred in the affected waterbody segment for a three-year period following the kill, the fish community and other aquatic communities were assumed to have recovered from the fish kill event, and the impairment would be delisted.

Iowa DNR's 2002 methodology for delisting fish kill-impaired assessment segments, however, was rejected by the EPA for the 2008 reporting cycle. EPA informed Iowa DNR that fish kill-impairments

identified on wadeable streams could be delisted only if more recent biological sampling demonstrated recovery of the aquatic communities from the fish kill event. Unfortunately, the Iowa streams for which most of the fish kills impairments were identified were not (and have not been) targeted for sampling as part of other Iowa DNR biological assessment projects. Given the lack of resources to expand Iowa DNR's biological sampling program to include fish kill-impaired segments, follow-up biological sampling with the Iowa DNR bioassessment protocol was not feasible. Based on the results an Iowa DNR study of fish kill recovery (Wilton 2002) that showed some streams recover relatively quickly from a fish kill event (within a few months), Iowa DNR's adoption of EPA's recommendation suggested that at least some fish kill-impaired stream segments would remain identified as Section 303(d) impaired (in IR Category 5) long after the full recovery of aquatic life in the affected waterbody had occurred.

Development of Iowa DNR's fish kill follow-up protocol

In late 2010, Iowa DNR staff began discussions on a procedure for follow-up sampling in fish kill-impaired stream segments. A fish kill follow-up biological sampling protocol was proposed for wadeable streams that, while based on Iowa DNR's bioassessment protocol, could be performed by existing Iowa DNR central office staff over a relatively short timeframe without contract employee support, thus reducing the staff resources, cost, and time needed to conduct this monitoring. Because this sampling protocol does not include all aspects of Iowa DNR's bioassessment protocol (Iowa DNR 2015) and the sampling results cannot be used for comparison to ecoregion reference conditions, the decision was made to consider any stream showing recovery from a fish kill event as "not assessed" (IR Category 3a) as opposed to "fully supported" of the aquatic life use (IR Categories 1 or 2). Thus, if fish kill follow-up sampling suggested recovery from a fish kill event, the impairment would be delisted and moved to the non-impairment category of Iowa's Integrated Report (IR 3a) indicating that there are insufficient data to assess support of the designated use.

Iowa DNR staff met with EPA Region 7 staff in July 2011 to discuss this proposal for fish kill follow-up sampling and the delisting of fish kill impairments. Region 7 staff were generally supportive of the Iowa DNR proposal.

The following is an overview of the Iowa DNR fish kill follow-up sampling protocol:

● Fish kill waterbodies on wadeable streams in Categories 5 and 4 are targeted for follow-up sampling to determine the composition and abundance of the fish community. Field sampling is conducted during the July 15-October 15 biomonitoring timeframe as defined by the Iowa DNR bioassessment protocol (Iowa DNR 2015).

● Sample locations are located within the stream assessment segment identified as affected by the fish kill.

● As recommended by the Iowa DNR bioassessment protocol, the length of stream sampled is set at 30 times the estimated average stream width.

● Fish are sampled in one pass with backpack electrofishing equipment with the size of the sampling crew varying from 2 to 4 depending on stream width. The Iowa DNR general rule is one probe for every 15 feet of stream width.

● All fish collected are identified to species, counted, and returned to the stream. Unknown specimens are preserved for later identification.

● Field sheets from fish kill follow-up sampling sessions are scanned and stored on the department's network drive. All calculations and associated comparisons from each sampling event are also stored on the network drive as are the photographs taken to document the field work conducted.

Identifying recovery from the fish kill event

Two components of the fish community are measured and compared to benchmark values to determine the degree to which the results of fish kill follow-up sampling indicate recovery from a fish kill event: fish species richness and fish abundance.

1. Comparison of observed to expected fish species richness

Delisting threshold: If 50% or more of the regionally expected fish species are present at the fish kill follow-up site, the species richness of the fish community will be considered to have recovered from the fish kill event.

Expectations for fish species richness in Iowa streams have previously been developed for purposes of Section 305(b) reporting (Iowa DNR 2002; Table 5-1). The 50% species richness threshold value has been used historically by Iowa DNR for IR assessments and listings based on fish survey data (Iowa DNR 2001) and on freshwater mussel survey data (Iowa DNR 2005). Given the large variability in species richness between watersheds and even between streams within a watershed or ecoregion, the 50% threshold is an appropriate threshold for expected species richness.

If less than 50% of the expected fish species are present, the fish community is considered to not meet regional expectations thus suggesting an ongoing impact from the fish kill event.

2. Comparison of fish abundance (i.e., catch per unit effort or fish density) to benchmark values established through other Iowa DNR biological sampling projects.

Delisting threshold: If the fish abundance at the fish kill follow-up site (reported as number of fish per 500 feet of stream) equals or exceeds the 25th percentile of the Level IV ecoregion fish abundance estimates from the 2002-2006 Iowa REMAP project, the fish abundance of the stream segment will be considered to have recovered from the fish kill event. The selection of the 25th percentile delisting threshold is based on the common use of the 25th percentile as an ecoregion reference benchmark. Use of the reference 25th percentile as an impairment threshold is consistent with biocriteria development guidance (EPA 1996), and has demonstrated efficacy in state bioassessment programs (Yoder and Rankin 1995).

Fish kill impairment delisting decisions

If the fish community fails to meet either the species richness threshold or the fish abundance threshold, the stream segment will remain assessed as "impaired" and will remain in IR impairment categories 4 or 5. These stream segments will be considered for additional fish kill follow up sampling

and or monitoring with the Iowa DNR Bioassessment protocol to help determine the magnitude of potential aquatic life use impairment.

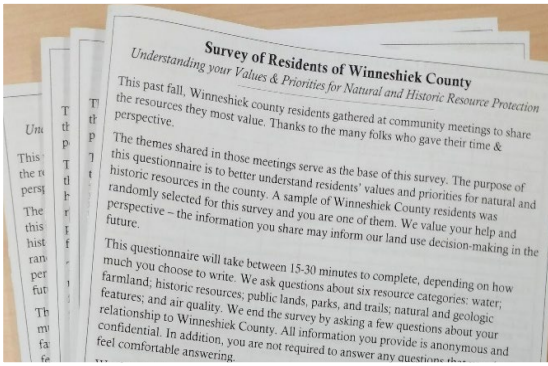
Fish communities that meet regional expectations for both species richness and abundance are considered to have recovered from the fish kill event. The associated impaired stream assessment segments will be removed from IR impairment categories (4 or 5). Because this fish kill follow-up monitoring protocol does not include all aspects of Iowa DNR's biological assessment protocol (Iowa DNR 2015), recovery of the fish community from kill event does not necessarily indicate "full support" of aquatic life uses. Rather, this protocol is designed to determine whether the fish kill-impacted stream fish community is now similar to other non-fish kill-affected fish communities in a given ecoregion or watershed. Thus, assessment segments identified as recovered are most appropriate for placement in IR Category 3a (insufficient information is available to determine whether the designated use is supported).

Iowa DNR update to the Fish kill Follow-up Protocol (FKFP) for the 2020 IR cycle and beyond

Beginning with the 2020 IR cycle, Iowa DNR reviewed all fish kills on stream segments to determine if biological sampling data were collected on those segments as part of the Iowa Biological Monitoring and Assessment Program, Fisheries Bureau interior stream sampling, UAA sampling or SHL special project sampling. Iowa DNR evaluated the data using the "Identifying recovery from the fish kill event" procedure described above. Should the stream segment be impaired both biologically (failing to meet FIBI and/or BMIBI BITs) and for the fish kill, the fish kill impairment will be removed if the fish community has shown recovery (passing FKFP evaluation) but the biological impairment would remain if the benthic macroinvertebrates are impaired or the fish community fails the BIT but passes the FKFP evaluation. Iowa DNR will repeat this process for every IR cycle in the future.

Winneshiek County's Natural & Historic Resources:

Understanding Residents' Values & Priorities

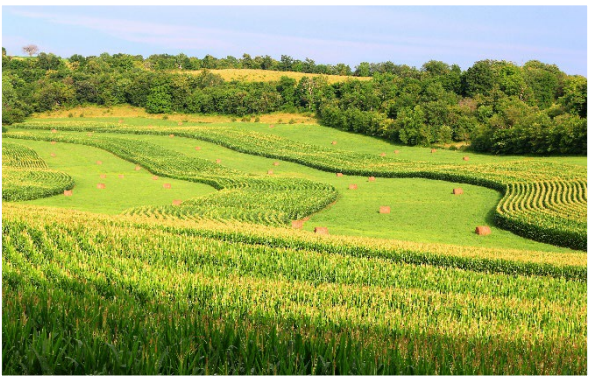

Survey of Residents of Winneshiek County

Understanding your Values & Priorities for Natural and Historic Resource Protection

This past fall, Winneshiek county residents gathered at community meetings to share the resources they most value. Thanks to the many folks who gave their time & perspective.

The themes shared in those meetings serve as the base of this survey. The purpose of this questionnaire is to better understand residents' values and priorities for natural and historic resources in the county. A sample of Winneshiek County residents was randomly selected for this survey and you are one of them. We value your help and perspective – the information you share may inform our land use decision-making in the future.

This questionnaire will take between 15-30 minutes to complete, depending on how much you choose to write. We ask questions about six resource categories: water; farmland; historic resources; public lands, parks, and trails; natural and geologic features; and air quality. We end the survey by asking a few questions about your relationship to Winneshiek County. All information you provide is anonymous and confidential. In addition, you are not required to answer any questions that



Final Report

Submitted September, 2024

About the Project Authors & Collaborators

Many partners collaborated on this project and contributed to this report, including members of the Winneshiek Zoning Commission between 2018-2024, Luther College faculty and staff Dr. Rachel Brummel, Dr. Jon Jensen, and Chris Frantsvog; Ann Mansfield as the facilitator of community meetings; former and current Luther College students Cole Barrett, Mackenzie Miller, Margaret Mullin, Ike Taylor, Victoria Graf, Savannah Deters and members of the Spring 2019 ENVS 250 class, Brad Crawford from Northeast Iowa RC&D, and Zoning Administrator Tony Phillips.

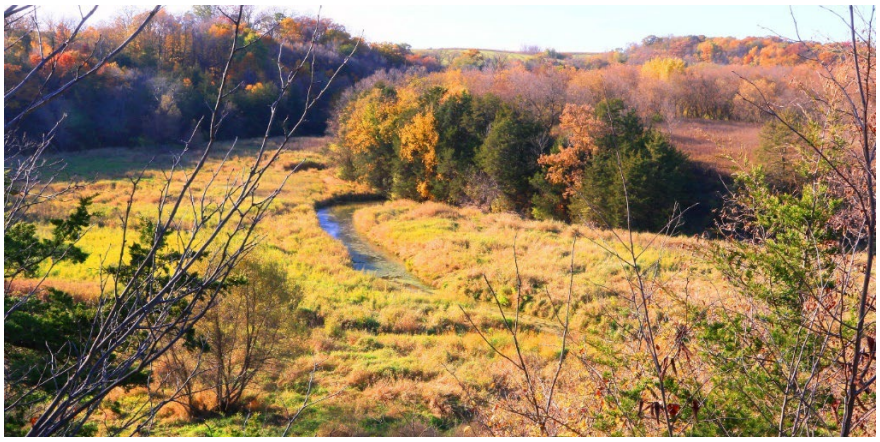
Please contact Winneshiek County Zoning Administrator Tony Phillips (zoning@co.winneshiek.ia.us) with inquiries related to this report.

A digital copy of the full report can be accessed at the following link or QR code:

https://tinyurl.com/winnco-resources

Attribution of photographs: *Front cover images - Top left: Erin A. thedyrt.com, top center: Winneshiek Historical Society, top right: Rachel Brummel, middle left: Rachel Brummel, middle center: valeriesvoice.com, middle right: Larry Reis, bottom right: Larry Reis, bottom center: Rachel Brummel, bottom right: Larry Reis. Report body images – All outdoor photographs were taken by Larry Reis, all indoor photographs were taken by Rachel Brummel.*

Table of Contents



1. Executive Summary

This report presents the findings of a study conducted to better understand residents' values and priorities for natural and historic resource protection in Winneshiek County in Northeast Iowa. This work was initiated by the Winneshiek Zoning Commission to build a more proactive and foundational awareness of public resource priorities in the wake of a difficult industrial sand mine ordinance process. Partners from Luther College joined the project to design a public engagement process, systematically gather residents' perspectives, and summarize key findings. The project objective was to develop a comprehensive understanding of Winneshiek County residents' values and priorities for natural and historic resource protection to serve as a foundation for community-informed decision-making by Winneshiek County governmental and non-governmental entities.

Ultimately, this study draws together the perspectives of over 1,100 residents of Winneshiek County who participated in a public engagement process conducted over 12 months in 2022-2023. The process began with a series of five community meetings held across Winneshiek County the summer and fall of 2022. Themes shared in meetings informed the design of a survey which asked residents to evaluate support for actions to protect six resource categories: water resources; farmland; public lands, parks, and trails; natural and geologic features; historic resources; and air quality. The survey was mailed to a random sample of 2,200 registered voters in Winneshiek County and 683 residents returned surveys for a strong 31.8% response rate. The primary themes emerging from the study are as follows:

- Winneshiek County residents are **deeply connected to their place** and see great value in their natural and historic resources. Three quarters of all respondents indicated that the county's natural and historic resources are important to their decision to live in this county. Further, residents rated the importance of all six resources included in the survey very highly.
- Residents valued **water resources, air quality, and farmland as the top three** most important resources for the county. These three resources emerged consistently across the county-wide survey.
- The county's **water resources are the highest priority resource and strongest shared value** for residents. Not only did residents consistently rank water as the most important resource, but 98% of residents agreed that we have a responsibility to protect the county's water resources and 84% support actions such as restricting building in certain areas to protect water resources.
- County residents elevated **air quality as critical** for the county and the health of its residents, second only to water. Concerns about the impacts of Concentrated Animal Feeding Operations (CAFOs) and gravel dust were most often mentioned by residents as threats.
- Residents strongly **prioritize farmland** and rated it highly for consideration by the county in decision-making. However, support for the specific *protection* of farmland was mixed. As compared to other resources, farmland received the lowest percentage of residents indicating strong support for specific protective actions, such as limiting building or restricting other land uses.
- Residents hold special value and **responsibility for protecting our public lands, parks & trails** due to their value as a public resource for recreation, tourism, biodiversity, and hunting.
- Residents indicated the strongest support for county action to **protect publicly-held natural resources**. When asked to evaluate specific protective actions, residents most strongly supported protection of water; air quality; public lands, parks & trails; and natural & geologic features.

This report provides a robust foundation for understanding the values and priorities of Winneshiek County residents with regard to their natural and historic resources. While water, air quality, and farmland emerged as areas of highest consensus, residents consistently rated all six resource categories in the survey as valuable. As such, this study should not be used to justify disregarding any resource category in the report. Rather, the findings can be seen as evidence of strong public support for protecting the most highly, collectively, and consistently prioritized resources. While county decision-making is contextual, this study stands as a resource for the county when weighing resource conflicts, tradeoffs, and priorities in the future.

A Snapshot of the Study by Numbers

The following are "statistical snapshots" of Winneshiek County residents' values and priorities for natural and historic resources. While not intended to be a comprehensive summary of the report, these represent a few key points of interest emerging from the study. All findings are covered in greater depth in the full report.

1,112 residents of Winneshiek County **shared their perspectives** in this study through attending public meetings or completing a survey	97.6% of survey respondents agree or strongly agree we have a *responsibility to protect our* **water resources**	The **#1 reason** residents value and want to protect farmland is to support family farms
82.5 % of survey respondents say that **air quality** should be a very or extremely *important consideration in county decision-making*	Survey respondents have **lived in Winneshiek County for an average of 41 years.** • **17%** are *farmers* • **42%** *hike and/or camp* • **19%** are *local history enthusiasts*	93% of respondents agree or strongly agree that **public lands, parks & trails** are *important resources for Winneshiek County*
73.1% of respondents would support the county *restricting building in certain areas* to **protect farmland**	79.5% agreed they would support the county in prioritizing **natural & geologic features** in their decision-making	97.3% of **community meeting attendees** either agreed or strongly agreed they *were able to share their voice and perspective*
74% of survey respondents said Winneshiek County's *natural and/or historic resources* were **important in their decision to live here**	82% agreed **that historic resources** are *important for our county*, particularly to maintain cultural knowledge	94.9% of survey respondents **ranked water resources** in the *top three resources they think the county should prioritize in decision-making*

2. Project Background & Purpose

Winneshiek County is nestled in the Northeast corner of Iowa in an area known as the Driftless region. The fact that the county is "Driftless" – meaning it is in a pocket of the Upper Midwest that has been missed by the last several glaciations – contributes to a natural environment characterized by rugged limestone bluffs, coldwater springs and streams, and a diverse assemblage of plants, animals, and habitats. Due to Winneshiek County's unique cultural and environmental history, many of its 19,974 residents[1] have developed deep connections to the county's natural and historic resources through livelihood, as well as through lifestyle. Agriculture and resource-based tourism are important parts of the local economy, and residents and visitors alike enjoy this area for its outdoor recreation opportunities including fishing, hunting, canoeing/kayaking, hiking, wildlife viewing, and biking.

The county's residents clearly take pride in their place – and benefit from their natural & historic resources - yet there is not a systematic understanding of residents' environmental values at the county-level. At the same time, county decision-makers describe an increasingly complex context for land use decision-making, including shifting land values, a dynamic agricultural economy, and the proposal of new natural resource-based industries. This project is an effort to more deeply and comprehensively understand Winneshiek County residents' values and priorities for natural and historic resource protection.

Emergence of the Project

This study was initiated by the Winneshiek Zoning Commission ("Zoning Commission"). The project emerged in the wake of a challenging decision related to an industrial sand mine ("frac sand") ordinance in the county and an increasing desire for evidence-based understanding of public values by members of the Zoning Commission. As a result, the Zoning Commission proposed to gather public perspectives on natural and historic resources to help inform their decision-making proactively, rather than gather public input only reactively as new issues arise.

In December 2018, the Winneshiek County Board of Supervisors ("Board of Supervisors") voted to support a proposal from Luther College to conduct a community engagement process and county-wide survey of residents of the county. Partners from Luther College collaborated over the next year to design a community engagement process and plan a series of public meetings. The meetings were scheduled for the spring of 2020, but the process was put on hold by the COVID-19 pandemic after the first meeting was held in March 2020. In the spring of 2022, project partners resumed conversations to reinitiate the project and the Board of Supervisors voted to reaffirm the project. Project partners held a series of public meetings during the fall of 2022, and then distributed a county-wide survey in the summer of 2023. This report is a summary of the findings from those public engagement processes.

Project Partners & Roles

The Winneshiek Zoning Commission is a volunteer body of residents appointed by the Board of Supervisors to make recommendations on land use at the county level and to implement and uphold the County Zoning Ordinance using the Winneshiek County Comprehensive Smart Plan as a guide. Considering the protection of natural and historic resources is an important part of the Zoning Commission's responsibility. The Winneshiek County Zoning Ordinance, for example, lays out the following purposes that relate to natural resource protection and public health: "*(6) To enhance the beauty of the natural resources of Winneshiek County. (8) To protect the public health, safety, comfort, convenience and general welfare. (9) To protect the natural environment*".[2] While the Zoning Commission initiated this project, study findings also may be useful for other governmental and non-governmental entities in the county, such as the Winneshiek County Conservation Board, Soil & Water Conservation District, and Winneshiek County Development & Tourism, among others.

The Luther College team was contracted by the Zoning Commission to design and carry out a process to gather public perspectives on natural & historical resources, then to summarize and share those findings back with the Zoning Commission. The Luther team was led by Dr. Rachel Brummel, who brings expertise in public engagement, community participation in natural resource management, and social science research. In conducting this study, Dr. Brummel draws upon research best practices she's developed through 19 years of research experience at the University of Minnesota and Luther College. In some of Dr. Brummel's previous work, she has researched collaborative wildfire planning in the US & Australia, farmer motivations and networks in rotational grazing systems, and flooding experiences in the Upper Iowa River watershed. This project was also supported by Dr. Jon Jensen, who has extensive experience building local partnerships and engaging the community in resource-based discussions. In addition, trained facilitator and Winneshiek County native Ann Mansfield was critical in facilitating the community meetings. Throughout the project, over 40 Luther College students supported this work, and three students - Cole Barrett, Margaret Mullin, and Mackenzie Miller - provided significant contributions as research assistants.

While each team had well-defined roles, the Luther team and the Zoning Commission collaborated regularly. The Board of Supervisors also provided input at several points in the project. For the remainder of the report, the Zoning Commission members and Luther College team will be referred to as "project partners" to capture the collaborative nature of this study. Members of the Luther team worked with zoning commissioners at their monthly meetings to obtain feedback on the design, timing, and location of community meetings. Additionally, project partners worked together on public advertising plans to ensure county residents and key stakeholders were aware of the opportunity to share their perspectives. Project partners collaborated over multiple meetings on the county-wide survey and provided several rounds of feedback on this report at county zoning meetings. Throughout the process, project partners were guided by the following project objective.

Project Objective:

To develop a comprehensive understanding of Winneshiek County residents' values and priorities for natural & historic resource protection, which can serve as a foundation for community-informed decision-making by Winneshiek County governmental and non-governmental entities.

3. Public Engagement Process

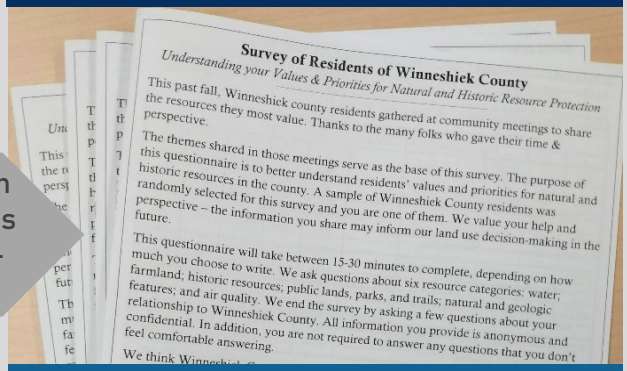
Project partners designed a two-stage public engagement process to achieve the project objective (Figure 1). The public engagement process began with a series of community meetings designed to elicit residents' broad resource values and priorities. Residents' responses then informed the design of a county-wide survey to evaluate support for specific resource protection actions. An overview of the public engagement process is shown below, with more detail provided in Appendix A.

Community Meetings

- Held 5 open public meetings
- Gathered open-ended information on natural & historic resources
- Engaged in small group resource mapping & large group discussion

Themes identified in community meetings informed a county-wide survey

County-wide Survey

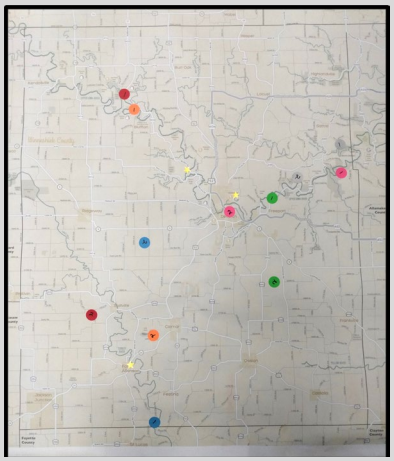


- Mailed survey to random sample of 2200 county residents
- Evaluated support for priority & protection of 6 resource categories
- Opt-in online survey also offered

Figure 1. The public engagement approach used to gather Winneshiek County residents' perspectives on natural & historic resource values and protection.

Community Meetings

In the fall of 2022, project partners held five public meetings to gather residents' perspectives on natural and historic resources in the county. These gatherings were convened across the county – one in each Board of Supervisor district – to remove barriers for attendance. Additionally, the meetings were held over ten weeks to provide multiple opportunities for participation and reduce seasonal conflicts. Project partners consulted with both the Zoning Commission and the Board of Supervisors to set the meeting schedule. Partners focused heavily on outreach and advertising leading up to the meetings to ensure robust participation. Meetings were 75 minutes long and one meeting each was held at the North Winneshiek School, Ridgeway Community Center, Ossian Community Center, while two meetings were held at the Winneshiek County Courthouse. Meeting attendees recorded their individual priorities for resource protection, worked in small groups to map resources of individual and shared value, and ultimately participants engaged in discussion with the entire group (Figure 2).



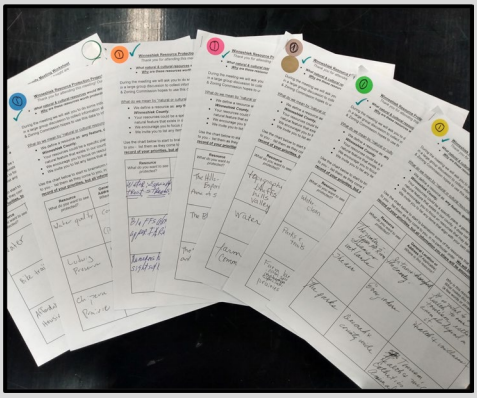


Figure 2. Participants at community meetings engaged in individual reflection, small group resource mapping, and large group discussion. The image of the map in the middle shows the result of small group resource mapping. The image on the right shows a stack of individual resource identification worksheets.

County-wide Survey

The second step in this study's public engagement strategy was to distribute a county-wide survey to gain a broader understanding of county residents' priorities for resource protection. Based upon the resource categories that emerged from community meetings and conversations with the Zoning Commission, project partners identified six resource categories to include in the survey: water resources; farmland; public lands, parks, and trails; natural and geologic features; historic resources; and air quality (Table 1).

The survey questionnaire (included in Appendix C) was designed to capture residents' perspectives on the importance of each resource category in the county and to evaluate support – or lack of support – for a series of possible county actions to protect those resources. The questionnaire closed by collecting demographic information and asking respondents to identify their relationship to county resources (*e.g.* farmer, hunter, recreationalist). Survey respondents were also provided with multiple opportunities to share open-ended responses.

The survey questionnaire was mailed to a random sample of 2,200 Winneshiek County registered voters. Half of the sample was drawn from registered voters in rural areas, living outside of the city limits of the county's eight incorporated municipalities, and half of the sample was drawn from voters living within municipal boundaries. Additional information on survey design and sample construction is contained in Appendix A.

While the county-wide randomized survey serves as the foundation for this study, residents who did not receive the mail survey could voluntarily "opt-in" to take the survey online. The Zoning Commission saw this as an important step to ensure all residents – regardless of whether they were a part of the random sample for the mail survey – were able to share their perspective. Because this opt-in sample is not designed to be representative of the county as a whole, the results of the opt-in survey are discussed separately in Appendix B.

Table 1. The six resource categories emerging from community meetings and included in the county-wide survey. Resource descriptions in the table were included on the survey.

Water Resources 	Winneshiek County has many water resources ranging from the Upper Iowa River and the Turkey River to coldwater trout streams and groundwater. Whether you're fishing, drinking a glass of water, or watering cattle, you are interacting with water resources.
Farmland 	As an agricultural region, farmland and soil in Winneshiek County are critical resources for people's livelihoods and for the county as a whole. Farmers and agriculture are important to the local economy, our community, and our land.
Air Quality 	Air quality is something that impacts us all and is dependent on many controllable and uncontrollable factors. Things like gravel roads, amount of green space, traffic, and concentrated animal feeding operations can affect the air we breathe.
Public lands, Parks & Trails 	Public land in Winneshiek County offers people the recreational opportunity to explore natural areas and appreciate the outdoors year-round through activities such as biking, hunting, fishing, hiking, and wildlife viewing.
Natural & Geologic Features 	Natural features such as forests, prairies, and wetlands are an important part of Northeast Iowa's landscape. Winneshiek County is also home to unique geologic features such as outcrops, sinkholes, caves, disappearing streams, springs, bluffs, and waterfalls.
Historic Resources 	Winneshiek County has a long history of family farms, European settlement, ethnic heritages, Native American traditions, and more that ground our communities.

4. Summary of Findings

This section will summarize findings from community meetings and the county-wide survey, highlighting key themes in order to represent the strongest trends. Findings from the opt-in survey are presented in Appendix B.

Community Meetings: Key Findings

Meeting Attendance and Participation

Meetings were well-attended and participants engaged meaningfully in the process. Indeed, in a survey taken just after each meeting, 97.3% of participants either agreed or strongly agreed with the statement "*I feel I was able to share my voice and perspective*" and no respondents disagreed. A total of 136 attendees shared their perspective across the five meetings, with nearly equal representation of residents from rural areas (49.5%) and incorporated areas (50.4%) of the county. The post-meeting survey also revealed that efforts to publicize the open meetings were successful. Meeting attendees indicated that social media and word of mouth were the two most common ways they had heard about the gatherings, with 36% of participants saying they had heard about meetings from two or more sources (newspaper, radio, social media, flier, *etc*.).

Emergence of Resource Themes in Community Meetings

Across the meetings, residents identified a total of 481 natural and historic resources – or an average of 3.5 resources per participant - they saw as high-priority and worth protecting in the county. Resources from participants were elicited in an open-ended fashion, meaning there were no pre-set categories to choose from. Thus, some of those 481 resources were uniquely identified by participants, though many were overlapping or repeated. When project partners coded resources offered by participants during meetings, a group of ten common resource themes emerged (Table 2). More context is presented on the top five resources that emerged from community meetings attendees in the following pages. Quotations presented under each resource category come directly from meeting participants.

Water was – by far – the most commonly-, consistently-, and collectively-valued natural resource identified as worthy of protection by participants in community meetings.

"*Lakes and streams are one of the reasons Winneshiek County is a great place to live.*"

- An average of 9 out of 10 meeting participants offered a water-related resource, most commonly noting a desire to protect water for fishing, canoeing & kayaking, and agricultural use.
- Nearly a quarter of all resources identified in meetings were water resources.
- Meeting attendees understood the diversity of water resources in the county. While participants most commonly identified the Upper Iowa River as a vital water resource, residents also highlighted the county's unique coldwater streams and springs, groundwater resources, the Turkey River, and Lake Meyer.
- Water is a resource around which there is a shared sense of value and priority. When small groups worked to identify resources all participants agreed upon, 38% of all collectively-prioritized resources were water (Table 2).

Table 2. The ten resource categories emerging from community meetings presented by how commonly, consistently, and collectively they were identified by meeting attendees as worthy of protection by the county. "How commonly" a resource is identified refers to the percentage each resource category (*e.g.* water resources, historic resources) represents in relation to the total number of resources participants identified as individuals at the community meetings. "How consistently" a resource was identified relates to the overall percentage of meeting participants that identified each resource as one of their resource priorities. In meetings, participants worked in small groups to map resources they all prioritized and could agree upon. "How collectively" a resource was identified refers to how often it was selected as an area of shared agreement in a small group.

	How commonly was this resource identified? Percentage of the total resources identified (n = 481)	How consistently was this resource identified? Percentage of meeting attendees offering this resource (n = 136)	How collectively was this resource identified? Percentage of times small groups identified resource as a shared value (n = 50)
Water Resources	24.1%	89.8%	38%
Public Lands, Parks, & Trails	12.9%	48.4%	12%
Historical Resources	11.2%	42.2%	12%
Forests, Prairies, & Wetlands	11.0%	41.4%	6%
Soil	9.4%	36.2%	8%
Socio-economic Resources (*e.g.* education, strength of community)	9.2%	31.3%	4%
Agriculture	7.7%	28.9%	6%
Air Quality	5.8%	21.9%	2%
Geologic Features	4.6%	17.2%	4%
Aesthetic Resources	2.5%	9.4%	6%

Residents attending community meetings also showed strong values and priorities for protecting public lands, parks, and trails in Winneshiek County.

"Public outdoor natural areas and views for both recreation and education: major impact on quality of life and economic driver. NE Iowa is blessed with this gift–we should honor and not squander it."

- Close to half of all participants in community meetings offered an example of a public land, park or trail as a resource they value and want to protect (Table 2).
- Public lands, parks, and trails were the second most commonly-identified resource after water. Nearly 13% of all resources identified by individuals in meetings fell into this category.
- Meeting attendees emphasized the importance of this resource for recreation for residents and visitors, as well as for biodiversity, wildlife, and ecological habitat.

Community meeting participants highlighted priorities for protecting historic resources in Winneshiek County, alongside natural resources.

"Historical architecture and buildings are great for tourism and historical feel of the county."

- Over 40% of public meeting attendees identified at least one historic resource in the county they valued and wanted to see protected (Table 2).
- Meeting attendees noted the importance of historic resources for maintaining cultural knowledge for future generations. In particular, they highlighted historic buildings and the importance of understanding the Native American history of Winneshiek County.
- Some of the historic locations mentioned included the designated historic district in Decorah, the Locust Schoolhouse, pioneer cemeteries, the Calmar Depot building, Fort Atkinson, the Vesterheim, several sites in Spillville, Lower & Upper Dam, and several historic local churches.

Natural areas such as forests, prairies, and wetlands emerged as important resources for wildlife, biodiversity, and outdoor recreation.

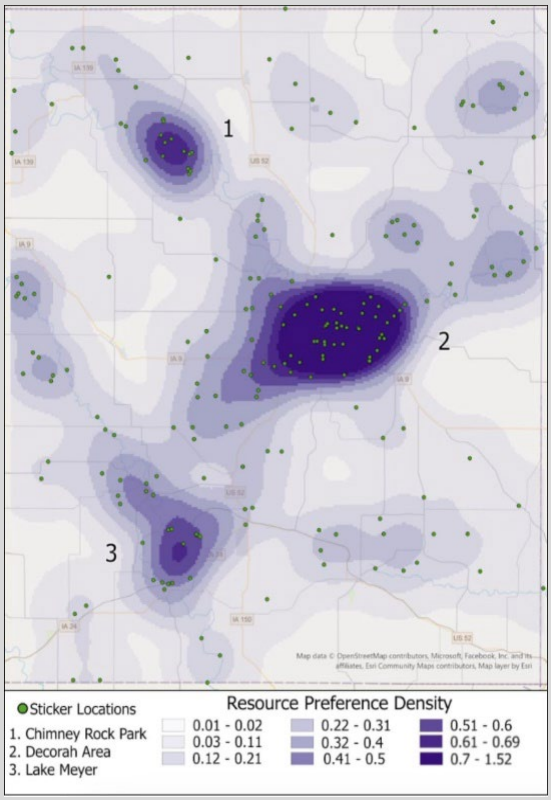
"Pollinator habitat in all prairies, roadsides, and other natural areas: pollinators are important for the diversity of our land, for our food system, to all parts of our survival."

- Over 40% of residents attending one of the five public meetings mentioned the desire to value and prioritize natural resources such as forests, prairies, and wetlands (Table 2).
- Forested areas – including county lands – were seen as important habitat for wildlife, as well as for recreation for hunting and hiking.
- While attendees often spoke generally about the importance of protecting biodiversity and habitat such as prairies, they also highlighted specific ecological sites such as Chipera Prairie, Cardinal Marsh, and Ludwig Preserve.

Residents highlighted the importance of soil – and healthy soil - as a natural resource critical to both agriculture and water in the county.

"We have been blessed with rich soil. It's a precious heritage. We should not let it wash or blow away! Water connects to soil – if we keep soil ON the land and out of the water we'll be ahead."

- Soil represented close to 10% of the total resources that meeting attendees lifted up for valuing and protecting in the county. Over 36% of attendees mentioned the value of soil and the need to prioritize its protection (Table 2).
- Soil was understood as critical to farming, water quality, and human health, but also in danger from erosion and certain unsustainable agricultural practices.



Map credit: Savannah Deters and Victoria Graf

Figure 3. Mapping Resources from Public Meetings: A View from Above

In the five community meetings, residents worked in small groups to place stickers on county maps to indicate the location of resources they most valued and prioritized. These meetings produced a total of 19 maps (see map in Figure 2 as an example).

Resources from each of those 19 maps were digitized onto a single map to identify "hotspots" of resource priority in the county, represented as "resource preference density" in the map to the left. The darkest blue on the map represent areas where meeting participants identified the greatest number of high importance and high priority natural resources.

Ultimately, the GIS analysis showed three geographic areas of high community resource priority, each focused around an important waterbody: 1) the Chimney Rock area near Bluffton, 2) The Upper Iowa River as it comes through Decorah, and 3) Lake Meyer. This spatial analysis demonstrates, once again, the ways that there is strong public support and deeply shared values for water resource protection in the county.

County-wide Survey: Key findings

The public meetings allowed project partners to identify which county resources were critical to include on the county-wide survey. The goal of the county-wide survey was to gain a broader, more representative understanding of residents' priorities for valuing and protecting natural and historic resources in the county. This section of the report highlights key findings from the county-wide survey.

County-wide Survey Findings: Response and Respondents

Project partners distributed a paper survey by mail to 2,200 randomly-sampled registered Winneshiek County voters. A total of 683 residents returned their surveys, which – when accounting for the 54 questionnaires returned to sender – represents a strong 31.8% response rate. This provides a solid foundation for analysis and meaningful representation of the views of Winneshiek County residents more broadly.

Because the questionnaire asked recipients some basic demographic information and their relationship to the natural and historic resources of Winneshiek County, project partners do know key information about our respondents (Figure 4, 5).

Survey Respondent Demographics & Characteristics

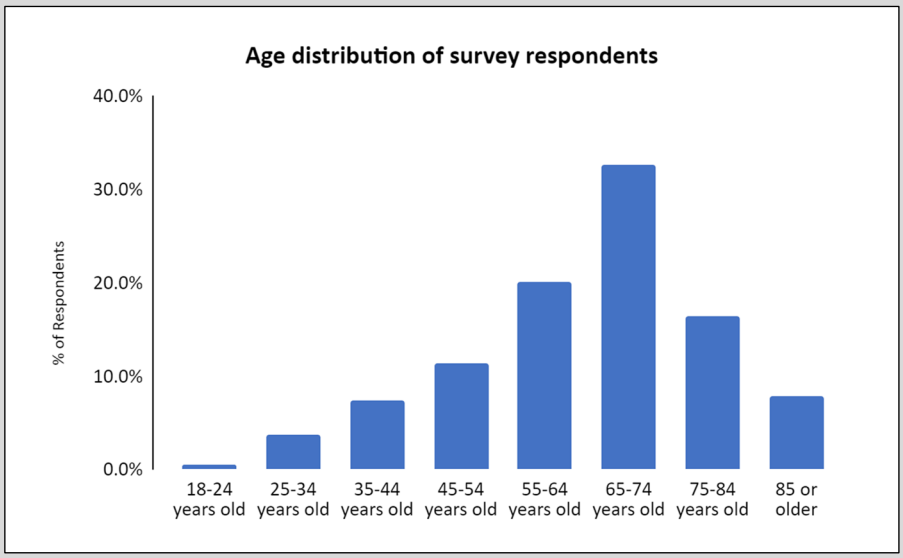


Figure 4. Chart representing the age distribution of survey respondents

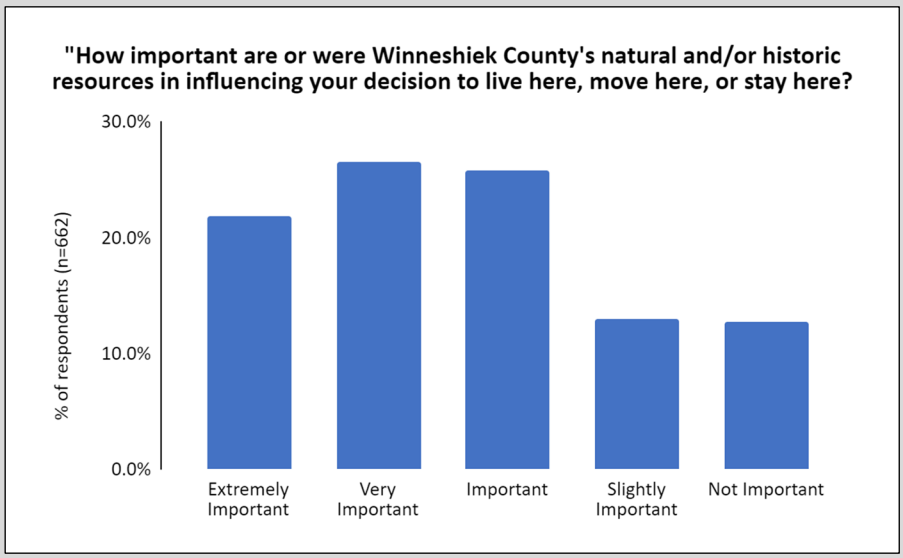


Figure 5. Respondent evaluation of the importance of natural/historic resources in influencing their decision to live in Winneshiek County.

What do we know about survey respondents?

- 48% live rurally, 52% live in town
- 90% own their home, 10% are renters
- 52% consider themselves landowners
- 51% are female, 44% are male, and 4% indicated they'd prefer not to answer or "other"
- 53% are between 55-74 years old (Figure 4)
- They have lived in Winneshiek County an average of 41 years
- 17% are farmers
- 44% indicated they are a lifelong resident of Winneshiek County, while 41% indicated they moved in to the county
- 42% engage in land-based outdoor recreation such as hiking & camping
- 36% are water recreationalists, such as canoers or kayakers
- 24% are anglers and 19% hunters
- 19% identify as local history enthusiasts
- 74% said Winneshiek County's natural and/or historic resources were important, very important, or extremely important in their decision to live here (Figure 5).

County-wide Survey Findings: Summaries by Resources

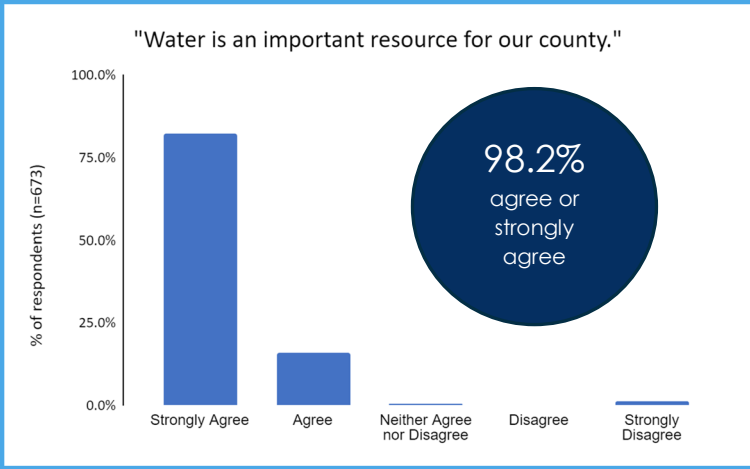
The questionnaire for the county-wide survey focused respondents on six resource categories: water resources; farmland; public lands, parks, and trails; natural and geologic features; historic resources; and air quality. These resources emerged from community meetings, as well as through discussions with the Zoning Commission on the resources that are most relevant to their decision-making. Survey recipients were asked questions about each resource (see Appendix C for full questionnaire), ranging from evaluating the importance of the resource, to sharing their perspective on the responsibility to protect that resource, to indicating agreement or disagreement on whether they would support a series of protective actions by the county. The following section presents the resource-specific findings from the county-wide survey in a series of "resource summaries" that highlight the primary themes and trends for each resource.

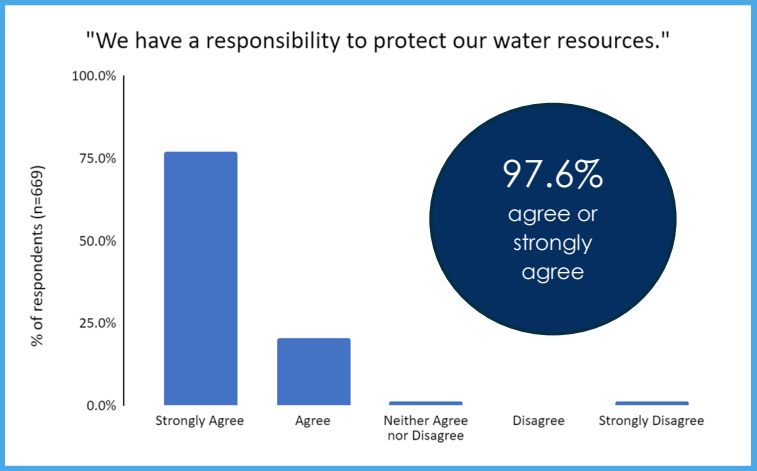
WATER RESOURCE SUMMARY

- Winneshiek water resources are diverse, ranging from the Upper Iowa River and Turkey River, to karst features such as trout streams, coldwater springs, underground rivers, and sinkholes.
- Groundwater is the primary source of drinking water in the county and is vulnerable to pollution due to extensive surface-groundwater connections which is characteristic of this area's karst topography.
- Six stretches of county waterways have special designations as "Outstanding Waters of Iowa".[3]
- Most county waterways that have been assessed are "impaired" under the Clean Water Act, with the exception of the headwaters of a few streams. Uses including fishing, boating, and aquatic life are degraded. Bacteria are the most dominant source of impairment in Winneshiek County.[4]
- Significant flooding in the past two decades – most notably in 2008 and 2016 – impacted many residents, leading to loss and damage of property, and displacement.[5]

IMPORTANCE of the RESOURCE: How do residents value Winneshiek County's WATER RESOURCES?

Winneshiek County residents **strongly value water** as a resource and **widely agree that we have a responsibility** to protect our waters.

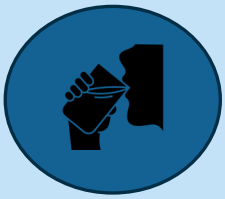




THE WHY: Why do residents want to protect our county's water?

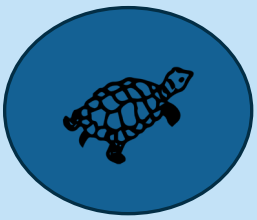
The <u>top three reasons</u> residents indicated they wanted to protect water, out of a possible 12, were:

Drinking Water Protection



Public Health

Wildlife Habitat



IN THEIR OWN WORDS: Winneshiek County Residents on WATER

"The Upper Iowa River and its watershed: this river is a crown jewel. Spent a lot of time in this area as a kid and love it. Wish the water was cleaner and didn't have the silt problems it has."

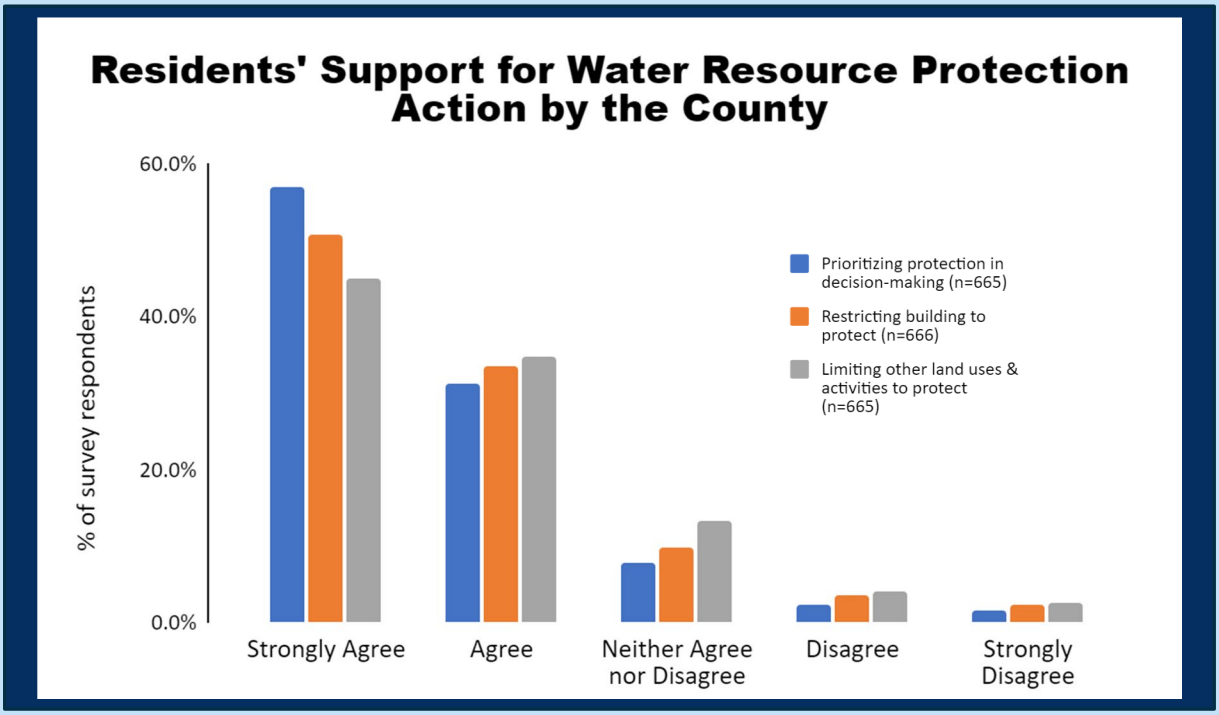
"Water and water quality: it drives everything else! The health of our town/area/people and [water quality] will drive if people want to live or vacation here."

"The county's trout streams are not only valuable economic assets, but are rich and diverse habitats for birds, animals, and plants."

WATER RESOURCE SUMMARY

SUPPORT for PROTECTION: Do residents support county action to protect WATER? If so, in what ways?

Winneshiek County residents **indicated strong, broad, and consistent support for county actions** to protect water resources in the county.



County Action: PRIORITIZING water resources in DECISION-MAKING

88.4% agreed they would support the county in prioritizing water resources in their decision-making, **3.8% disagreed**

County Action: RESTRICTING BUILDING to PROTECT water resources

84.4% agreed they would support the county restricting building in certain places to protect water resources, **5.9% disagreed**

County Action: LIMITING OTHER LAND USES & ACTIVITIES to PROTECT water resources

79.9% agreed they would support the county limiting other land uses and activities to protect water resources, **6.9% disagreed**

REPEATED THEMES in SURVEY COMMENTS

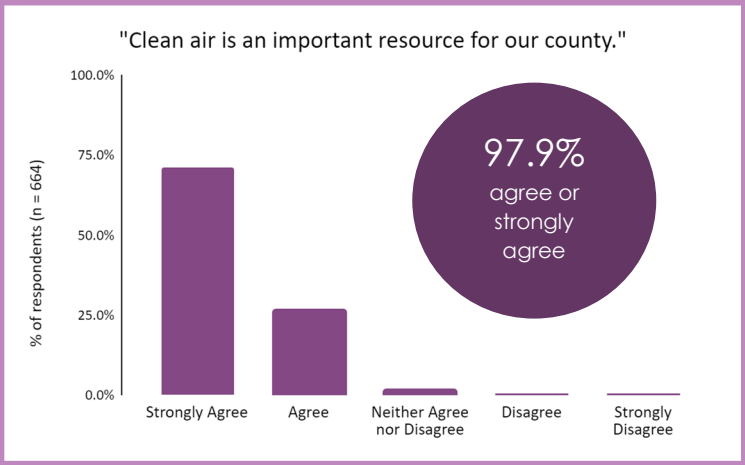
- Residents highlighted connections between **water, tourism**, and **the local economy.**
- **Flooding, flood mitigation,** and **floodplain** protection were common concerns by county residents.
- **"Water is life"** was a repeated theme; comments connected water to **human & ecological** health.
- While many respondents focused on the **impact of agriculture** including soil and nutrient runoff, agricultural chemicals, and CAFOs, some indicated **an overemphasis of the role of agriculture** on our water and cautioned that farmers do not need more regulations.
- Residents identified the importance of the **county's groundwater** and its vulnerability to pollution.

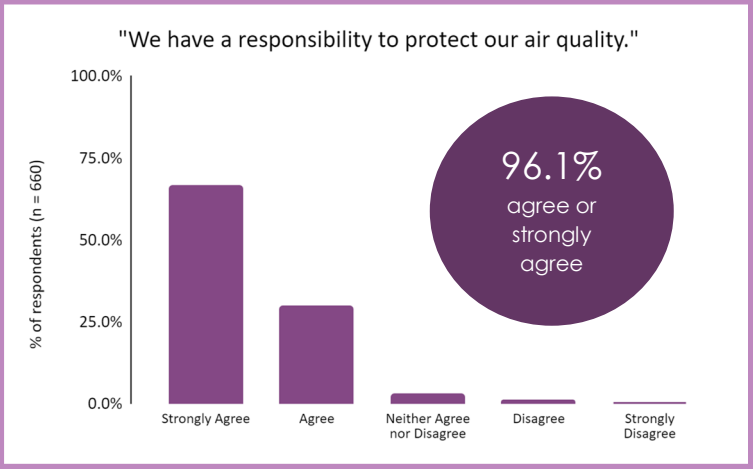
AIR QUALITY RESOURCE SUMMARY

- Activities such as open burning, agriculture, vehicle emissions, industrial emissions, and gravel roads can all impact air quality in our community.
- Gravel roads are a significant part of the county's road infrastructure. Of the 1056 miles of roads that the county maintains, 804 miles (76%) are gravel roads.[9]
- During the summer of 2023, when the county-wide survey for this study was distributed, residents of Winneshiek County experienced a significant air quality reduction due to the Canadian wildfires.

IMPORTANCE of the RESOURCE: How do residents value Winneshiek County's AIR QUALITY?

Winneshiek County residents **strongly value clean air** and broadly **agree that we have a responsibility** to protect our air quality.



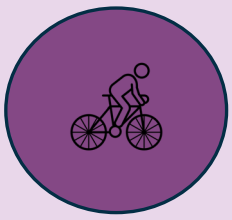


THE WHY: Why do residents want to protect our county's AIR QUALITY?

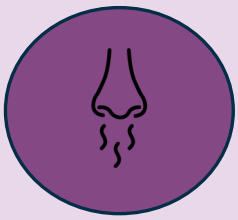
The <u>top three reasons</u> residents indicated they wanted to protect air quality, out of a possible 9, were:

Public Health

Quality of Life



To address odors



IN THEIR OWN WORDS: Winneshiek County Residents on AIR QUALITY

"CAFOs are destroying our county's air quality!"

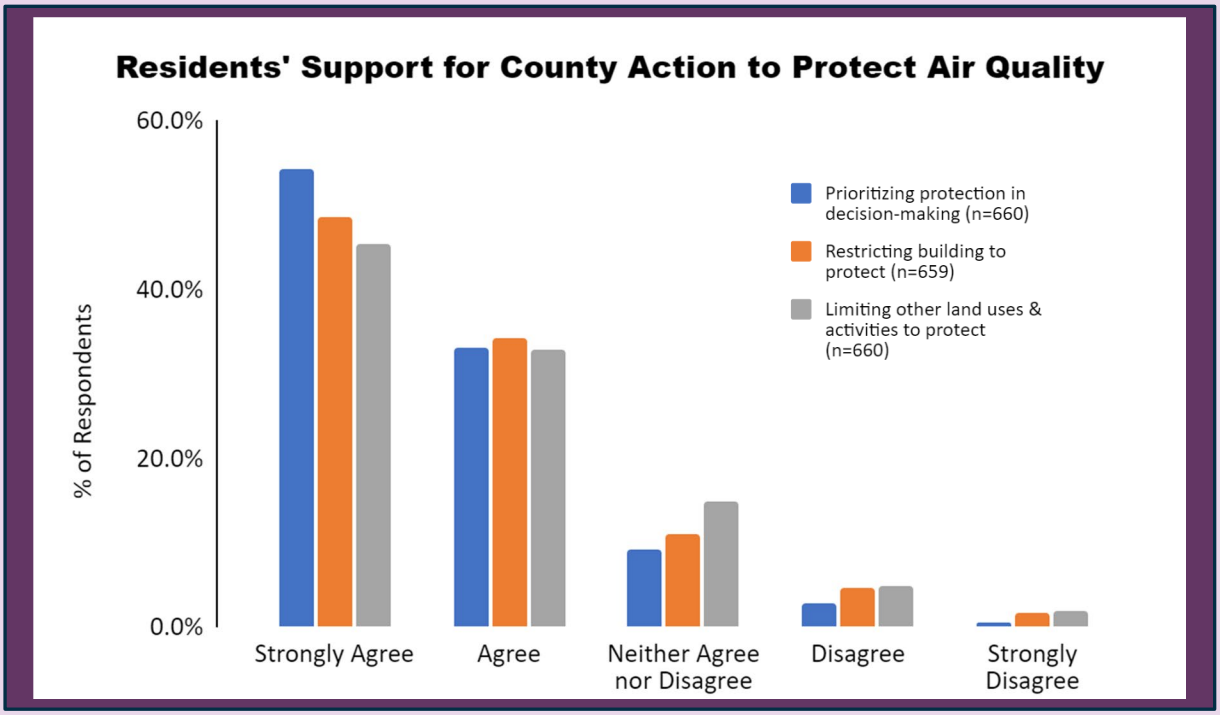
"We are very lucky to live in a place with a consistent level of great air quality on average....it is something that we can just take for granted, but it is extremely valuable!! Please prioritize it when making decisions!"

"The county needs to do something about gravel dust. That is a huge problem."

AIR QUALITY RESOURCE SUMMARY

SUPPORT for PROTECTION: Do residents support county action to protect AIR QUALITY? If so, in what ways?

Winneshiek County residents **indicated strong support** for prioritizing air quality and restricting building to protect it and **solid support** for limiting other land uses.



County Action: PRIORITIZING air quality in DECISION-MAKING

87.4% agreed they would support the county in prioritizing air quality in their decision-making, **3.3% disagreed**

County Action: RESTRICTING BUILDING to PROTECT air quality

82.9% agreed they would support the county restricting building in certain places to protect air quality, **6.2% disagreed**

County Action: LIMITING OTHER LAND USES & ACTIVITIES to PROTECT air quality

78.3% agreed they would support the county limiting other land uses and activities to protect air quality, **6.8% disagreed**

REPEATED THEMES in SURVEY COMMENTS

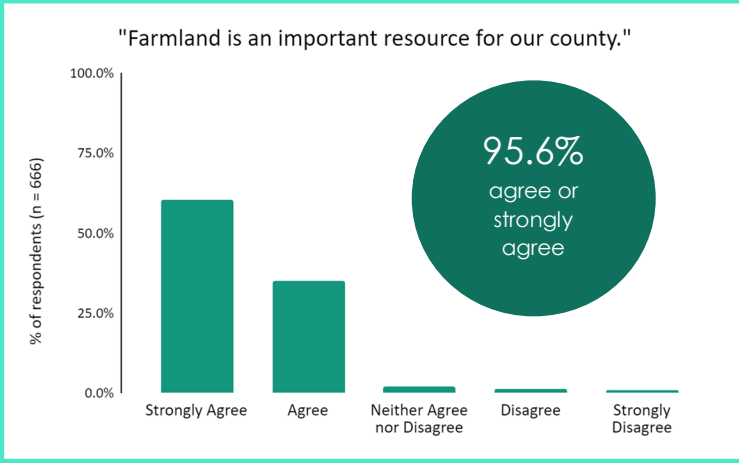
- A majority of the comments about air quality focused specifically **on the role of gravel dust**, as well as on odor and **air quality impacts of CAFOs** as urgent concerns in the county.
- Several respondents noted that many elements of air quality can't be addressed locally or are out of the county's jurisdiction, while also noting that the county should address the drivers of poor air quality that are in our control.
- Respondents also linked air quality to **human and environmental health** in the county.

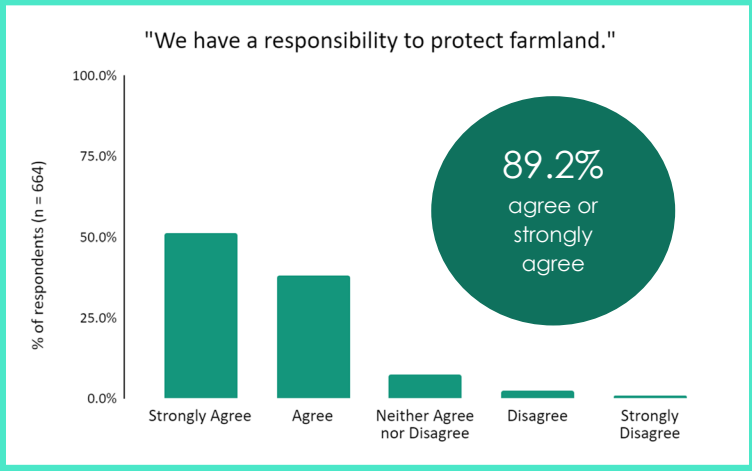
FARMLAND RESOURCE SUMMARY

- Agriculture is an important part of Winneshiek County's economic, social, and environmental landscape.
- Agriculture is the dominant land use in Winneshiek county with around 89% of the total area of the county in agriculture, including cropland and pasture.[6]
- The most recent data from the USDA shows 1,458 farms in the county. The total number of farms in Winneshiek County is decreasing and the overall size of farms is increasing.[7]
- Around 9% of employed residents in the county work in the agricultural sector.[8]

IMPORTANCE of the RESOURCE: How do residents value Winneshiek County's FARMLAND?

Winneshiek County residents **strongly value farmland** and generally **agree that we have a responsibility** to protect it.





THE WHY: Why do residents want to protect our county's FARMLAND?

The <u>top three reasons</u> residents indicated they wanted to protect farmland, out of a possible 10, were:

To Support Family Farms

To Foster Sustainable Agricultural Practices

Local Food Production

IN THEIR OWN WORDS: Winneshiek County Residents on FARMLAND

"There is only so much high quality cropland available in the world, and it has to feed people perpetually – once converted, very difficult to get back."

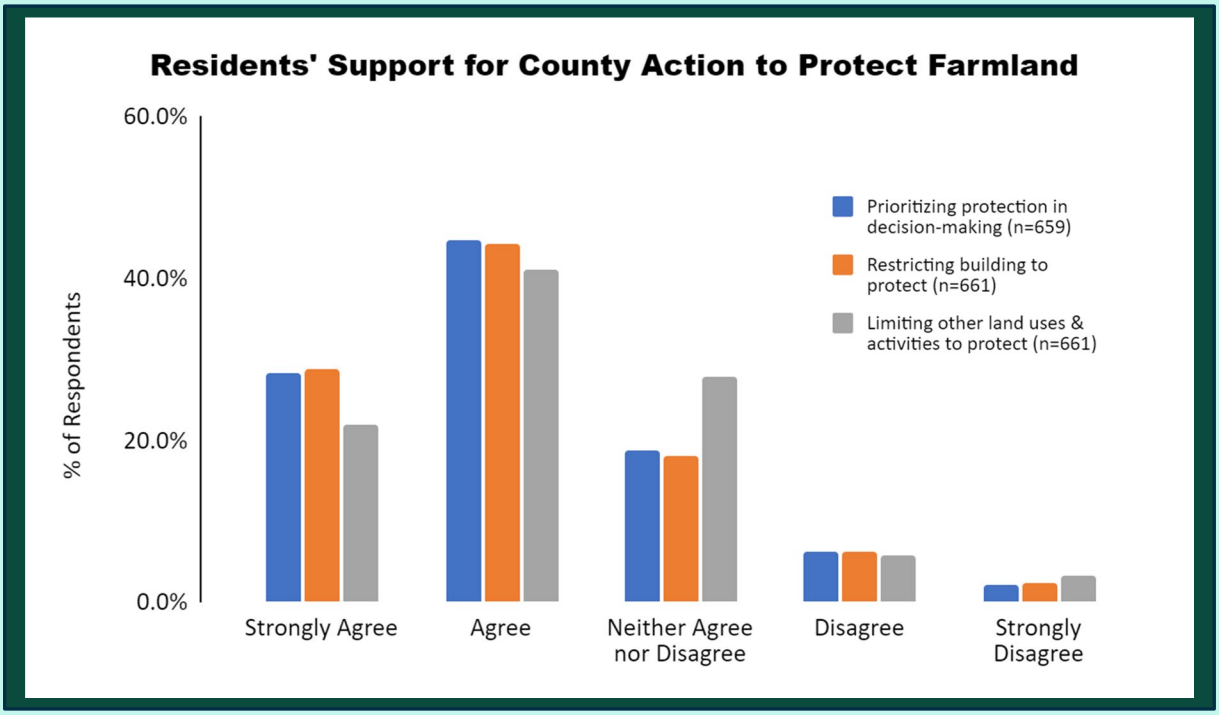
"Small family farms and small diversified farms are worth protecting for the diversity of landscapes on these farms, to keep that land from subdivisions, and keep it from large monocrops or CAFOs."

"With predicted food insecurities caused by climate change, we need to keep this wonderful NE Iowa land, soil, and water healthy!"

FARMLAND RESOURCE SUMMARY

SUPPORT for PROTECTION: Do residents support county action to protect FARMLAND? If so, in what ways?

Winneshiek County residents **indicated solid support** for prioritizing farmland and restricting building to protect it and **moderate support** for limiting other land uses.



County Action: PRIORITIZING farmland in DECISION-MAKING

73.0% agreed they would support the county in prioritizing farmland in their decision-making, **8.3% disagreed**

County Action: RESTRICTING BUILDING to PROTECT farmland

73.1% agreed they would support the county restricting building in certain places to protect farmland, **8.8% disagreed**

County Action: LIMITING OTHER LAND USES & ACTIVITIES to PROTECT farmland

62.9% agreed they would support the county limiting other land uses and activities to protect farmland, **9.1% disagreed**

REPEATED THEMES in SURVEY COMMENTS

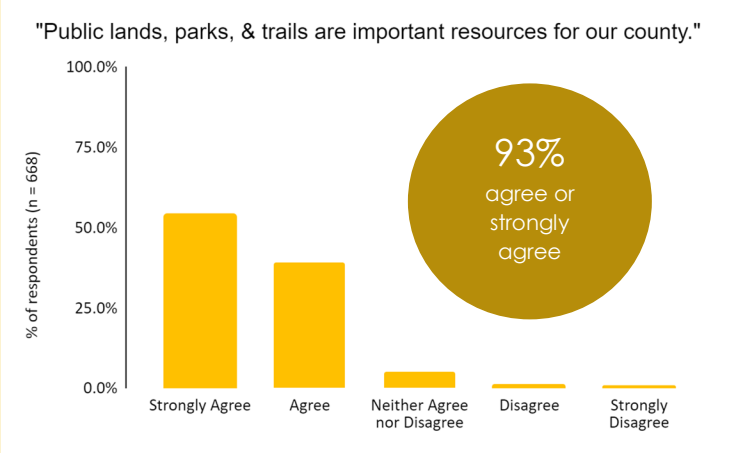
- Many respondents **qualified their support for farmland protection**, most commonly for **small family farms** over corporate agriculture, for **sustainable agricultural practices**, for favoring of **local food systems**, for protection of soil, and a strong **opposition to Concentrated Animal Feeding Operations (CAFOs).**
- Some noted a desire for supporting farmland protections in general, but questioned "regulation" and **emphasized landowner property rights.**
- Many expressed **concerns about residential & commercial development** as threats to farmland.
- Respondents emphasized the **importance of agriculture to the economy**, locally and beyond.

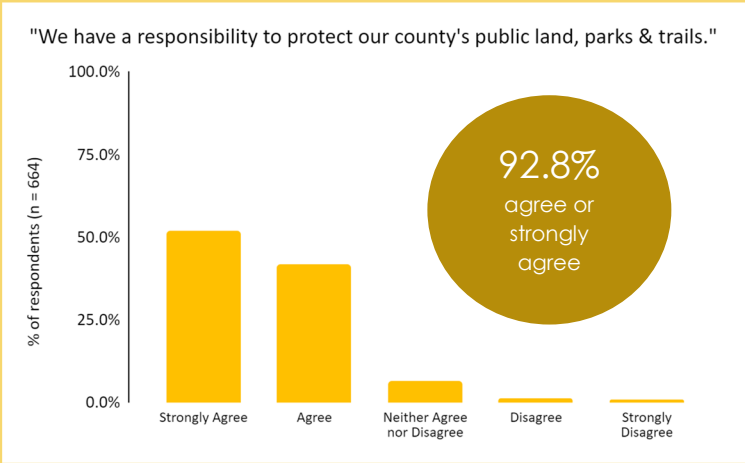
PUBLIC LANDS, PARKS & TRAILS RESOURCE SUMMARY

- Winneshiek County Conservation manages 21 parks – or around 750 acres - in the county, including campgrounds, natural areas, water access sites, and trails.
- Tourism and visitor spending contributed $42.77 million to Winneshiek County's economy in 2022, and $6.35 million of that was directly on recreation.[10]
- In addition to natural areas, Winneshiek County maintains several flagship public trail systems, including the 11-mile loop of the Trout Run Trail and the 20-mile Prairie-Farmer trail. Locals and visitors alike use these trails for cycling, walking & running, and cross-county skiing.

IMPORTANCE of the RESOURCE: How do residents value PUBLIC LANDS, PARKS & TRAILS?

Winneshiek County residents **highly value public lands, parks, and trails** and generally **agree that we have a responsibility** to protect them.





THE WHY: Why do residents want to protect our county's PUBLIC LANDS, PARKS & TRAILS?

The <u>top three reasons</u> residents indicated they wanted to protect public lands & trails, out of 9, were:

Recreation

Biodiversity & Habitat

Hunting

IN THEIR OWN WORDS: Winneshiek County Residents on PUBLIC LANDS, PARKS & TRAILS

"Outdoor recreation brings so much to this county– health (mental and physical), tourism, social connection, land use."

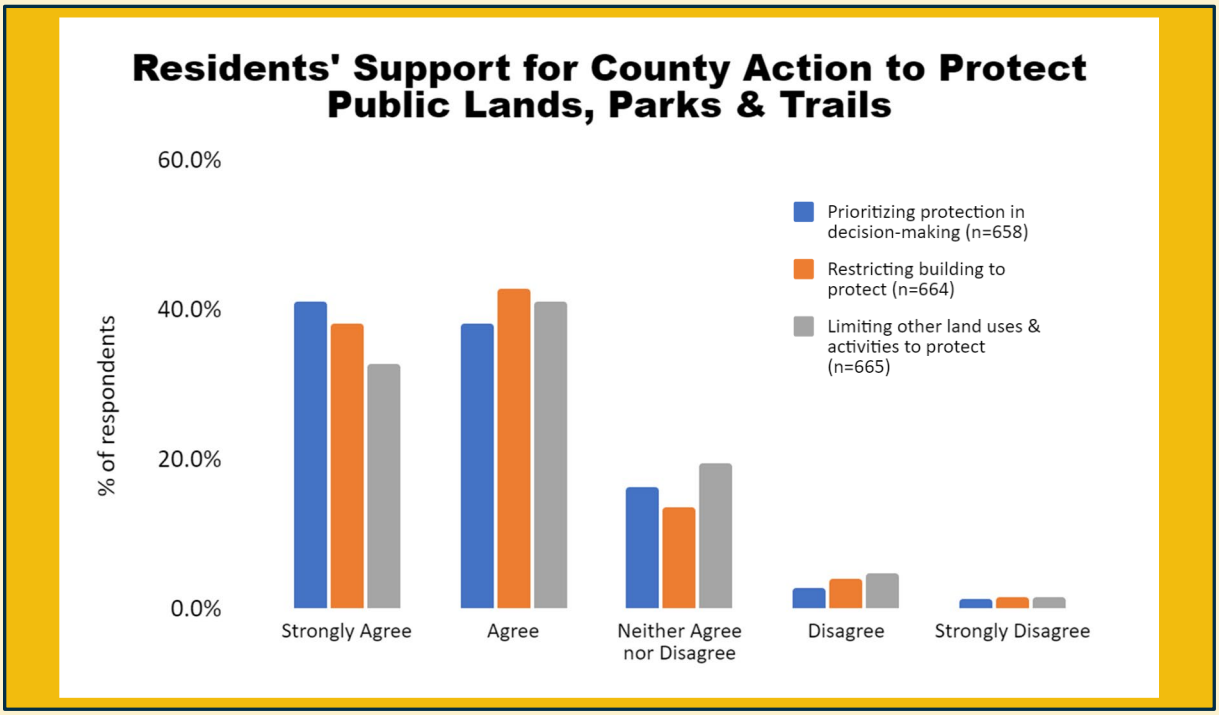
"Cycling brings lots of visitors to the area and cycling culture is growing. This will bring ecotourism."

"Wildlife Management Areas: Access to wild land for hunting, fishing, and camping for ALL."

PUBLIC LANDS, PARKS & TRAILS RESOURCE SUMMARY

SUPPORT for PROTECTION: Do residents support county action to protect PUBLIC LAND? If so, in what ways?

Winneshiek County residents **indicated strong support** for prioritizing public lands and restricting building to protect it and **solid support** for limiting other land uses.



County Action: PRIORITIZING public lands, parks, and trails in DECISION-MAKING

79.3% agreed they would support the county in prioritizing public lands, parks, and trails in their decision-making, **4.3% disagreed**

County Action: RESTRICTING BUILDING to PROTECT public lands, parks & trails

81.0% agreed they would support the county restricting building in certain places to protect public lands, parks & trails**, 5.4% disagreed**

County Action: LIMITING OTHER LAND USES & ACTIVITIES to PROTECT public lands, parks & trails

74.0% agreed they would support the county limiting other land uses and activities to protect public lands, parks & trails, **6.5% disagreed**

REPEATED THEMES in SURVEY COMMENTS

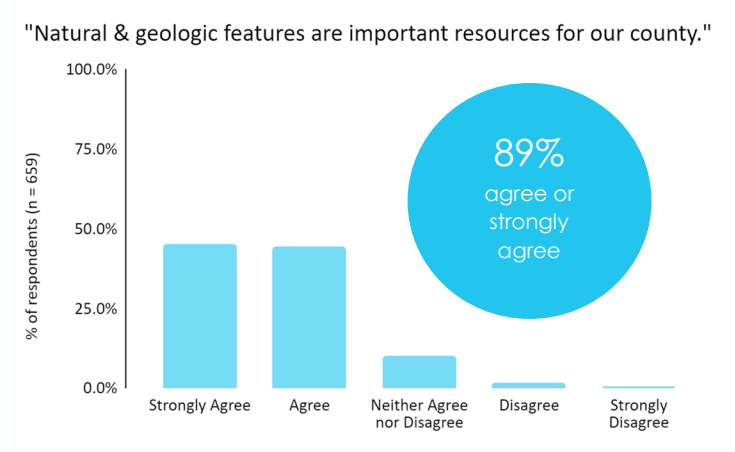
- Many respondents emphasize the importance of public lands, parks, and trails in **attracting people to the area to live and to visit** – they note this as a huge quality of life benefit of living in the county.
- Several note the fact that these resources are **our legacy for the next generation**.
- While many note **the importance of our public trails for tourism**, a few respondents **question whether tourism is a good thing for the county**, our economy, and our natural resources.
- Many emphasize the importance of "public" and **the open access for all residents**, as well as connections to **promoting physical and mental wellbeing**.

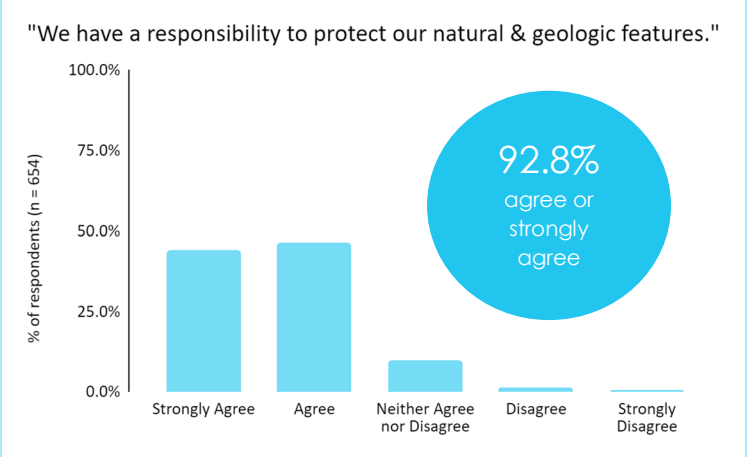
NATURAL & GEOLOGIC FEATURES RESOURCE SUMMARY

- Winneshiek County is within the geologically unique karst topography of the Driftless region, which is characterized by coldwater springs, limestone bluffs, algific talus slopes, and waterfalls.
- Ecologically, the county falls at the "prairie-forest border", which contributes to distinctive local ecosystems and habitats such as oak savannah and goat prairie.
- The county's ecological and geological environments bring together a unique assemblage of species. According to the IA DNR's Natural Areas Inventory, Winneshiek County is home to 131 species that are endangered, threatened, or of special concern at the state level.[11]

IMPORTANCE of the RESOURCE: How do residents value NATURAL & GEOLOGIC FEATURES?

Winneshiek County residents **highly value natural & geologic features** and broadly **agree that we have a responsibility** to protect them.



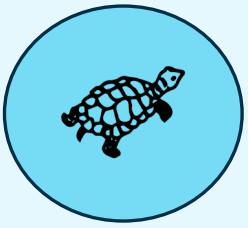


THE WHY: Why do residents want to protect our county's NATURAL & GEOLOGIC FEATURES?

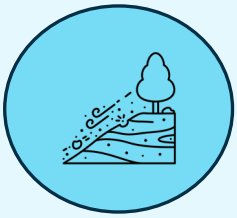
The <u>top three reasons</u> residents indicated they wanted to protect natural & geologic features, out of 15:

To promote Water Quality

Wildlife Habitat



To prevent Erosion



IN THEIR OWN WORDS: Winneshiek County Residents on NATURAL & GEOLOGIC FEATURES

"Natural and geologic features are important for tourism, education, our local habitat, and recreation."

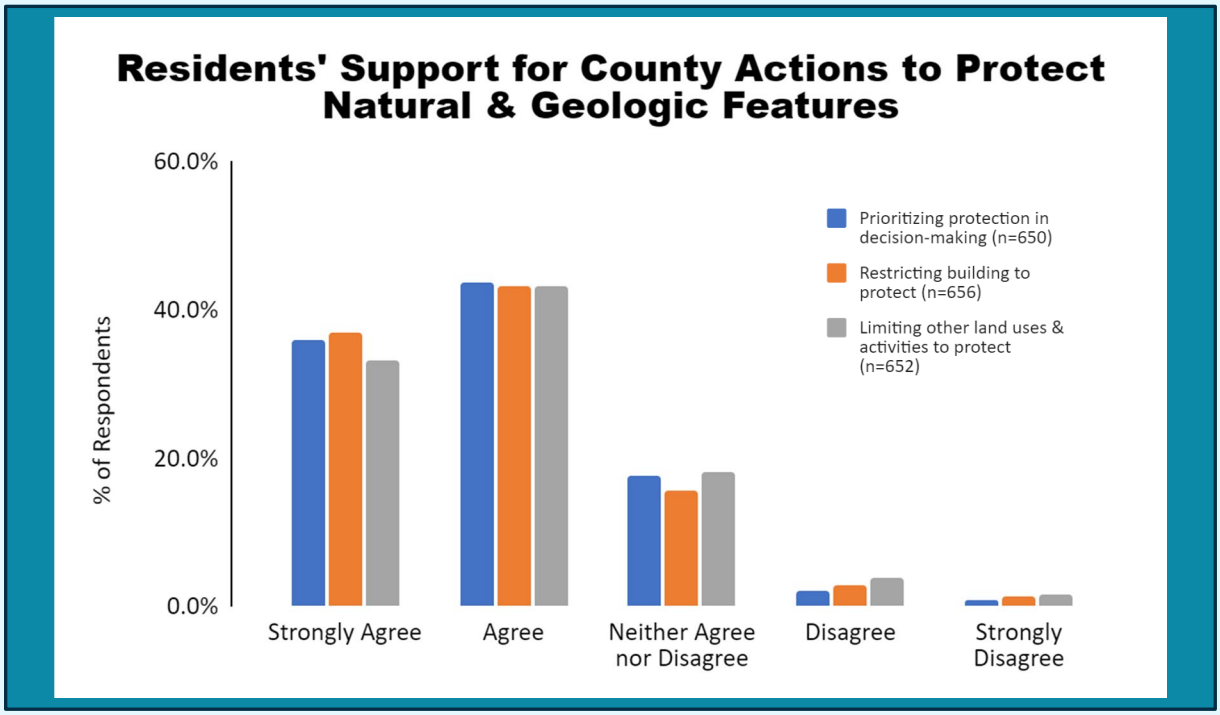
"Being part of the Driftless region is what makes this place unique in Iowa. People come to visit or live here because it is different than the rest of the state/region."

"Natural & geological features make Winneshiek County unique…. we must protect some features, but still allow responsible economic growth."

NATURAL & GEOLOGIC FEATURES RESOURCE SUMMARY

SUPPORT for PROTECTION: Do residents support county action to protect these FEATURES? If so, in what ways?

Residents **indicated strong support** for prioritizing natural & geologic features and restricting building to protect them, and **strong support** for limiting other land uses.



County Action: PRIORITIZING natural & geologic features in DECISION-MAKING

79.5% agreed they would support the county in prioritizing natural & geologic features in their decision-making, **2.5% disagreed**

County Action: RESTRICTING BUILDING to PROTECT natural & geologic features

80.2% agreed they would support the county restricting building in certain places to protect natural & geologic features, **4.1% disagreed**

County Action: LIMITING OTHER LAND USES & ACTIVITIES to PROTECT natural & geologic features

76.2% agreed they would support the county limiting other land uses and activities to protect natural & geologic features, **5.5% disagreed**

REPEATED THEMES in SURVEY COMMENTS

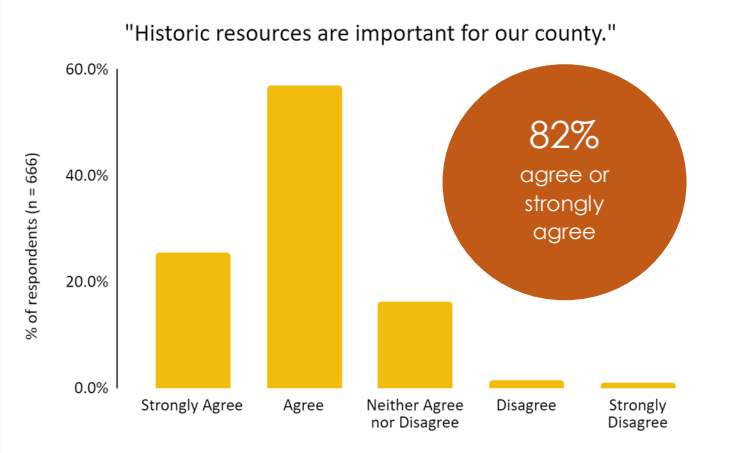
- Most commonly, comments focused on how the county's natural & geologic features make **the county unique, distinctive**, and a **provide a sense of local character.**
- Respondents noted, in particular, the importance of geologic features like **limestone bluffs in attracting tourists that support the local economy.**
- A few respondents expressed some support for protection of these natural & geologic features, but with the perspective that we can't protect it all and that there are **tradeoffs associated with protection.**
- Many comments focused around the **need for education** and the role of the county in that effort.

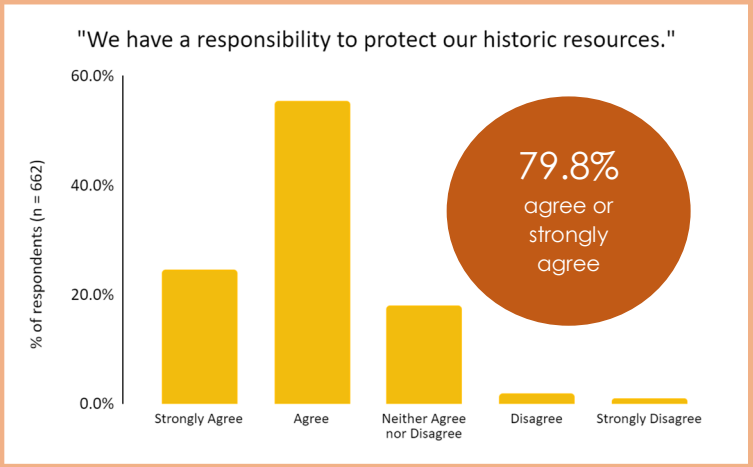
HISTORIC RESOURCE SUMMARY

- Winneshiek County has a unique immigrant history, with strong cultural grounding in Norwegian, German, Czech, and Irish, among other European immigrant groups.
- Winneshiek County has been home to many Native American tribes, including the Sac, Fox, Ioway, and Dakota, as well as the Ho-Chunk and Winnebago when they were displaced from Wisconsin. The county gets its name "Winneshiek" from a Winnebago leader and chief.
- Taken together, the county contains many significant historical sites such as Fort Atkinson, prairie cemeteries and churches, bridges, old stone churches/schools, and Native American burial sites, rock art, and historical settlements.

IMPORTANCE of the RESOURCE: How do residents value HISTORIC RESOURCES?

Winneshiek County residents **value historic resources** and **moderately agree we have a responsibility** to protect them.





THE WHY: Why do residents want to protect our county's HISTORIC RESOURCES?

The <u>top three reasons</u> residents indicated they wanted to protect historic resources, out of 7 offered:

To maintain cultural knowledge

To protect historic buildings & architecture

To protect Native American cultural sites

IN THEIR OWN WORDS: Winneshiek County Residents on HISTORIC RESOURCES

"County churches: link us to our heritage and are community centers/gathering places."

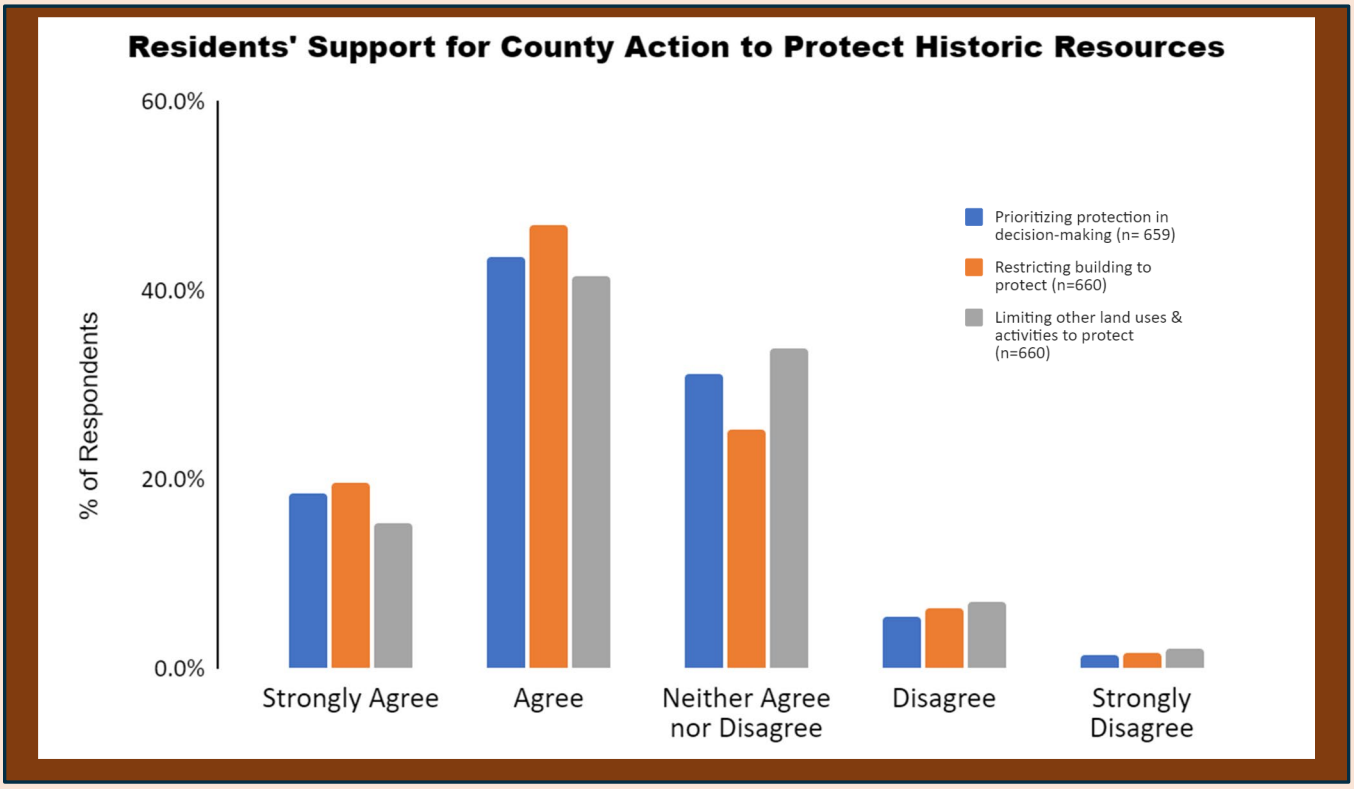
"Historical architecture and buildings are great for tourism and historical feel of the city."

"Native American sites: we need to do more to honor these places ignored by our early histories of white settlement."

HISTORIC RESOURCE SUMMARY

SUPPORT for PROTECTION: Do residents support county action to protect HISTORIC RESOURCES? If so, in what ways?

Residents indicated **moderate support** for prioritizing historic resources and restricting building to protect them, but **just over half indicated support for limiting other land uses** or activities to protect them.



County Action: PRIORITIZING historic resources in DECISION-MAKING

62.1% agreed they would support the county in prioritizing historic resources in their decision-making, 6.8**% disagreed**

County Action: RESTRICTING BUILDING to PROTECT historic resources

67% agreed they would support the county restricting building in certain places to protect historic resources**, 8% disagreed**

County Action: LIMITING OTHER LAND USES & ACTIVITIES to PROTECT historic resources

56.8% agreed they would support the county limiting other land uses and activities to protect historic resources, 9.2**% disagreed**

REPEATED THEMES in SURVEY COMMENTS

- Some respondents argued that the county's history is important **to uniqueness and sense of place**.
- Many expressed the view that while **history is important, it shouldn't be prioritized over other modern activities**, land uses, and "progress".
- Comments highlighted **tensions in the belief about the importance of European immigrant history as compared to Native American history**. Some respondents argued that Native American history has been underemphasized, while others argue for prioritizing European immigrant history due to the nature of our modern community ethnic make-up.

County-wide Survey Findings: Resource Tradeoffs & Comparisons

The resource summaries give an in-depth view into public perceptions of each resource. However, decision-making inherently involves tradeoffs, so this section compares across resources and seeks to understand their importance to residents in relation to one another.

Water, air quality, and farmland emerged as the highest priority county resources when looking at the resources that were rated with the strongest support ("strongly agree") from Winneshiek County residents in the survey (Figure 6, 7).

- **Respondents indicated generally high prioritization of all six resource categories.** At least 80% of respondents strongly agreed or agreed that all resources were valuable and that we have a responsibility to protect them (see Resource Summaries). This consistently high valuation is understandable and even expected given that resources had been identified as already important to residents through community meetings.
- **Differences become clearer when focusing on the resources residents most "strongly agree" on** (Figure 6). In particular, most respondents strongly agreed on the value of both water (82.1%) and air quality (71.2%).
- **While farmland also falls in the top three resources in terms of strong agreement on its value as a resource, it had the lowest percentage of residents "strongly agreeing" that we have a responsibility to protect it as compared to water and air quality** (Figure 7). Just over 50% of respondents "strongly agreed" we have a responsibility to protect farmland, as compared to water resources, for which 77% of respondents "strongly agreed" and air quality, for which 67% "strongly agreed.

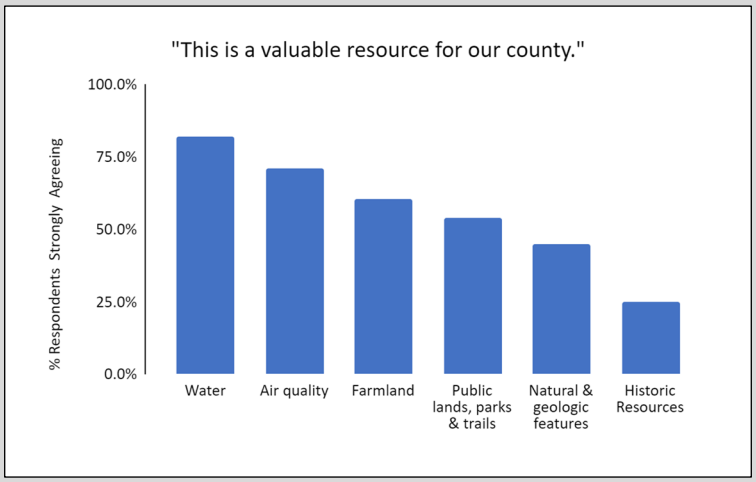


Figure 6. The percentage of respondents indicating they "strongly agree" each resource has value for the county.

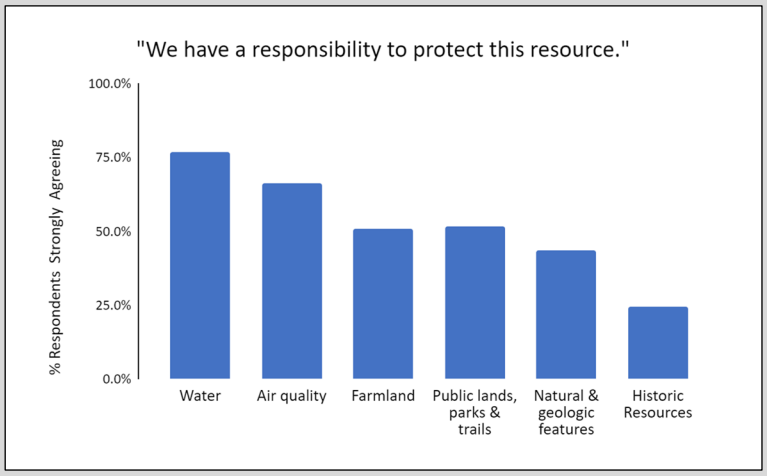


Figure 7. The percentage of survey respondents that "strongly agree" we have a responsibility to protect each resource.

Residents most strongly supported the county in taking specific protective action towards publicly-shared resources, including water; air quality; and public lands, parks and trails. As compared to all other resources on the survey, farmland had the fewest residents indicating strong support for specific county action to protect it (Figure 8).

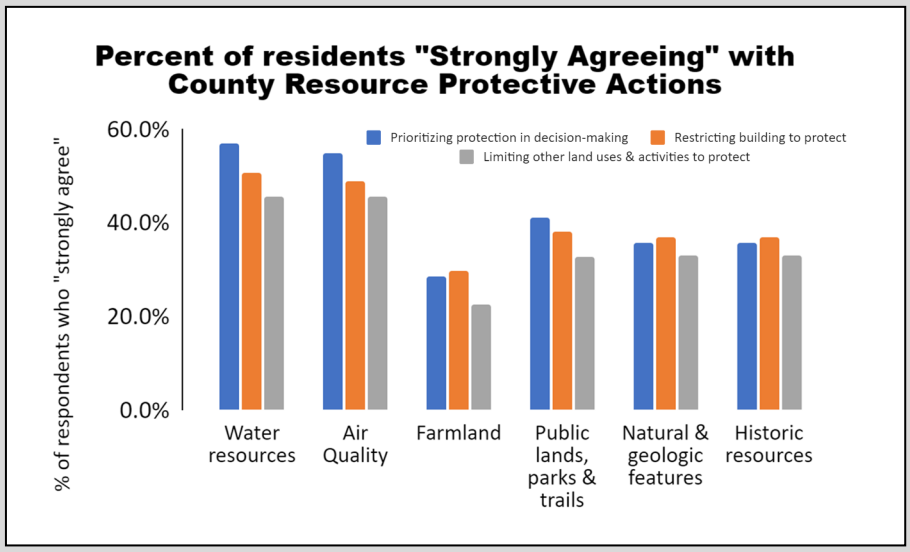


Figure 8. Percent of residents who "strongly agreed" with potential protective actions by the county by resource category. Blue bars indicate support for prioritizing each resource in decision-making, orange bars indicate support for restricting building to protect the resource, and grey bars indicate support for limiting other land uses and activities to protect.

- Residents had the highest support for county protective action with regard to water resources and air quality, which are both collectively or publicly-shared resources (Figure 8).
- While residents highly valued farmland as a resource in general (Figure 5), it had the lowest relative support for county protective actions of any resource, perhaps due to the fact it is a privately held resource (Figure 8).
- Another publicly-held resource – public land, parks, and trails – came after water and air quality with the strongest support for protective county action (Figure 8).

When residents evaluated the importance of resources in relation to each other – both through importance and ranking – water, air quality, and farmland once again emerge as the "top three" resources that Winneshiek County residents give support for the county to prioritize in their decision-making (Figure 9, Table 3).

- Winneshiek County residents rate water resources higher than any other resource with nearly 90% of respondents saying it should be "very important" or "extremely important" to county decision-makers (Figure 9).
- When asked to rate importance, air quality had the second highest level of support with 82.5% of respondents rating the resource as "very important" or "extremely important", second to water resources.
- Farmland came third in the rating of importance with 68% of respondents saying it should be "very important" or "extremely important" to county decision-making.

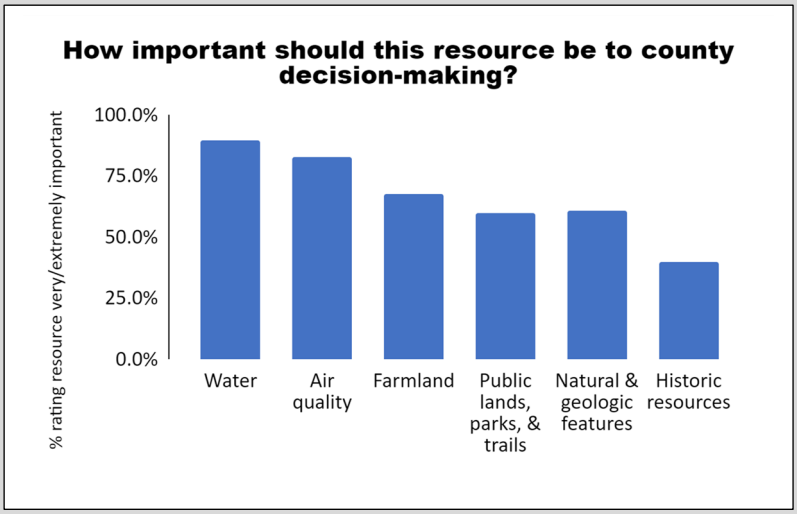


Figure 9. Percentage of respondents rating each resource as very or extremely important.

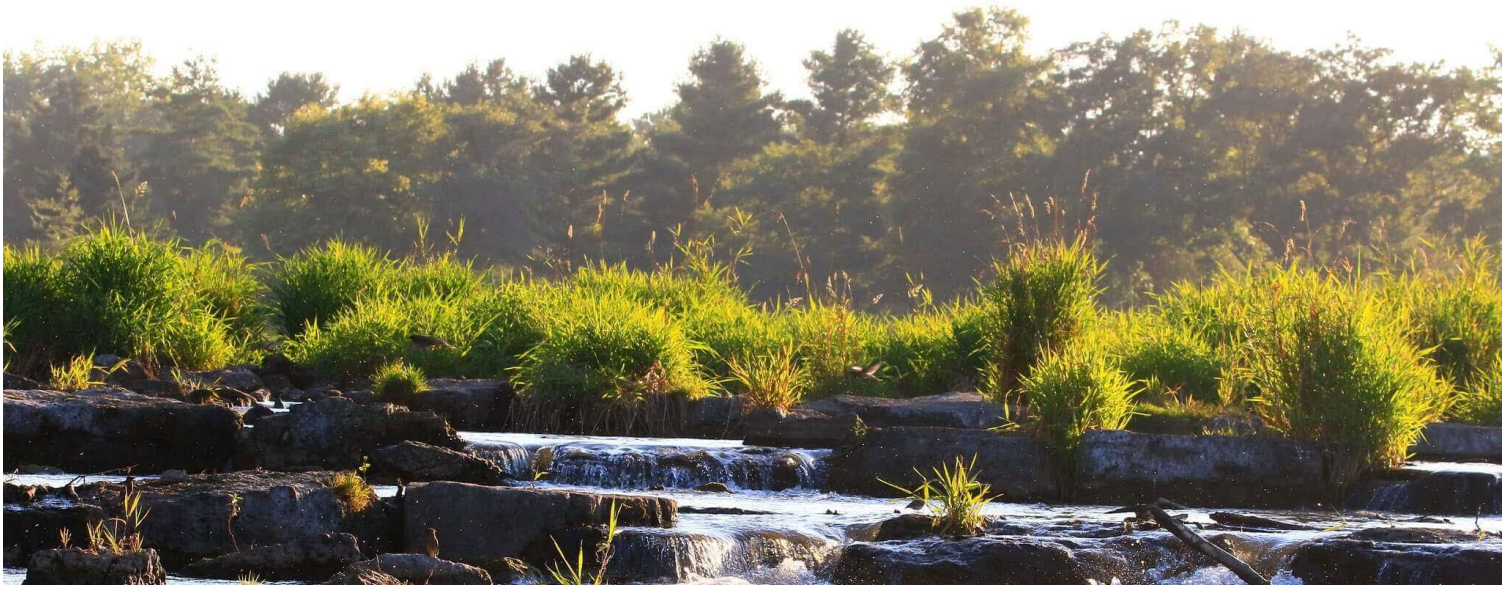
Ranking is the strongest evaluation asked of respondents, as it requires acknowledgement of tradeoffs between resources in decision-making. When respondents were asked to choose their top three most important resources for county decision-makers – and thus set aside three other resources – water, air quality, and farmland again emerged as the highest priority resources (Table 3).

Table 3. County residents ranked water, air quality, and farmland as the highest priority resources for the county to consider in their decision-making.

#1 Water Resources	Support for the county to prioritize water in decision-making was nearly unanimous across 683 respondents. **94.9%** of all respondents selected "water" as one of their top three resources.
#2 Air Quality	Air quality was the second most frequently ranked resource, with **68%** of survey respondents including it in their top three priorities for the county to consider.
#3 Farmland	When survey respondents were asked generally which three resources they'd rank as most important for county decision-makers to prioritize, farmland came in third with **54.4%** of respondents selecting it in their top three resources.

- **39.2%** of respondents ranked **public lands, parks, and trails** in their top three resources
- **30.5%** of respondents ranked **natural & geologic features** in their top three resources
- **7.8 %** of respondents ranked **historic resources** in their top three

Water was – by far – the most strongly and consistently prioritized resource by Winneshiek County residents with 94.9% of survey respondents ranking water resources in their top three resources for the county to consider in their decision-making.



5. Conclusions

This study involved broad participation of over 1,100 Winneshiek County residents and drew together a representative sample of diverse views from across the county. Ultimately, however, this research demonstrated a shared connection over the county's natural & historic resources among residents. Taken together, this analysis confirms the premise of this study, which is that Winneshiek County residents are deeply connected to their place. Three quarters of all residents, for example, indicate that the county's natural and historic resources are important to their decision to live in this county. Indeed, this connection was echoed in residents' strong support for all six resource categories in the survey. The high public participation in this study indicates this is a community that has a deep stake in its natural and historic environment. The study's primary conclusions are:

1. **Water** is a clear and nearly unanimous top priority for residents of Winneshiek County. Residents see water as a vital resource and strongly support the prioritization and protection of water in county decision-making. Further, residents identified multiple benefits of water protection, arguing for its importance to public health, economy and tourism, agriculture, biodiversity, and wildlife habitat.
2. County residents elevated **air quality** as a critical resource for the county and the health of its residents, second only to water. Concerns about the impacts of Concentrated Animal Feeding Operations (CAFOs) and gravel dust were most often mentioned as threats to air quality.
3. Residents highly value the county's **farmland** and support the consideration and prioritization of farmland in county decision-making. However, support for the formal protection of farmland is mixed. While farmland was in the top three most important resources in most questions on the survey, it received the lowest percentage of residents indicating strong support for specific protective actions of any resource on the survey.
4. Residents hold special value and responsibility towards protecting **public lands, parks & trails** due to their value as a public resource for recreation, tourism, biodiversity, and hunting.
5. On the whole, residents support the county in considering, prioritizing, and protecting natural and historic resources through decision-making. Residents most strongly support county action to protect **publicly-held natural resources**. When asked to evaluate specific resource-protective actions, the highest support was for water; air quality; public lands, parks, and trails; and natural & geologic features.

Taken together, this study provides a robust foundation for understanding the values and priorities of Winneshiek County residents with regard to their natural and historic resources. Residents have indicated broad agreement on the top three most important resources for the county in water, air quality, and farmland. In particular, these findings provide a clear public directive for the consideration, prioritization, and protection of water resources in county-level decision-making. County residents, however, consistently rated all six resource categories as valuable and worthy of protection. As such, this study should not be used to justify *not* prioritizing or disregarding the importance of a resource. Rather, the findings can be seen as public support for county decision-makers to consider and prioritize the protection of the most highly and consistently rated natural resources. While county decision-making is contextual, this study stands as a resource for county governmental and non-governmental entities when weighing resource conflicts, tradeoffs, and priorities in the future.

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7. Acknowledgements

This study relied on the engagement of Winneshiek County residents who shared their time and perspectives on the county's natural and historic resources with project partners. We are grateful for each resident who attended public meetings, completed a survey, or helped spread the word about the project.

This work was completed with the support of many people and organizations, including the host locations for our community meetings; county staff including Zoning Administrator Tony Phillips and County Auditor Ben Steines; the Board of Supervisors; staff at the Document Center and US Post Office on the Luther College campus including Jeff Naatz, Vikki Barness, Jane Fosaaen, Gene Vanda, and Lance Spiker; and Luther College Catering. We are deeply grateful to Ann Mansfield for sharing her time and expertise as a process facilitator and for Chris Frantsvog for serving repeatedly as a table host at community meetings. Additionally, the project received excellent mapping support from Brad Crawford of Northeast Iowa RC&D; former Luther College students Savannah Deters, Victoria Graf; and Luther College faculty Dr. Molly McNicoll and Dr. Dawn Reding. Further, we're grateful to Larry Reis, who generously allowed the use of his photographs for this report. We also thank the over 40 Luther College students who supported this study, including ENVS 250 in the spring of 2019, all students that acted as table hosts at community meetings, and Mackenzie Miller, Margaret Mullin, and Cole Barrett, three former students who provided extended support as research assistants.

Finally, we thank members of the Winneshiek Zoning Commission between 2018-2024 for the vision to initiate this project and energy they dedicated to carrying it through.

8. Appendices

Appendix A: Additional details on community engagement process

Advertising Community Meetings: Community outreach and advertising was a central priority leading up to the meetings to ensure robust participation. Project partners began outreach about the meeting in the month before the first scheduled meeting to increase public awareness and knowledge about the project. Initial outreach regarding the public meeting schedule occurred at the 2022 Winneshiek County Fair where team members distributed flyers and postcards at key public locations and booths of county stakeholders and interest groups. In the weeks leading up to each meeting, organizers used multiple media such as newspaper (ads and feature articles), radio, and social media to announce and encourage attendance at meetings. Flyers were also posted throughout the county in high-traffic locations. Additionally, members of both the Board of Supervisors and Zoning Commission were encouraged to reach out to their constituents. Further, organizers conducted targeted reach-outs to key natural resource, agricultural, and historical stakeholder groups.

Community Meeting Structure: Ann Mansfield – a skilled facilitator – led the meeting attendees through the 75-minute meeting process, which started with an individual worksheet that asked participants to document the resources they value and want to protect. In small groups, attendees then gathered around large maps of the county and mapped their top two resources by placing a sticker on the map to represent those resources. This served both to visualize county resources, as well as to provide a foundation for small group conversation. After each participant placed their stickers, small groups discussed overlaps, commonalities, and differences in the resources represented, before collectively identifying two resources that the group could all agree upon. Finally, the facilitator pulled the whole group together for a discussion of common themes and reflection on the process.

Construction of the County-wide Survey Sample: Use of registered voter lists was approved by the Iowa Secretary of State's Office for the purposes of this survey. Half of the sample was drawn from registered voters in rural areas, living outside of the city limits of the county's eight incorporated municipalities, and half of the sample was drawn from voters living within municipal boundaries. The sample was constructed to limit the survey sample to one registered voter per household, which was done to ensure the broad coverage of households across the county. Recipients of the survey were given the option to return the survey by mail in a pre-stamped envelope, or to complete the survey online through a QR code. All people in the sample were sent a reminder postcard within two weeks after the initial survey was mailed.

Appendix B: Online Opt-in Survey: Key findings

The county-wide survey summarized in the main body of this report should serve as the foundation of information on Winneshiek County residents' views on natural and historic resource prioritization in the county. The Zoning Commission decided to supplement this survey with an online, opt-in survey to allow those residents who were not randomly-selected to have an opportunity to share their perspective. These results are included separately from the county-wide survey because opt-in surveys are more likely to over-represent those with strong views or with a particular interest in the substance of the survey, thus are not representative of the county as a whole. As a result, project partners do not recommend drawing upon findings from the opt-in online survey on their own to support decision-making. However, as described below, there is considerable overlap in the key findings between the county-wide random survey and the online opt-in survey.

How did county residents find out about the online survey?

Project partners advertised the online opt-in survey widely and through multiple forums to ensure broad exposure. Links and QR codes to the survey were shared on the project's social media accounts, in multiple county newspapers, and on fliers placed in public places throughout the county. In addition, project partners distributed the survey to several key stakeholder groups such as the Winneshiek County Farm Bureau, Trout Unlimited, the Winneshiek County Conservation listserv, and Iowa State Extension's New and Beginning Farmer network.

Who completed the online opt-in survey?

Only those respondents who indicated that they were 18 years or older and residents of Winneshiek County gained access to the survey questions. Further, the online questionnaire allowed only one response from a device (phone, computer, etc.) to discourage people from taking the survey multiple times. In all, 293 residents of the county completed 20% or more of the online survey. Analysis was limited to only those that completed 20% more of the survey because it is more common in online surveys – as compared to paper surveys – for respondents to "trial" a survey and only answer a small number of questions. The 20% threshold ensures that a respondent answered questions regarding at least two resources (water, farmland, *etc*.).

Of those that choose to complete the opt-in survey,

- 49.1% live in rural areas, 50.9% live in town
- Opt-in respondents have lived in Winneshiek County for an average of 28.5 years
- 49.6% of respondents were female, 43.6% male, and 6.8% indicated "other" or that they preferred not to indicate their gender
- 43.2% of respondents were between 55-74 years old. The second largest age group were 35-44 year olds, representing 23.3% of respondents.

- 88.4% of respondents indicated that natural and/or historic resources were important, very important, or extremely important to their decision to live in Winneshiek County.

The breakdown of respondents by gender and by rural vs. town residence in the opt-in survey was very similar to the randomized county-wide survey. In addition, this pool of respondents contained similar proportions of farmers (18% of opt-in respondents vs.17% of county-wide respondents) and landowners (56% opt-in vs. 52% county-wide) in the sample. However, opt-in respondents were, on average, younger, had lived in the county for fewer years (41 years vs. 28.5 years), and a smaller proportion of the opt-in respondents were lifelong residents (28% opt-in vs. 44% county-wide). Additionally, a higher proportion of the opt-in respondents engaged in land-based outdoor recreation (69% opt-in vs. 42% countywide), water recreation (54% opt-in vs. 36% county-wide) and more of them indicated that Winneshiek County's natural or historic resources were important to their decision to live, move, or stay in the county (88.4% opt-in vs. 74% county-wide).

What were some of the key findings emerging from the opt-in online survey? How do these findings compare to the randomized county-wide survey?

- Similar to the county-wide randomized survey, **residents who took the online survey evaluated all six resource categories highly in terms of their importance and our responsibility to protect them** when evaluating each resource separately. Greater than 85% of respondents agreed or strongly agreed that water; air quality; public lands, parks & trails; natural and geologic features; and historic resources were important for our county and indicated a strong sense of responsibility to protect those resources (Table 1). While 90% of online survey respondents indicated agreement that farmland was an important resource for the county, farmland had the least agreement of all resources – at 70.5% - that we have a responsibility to protect it.

Table 1. The percentage of opt-in online survey respondents that agree or strongly agree on the importance of the six focal resources and on our collective responsibility to protect it.

	"This is an important resource for our county." (% Agree or Strongly Agree)	***"We have a responsibility to protect this resource."*** (% Agree or Strongly Agree)
Water resources	96.6%	95.5%
Air quality	97.0%	97.0%
Farmland	90.0%	70.5%
Public lands, parks & trails	95.4%	95.0%
Natural & geologic features	95.6%	94.5%
Historic resources	85.3%	86.5%

- Differences became clearer when looking at the resource categories that had the strongest level of agreement ("strongly agree"). As with the county-wide survey, residents rated **water resources and air quality as the top two most important resources worthy of protection** (Figure 1, 2).

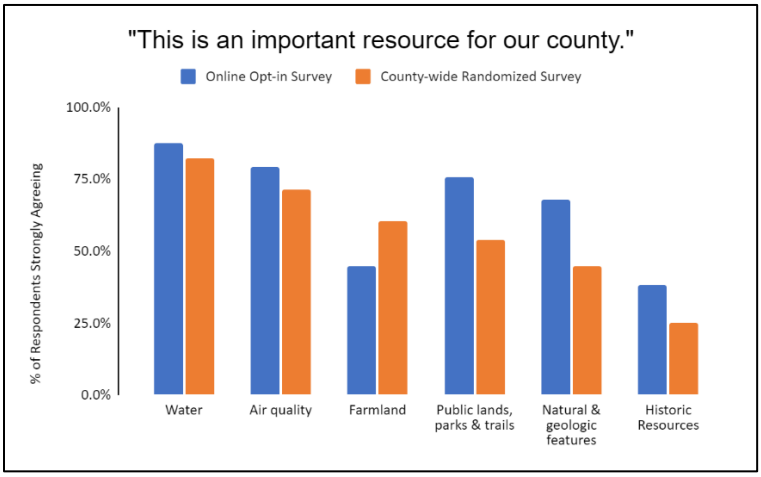

Figure 1. The percentage of respondents strongly agreeing on the importance of each resource category to the county, both in the opt-in online survey and the county-wide randomized survey.

- While farmland consistently emerged as one of the top three resources on the county-wide survey, **a greater proportion of the respondents of the opt-in survey strongly agreed on the importance and protection of public lands, parks and trails and natural and geologic features**. Farmland was the only resource having a smaller proportion of opt-in respondents indicating "strong agreement" compared to respondents on the county-wide survey (Figure 1, 2).

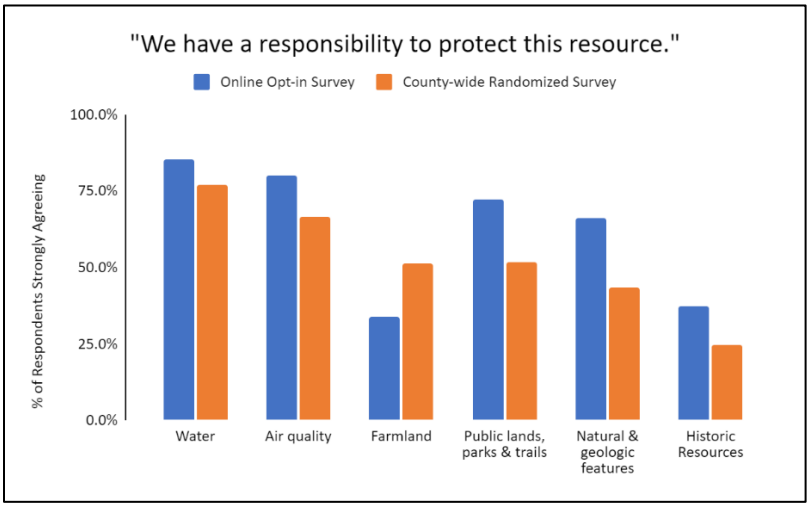

Figure 2. The percentage of respondents strongly agreeing on the responsibility for protecting resources, both in the opt-in online survey and the county-wide randomized survey.

- **When considering the importance that each resource should hold in county decision-making, respondents once again elevated water resources and air quality**. 91% of respondents indicated that water should be very or extremely important and 83% said that air quality should be very or extremely important.

- **Opt-in respondents rated public lands, parks and trails, as well as natural and geologic resources higher than respondents in the county-wide survey.** 77% of opt-in rated public lands, parks and trails as very or extremely important, as compared to 60% in the county-wide survey. Similarly, 74% rated natural and geologic resources at these levels in the opt-in survey while 60.8% did in the county-wide survey.

- Finally, **only 46% of opt-in survey respondents said that farmland should be prioritized in decision-making**, which is considerably lower than the 67.5% did in the county-wide survey. Historic resources had the lowest proportion of residents rating the resource as very or extremely important in both surveys.

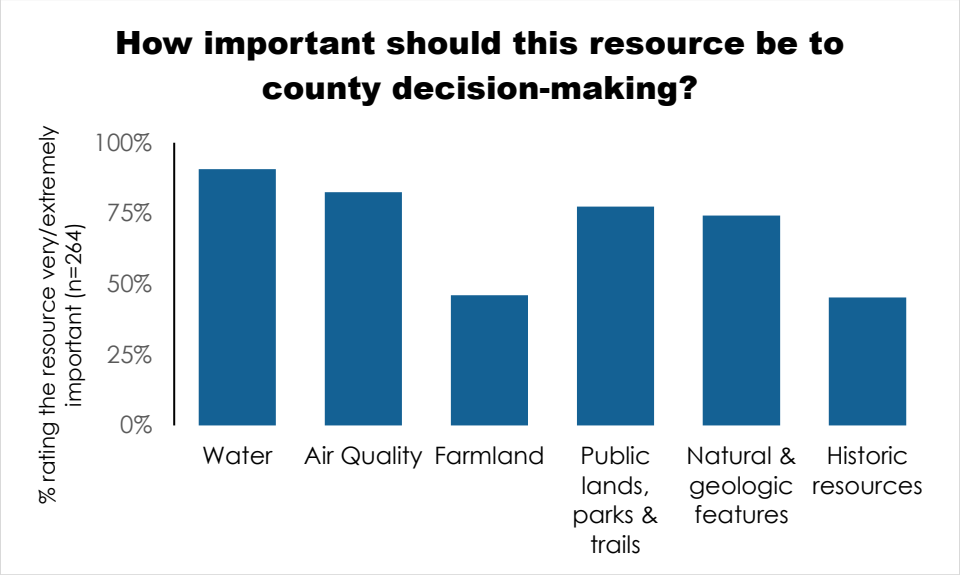

Figure 3. The percentage of respondents from the opt-in survey who rated that each resources should be very or extremely important to county decision-making.

- **Finally, when asked to make decisions about the most important resources, water, air quality, and public lands parks and trails emerged at the top for opt-in survey respondents.**
    - 93.3% ranked water in their top three resources.
    - 61.9% ranked air quality in their top three resources.
    - 55.6% ranked public lands, parks, and trails in their top three resources.

Appendix C: County-wide Survey

Survey of Residents of Winneshiek County

Understanding your Values & Priorities for Natural and Historic Resource Protection

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This past fall, Winneshiek County residents gathered at community meetings to share the resources they most value. Thanks to the many folks who gave their time & perspective.

The themes shared in those meetings serve as the base of this survey. The purpose of this questionnaire is to better understand residents' values and priorities for natural and historic resources in the county. A sample of Winneshiek County residents was randomly selected for this survey and you are one of them. We value your help and perspective – the information you share may inform our land use decision-making in the future.

This questionnaire will take around 15-20 minutes to complete, depending on how much you choose to write. We ask questions about six resource categories: water; farmland; parks, public lands, and trails; natural and geologic features; historic resources; and air quality. We end the survey by asking a few questions about your relationship to Winneshiek County. All information you provide is anonymous and confidential. In addition, you are not required to answer any questions that you don't feel comfortable answering.

We think Winneshiek County is a pretty special place and bet you do, too. Kindly take some time this week to let us know your thoughts.

Best Regards,

Winneshiek County Planning & Zoning Commission
Wendy M. Stevens (Chair), John Berlage, D.J. Friest, Mary Hoffman, David Meyer, Melissa O'Rourke, and Donna Rasmussen

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Additional Information: The Winneshiek County Planning & Zoning is carrying out this survey with help from Rachel Brummel at Luther College. By filling out and returning this questionnaire, you consent to participate in the study and agree that the purpose of this research has been satisfactorily explained to you. We will be sharing summaries of the project with the county and the public.

If you have any questions, contact Rachel Brummel by email at [project email address] or by phone at 563-387-1778. Any complaints or problems concerning this research may, and should, be reported to The Provost's Office, Luther College, 563-387-1005 if they arise.

Please mail your completed survey back in the stamped envelope provided. If you prefer to complete the survey online rather than on paper, you may access it through this link [survey link included] or QR code to the right. Only the person addressed on the envelope should complete this survey, and they should only complete it once by mail or online. If you misplace your envelope, use this return address: Winneshiek County Zoning, 201 West Main Street, Decorah, IA 52101.

QR CODE

SURVEY PART 1: WINNESHIEK COUNTY's NATURAL and HISTORIC RESOURCES

WATER: Winneshiek County has many water resources ranging from the Upper Iowa River and the Turkey River to cold water trout streams and groundwater. Whether you're fishing, drinking a glass of water, or watering cattle, you are interacting with water resources. Your responses to the following statements will help the county better understand the priorities of Winneshiek County residents with regard to water resources.

WATER: To what extent do you agree or disagree with the following statements? *Please check the box that most matches your level of agreement.*					
1. **Water** is an important resource for our county.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
2. We have a responsibility to protect our **water resources**.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
3. I would support the county prioritizing the protection of **water resources** in their decision-making.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
4. I would support the county restricting building in certain places to protect **water resources**.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
5. I would support the county limiting other land uses and activities to protect **water resources**.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
6. When there are conflicts among land uses, the county should prioritize ***other*** resources, activities, and land uses over the protection of **water resources.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
7. If you agree or strongly agree with the statement in #6 above, please explain what types of land uses or resources you think the county should prioritize ***over*** **water resources.** *Other land uses may include, but are not limited to, industrial, agricultural, commercial, residential, conservation, recreational, or educational. Other resources may be anything that you value and improves your quality of life in Winneshiek County.*					

8. Please check the top **three** most important reasons you think the county's **water resources** should be protected:

- □ Wildlife habitat
- □ Fishing
- □ Public health
- □ Canoeing, kayaking, and tubing
- □ Drinking water
- □ Tourism
- □ Economic value
- □ Agricultural use
- □ Flood protection / flood infrastructure
- □ Protection from agriculture
- □ Other: _____
- □ Other: _____

9. Please use this space to further explain or comment on your responses with regard to **water resources.**

FARMLAND: As an agricultural region, farmland and soil in Winneshiek County are critical resources for people's livelihoods and for the county as a whole. Farmers and agriculture are important to the local economy, our community, and our land. Your responses to the following statements will help the county better understand the priorities of Winneshiek County residents with regard to farmland and agriculture.

FARMLAND: To what extent do you agree or disagree with the following statements? *Please check the box that most matches your level of agreement.*					
1. **Farmland** is an important resource for our county.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
2. We have a responsibility to protect **farmland.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
3. I would support the county prioritizing the protection of **farmland** in their decision-making.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
4. I would support the county restricting building in certain places to protect **farmland.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
5. I would support the county limiting other land uses and activities to protect **farmland.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
6. When there are conflicts among land uses, the county should prioritize ***other*** resources, activities, and land uses over the protection of **farmland.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree

7. If you agree or strongly agree with the statement in #6 above, please explain in this box what types of land uses or resources you think the county should prioritize ***over*** **farmland.** *Other land uses may include, but are not limited to, industrial, commercial, residential, conservation, recreational, or educational. Other resources may be anything that you value and improves your quality of life in Winneshiek County.*

8. Please check the top **three** most important reasons you think the county's **farmland** should be protected:

- □ Economic value
- □ Local food production
- □ Responsibility to feed people
- □ Protection from development
- □ To support family farms
- □ To support diversified farms
- □ To foster sustainable agricultural practices
- □ To support plant & animal habitat
- □ Other: _____
- □ Other: _____

9. Please use this space to further explain or comment on your responses with regard to **farmland** and agriculture.

HISTORIC RESOURCES: Winneshiek County has a long history of family farms, European settlement, ethnic heritages, Native American traditions, and more that ground our communities. Your responses to the following statements will help the county better understand the priorities of Winneshiek County residents with regard to historic resources.

HISTORIC RESOURCES: To what extent do you agree or disagree with the following statements? *Please check the box that most matches your level of agreement.*					
1. **Historic resources** are important for our county.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
2. We have a responsibility to protect our **historic resources.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
3. I would support the county prioritizing the protection of **historic resources** in their decision-making.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
4. I would support the county restricting building in certain places to protect **historic resources.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
5. I would support the county limiting other land uses and activities to protect **historic resources.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
6. When there are conflicts among land uses, the county should prioritize ***other*** resources, activities, and land uses over the protection of **historic resources.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
7. If you agree or strongly agree with the statement in #6 above, please explain in this box what types of land uses or resources you think the county should prioritize ***over*** **historic resources.** *Other land uses may include, but are not limited to, industrial, agricultural, commercial, residential, conservation, recreational, or educational. Other resources may be anything that you value and improves your quality of life in Winneshiek County.*					

8. Please check the top **three** most important reasons you think the county's **historic resources** should be protected:

- □ To maintain cultural knowledge
- □ To maintain historic buildings & architecture
- □ To protect Native American cultural sites
- □ To maintain pioneer cemeteries and churches
- □ To connect with faith heritages
- □ Other: _____
- □ Other: _____

9. Please use this space to further explain or comment on your responses with regard to **historic resources.**

PUBLIC LAND, PARKS, and TRAILS: Public land in Winneshiek County offers people the recreational opportunity to explore natural areas and appreciate the outdoors year-round through activities such as biking, hunting, hiking, and wildlife viewing. Your responses to the following statements will help the county better understand the priorities of Winneshiek County residents with regard to public land, parks, and trails.

PUBLIC LAND, PARKS & TRAILS: To what extent do you agree or disagree with the following statements? *Please check the box that most matches your level of agreement.*					
1. **Public land, parks, and trails** are important resources for our county.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
2. We have a responsibility to protect our county's **public land, parks, and trails.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
3. I would support the county prioritizing the protection of **public land, parks, and trails** in their decision-making.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
4. I would support the county restricting building in certain places to protect **public land, parks, and trails.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
5. I would support the county limiting other land uses and activities to protect **public land, parks, and trails.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
6. When there are conflicts among land uses, the county should prioritize ***other*** resources, activities, and land uses over the protection of **public land, parks, and trails.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
7. If you agree or strongly agree with the statement in #6 above, please explain in this box what types of land uses or resources you think the county should prioritize ***over*** **public land, parks, and trails.** *Other land uses may include, but are not limited to, industrial, agricultural, commercial, residential, conservation, recreational, or educational. Other resources may be anything that you value and improves your quality of life in Winneshiek County.*					

8. Please check the top **three** most important reasons the county's **public land, parks & trails** should be protected:

- □ Biodiversity / species habitat
- □ Recreation – biking, hiking, camping, etc.
- □ Hunting
- □ Fishing
- □ Tourism
- □ Economic value
- □ Environmental education
- □ Other: _____
- □ Other: _____

9. Please use this space to further explain or comment on your responses with regard to **public land, parks, and trails.**

NATURAL & GEOLOGIC FEATURES: Natural features such as forests, prairies, and wetlands are an important part of Northeast Iowa's landscape. Winneshiek County is also home to unique geologic features such as outcrops, sinkholes, caves, disappearing streams, springs, bluffs, and waterfalls. Your responses to the following statements will help the county better understand the priorities of Winneshiek County residents with regard to natural & geologic features.

NATURAL & GEOLOGIC FEATURES: To what extent do you agree or disagree with the following statements? *Please check the box that most matches your level of agreement.*					
1. **Natural & geologic features** are important resources for our county.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
2. We have a responsibility to protect our **natural & geologic features.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
3. I would support the county prioritizing the protection of **natural & geologic features** in their decision-making.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
4. I would support the county restricting building in certain places to protect **natural & geologic features.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
5. I would support the county limiting other land uses and activities to protect **natural & geologic features.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
6. When there are conflicts among land uses, the county should prioritize ***other*** resources, activities, and land uses over the protection of **natural & geologic features.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
7. If you agree or strongly agree with the statement in #6 above, please explain in this box what types of land uses or resources you think the county should prioritize ***over*** **natural & geologic features.** *Other land uses may include, but are not limited to, industrial, agricultural, commercial, residential, conservation, recreational, or educational. Other resources may be anything that you value and improves your quality of life in Winneshiek County.*					

8. Please check the **three** most important reasons the county's **natural & geologic features** should be protected:

- □ Wildlife habitat
- □ Recreation – hiking, wildlife viewing, etc.
- □ Hunting
- □ Pollinator habitat
- □ To promote water quality
- □ Fishing
- □ Tourism
- □ Economic value
- □ Ecological diversity
- □ Local character & identity
- □ Preventing soil erosion
- □ Environmental education
- □ Carbon storage & uptake
- □ Other: _____
- □ Other: _____

9. Please use this space to further explain or comment upon your responses about **natural & geologic features.**

AIR QUALITY: Air quality is something that impacts us all and is dependent on many controllable and uncontrollable factors. Things like gravel roads, amount of green space, traffic, and concentrated animal feeding operations can affect the air we breathe. Your responses to the following statements will help the county better understand the priorities of Winneshiek County residents with regard to air quality.

AIR QUALITY: To what extent do you agree or disagree with the following statements? *Please check the box that most matches your level of agreement.*					
1. **Clean air** is an important resource for our county.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
2. We have a responsibility to protect our **air quality.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
3. I would support the county prioritizing the protection of **air quality** in their decision-making.	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
4. I would support the county restricting building in certain places to protect **air quality.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
5. I would support the county limiting other land uses and activities to protect **air quality.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
6. When there are conflicts among land uses, the county should prioritize ***other*** resources, activities, and land uses over the protection of **air quality.**	☐ Strongly Disagree	☐ Disagree	☐ Neither agree nor disagree	☐ Agree	☐ Strongly Agree
7. If you agree or strongly agree with the statement in #6 above, please explain in this box what types of land uses or resources you think the county should prioritize ***over*** **air quality.** *Other land uses may include, but are not limited to, industrial, agricultural, commercial, residential, conservation, recreational, or educational. Other resources may be anything that you value and improves your quality of life in Winneshiek County.*					

8. Please check the top **three** most important reasons you think the county's **air quality** should be protected:

- □ Public health
- □ Tourism
- □ Aesthetics
- □ Economic value
- □ Quality of life
- □ To reduce gravel dust
- □ To address odors
- □ Other: _____
- □ Other: _____

9. Please use this space to further explain or comment on your responses with regard to **air quality.**

PRIORITIZING RESOURCES: The Winneshiek Planning & Zoning Commission often has to make decisions that prioritize one type of land use, activity, or resource over another. Your responses to these questions will give the county a better sense of how important you think each of these resources are.

1. **How important do you think each of these resources should be to county decision-making?**
Please check the box that most matches your view.

Water resources	☐ Not Important	☐ Slightly Important	☐ Important	☐ Very Important	☐ Extremely Important
Farmland	☐ Not Important	☐ Slightly Important	☐ Important	☐ Very Important	☐ Extremely Important
Historic resources	☐ Not Important	☐ Slightly Important	☐ Important	☐ Very Important	☐ Extremely Important
Public land, parks, and trails	☐ Not Important	☐ Slightly Important	☐ Important	☐ Very Important	☐ Extremely Important
Natural & geologic Features	☐ Not Important	☐ Slightly Important	☐ Important	☐ Very Important	☐ Extremely Important
Air quality	☐ Not Important	☐ Slightly Important	☐ Important	☐ Very Important	☐ Extremely Important

2. Check the boxes next to **the top three resources** you think the county should prioritize in their decision-making.

□ Water resources □ Public lands, parks, and trails □ Historic resources
□ Farmland □ Natural & geologic features □ Air quality

3. Please use this space to further explain or comment on **prioritizing natural & historic resources** in the county.

SURVEY PART 2: UNDERSTANDING YOUR RELATIONSHIP to WINNESHIEK COUNTY

Different people in our county have different relationships to the land and land-use, which is why we ask the questions below. **The information you share is anonymous and confidential.**

1. Do you rent or own your primary residence in Winneshiek County? ☐ Rent ☐ Own

2. How long have you lived in Winneshiek county, in total? **Please round to the closest year:** _____ # of year(s)

3. What is the gender of the person that completed this survey?

☐ Female ☐ Male ☐ I'd prefer not to answer ☐ Other:_____

4. What is your age?

□ 18-24 years old □ 35-44 years old □ 55-64 years old □ 75-84 years old
□ 25-34 years old □ 45-54 years old □ 65-74 years old □ 85 or older

5. Which of these describe you and your relationship to Winneshiek County? **Check all that apply.**

□ Farmer □ Lifelong resident □ Outdoor rec. – hiking, camping, etc.
□ Farming household/family □ Moved in to the county/transplant □ Water rec. – canoeing, boating, etc.
□ Landowner □ Local history enthusiast □ Angler/fishing
□ Hunter/hunting □ Other:_____ □ Other: _____

6. How important are *or* were Winneshiek County's natural and/or historic resources in influencing your decision to live here, move here, or stay here?

☐ Not Important ☐ Slightly Important ☐ Important ☐ Very Important ☐ Extremely Important

Appendix D: 2-Page Study Summary Brochure

The following pages are formatted as a trifold brochure that summarizes key highlights of the study. This brochure may be printed to share as a high-level summary for public audiences. When printing two-sided, select "flip pages on short edge" to print the brochure in the correct orientation.

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Why was this study initiated?

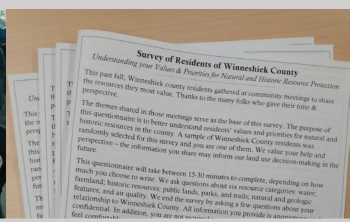
The Winneshiek County Zoning Commission initiated this study to better understand Winneshiek County residents' values & priorities for natural & historic resource protection. The Zoning Commission saw the need to develop a more proactive understanding of the public's views to help inform their land use decision-making.

What did the study process entail?

The Zoning Commission partnered with Luther College faculty with expertise in community engagement & survey research to hold a series of five open public meetings and distribute a county-wide survey. The meetings helped identify key resources that were included on the survey: water, air quality, farmland, public lands, parks & trails; natural & geologic features and historic resources. The survey then asked residents to indicate how important they considered each to the county and their level of support for protection of each resource.

Who participated in this study?

Over 1,100 residents of Winneshiek County participated in this study through attending meetings or completing a survey between the fall of 2022 and 2023.



Here are a few characteristics of participants:

- *Around half live rurally and half in town*
- *44% are lifelong residents of the county*
- *17% are farmers*
- *42% engage in outdoor recreation activities such as hiking & camping*

What were some of the key findings of this project?

This process generated rich information on the natural & historic resources county residents value. Greater detail is included in the full report, but we highlight five key takeaways for the purposes of this summary brochure.

1. Winneshiek County residents are deeply connected to their place.

Residents demonstrated they have a deep stake in their local environment through high engagement in this process.

- *1,112 residents shared their perspectives through attending community meetings or completing a survey.*
- *97% of community meeting attendees agreed or strongly agreed they were able to share their perspective at meetings. None disagreed.*

The quality of Winneshiek County's natural & historic resources both attracts people to live here and keeps them here once they do.

- *Nearly three-quarters of all residents said that Winneshiek County's natural & historic resources were important to their decision to live in this county or stay here.*

2. Protecting water is a clear top priority for county residents.

Winneshiek County residents believe we have a responsibility to protect our water.

- *98% of respondents agree or strongly agree we have a responsibility to protect county water resources.*

Participants highlighted multiple benefits linked to protecting our county's water.

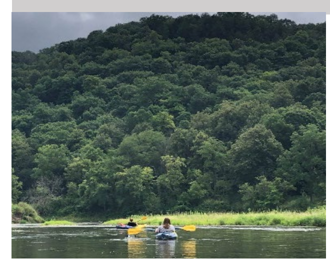
- *Drinking water protection, public health, and wildlife habitat were the top three reasons given for wanting to protect county water resources.*
- *Survey respondents also indicated water's importance to our economy, including to agriculture and tourism.*

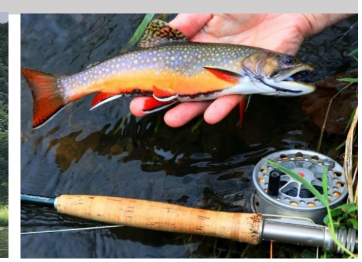
Residents think water should be prioritized in county decision-making.

- *Winneshiek residents rated water as the most important resource on the survey, with 90% of respondents saying it should be "very or extremely important" to county decision-makers.*
- *Water is nearly unanimous as a top priority for protection - 95% of respondents ranked water in their top three resources for county decision-makers to consider.*

Residents are willing to accept tradeoffs to protect water in Winneshiek County.

- *84% of respondents would support the county restricting building in certain areas to protect water resources.*
- *80% of respondents would support the county limiting other land uses and activities to protect water resources.*





3. Residents prioritize air quality as critical to public health & quality of life in the county.

County residents highly value air quality – second only to water – and agree we have a responsibility to protect it.

- *98% of respondents agreed that air quality is an important county resource and 96% agreed we have a responsibility to protect it.*
- *Participants frequently mentioned CAFOs and gravel dust as threats to local air quality.*

Participants support the county taking action to protect air quality.

- *83% of respondents indicated that air quality should be very or extremely important to county decision-making.*
- *Most residents support taking specific protective action for air-quality; 83% support restricting building in certain areas to protect air quality and 78% support limiting other land uses and activities to protect air quality.*

4. Winneshiek residents highly value farmland & support its consideration in county decision-making.

Residents see farmland as a very important resource in the county.

- *96% of respondents agreed or strongly agreed that farmland is an important resource for Winneshiek County.*

Residents consistently rank farmland in the top three most critical resources for the county, after water and air quality.

- *Farmland was the third most commonly-ranked resource, with 54% of residents putting farmland in their top three most important resources for county decision-makers to consider.*

Participants indicated mixed support for protective action towards farmland.

- *Residents feel less strongly about the county taking protective actions towards farmland than they do about other natural resources.*
- *Farmland had the smallest percentage of respondents "strongly agreeing" to the county restricting building to protect (30%) and limiting other land uses to protect (23%) of any resource on the survey.*
- *Yet, 68% of respondents said farmland should be very or extremely important to county decision-making, third highest after water & air.*

5. Residents support the protection of public lands, parks & trails for recreation, tourism, and biodiversity

Winneshiek County residents hold special value and responsibility for protecting county land, parks & trails.

- *93% of respondents agree that public lands, parks & trails are important resources for the county and 93% also agree that we have a responsibility to protect them.*
- *Participants supported protection of county lands as a truly public resource; the third highest percentage of respondents "strongly agreed" to the county taking action to protect public lands, parks & trails, after water and air quality.*

Contact the Winneshiek County Zoning Administrator (zoning@co.winneshiek.ia.us) with additional inquiries.
Gratitude to Larry Reis for the use of photos.

Winneshiek County's Natural & Historic Resources:

Understanding Residents' Values & Priorities

Project Objective: *To develop a comprehensive understanding of Winneshiek County residents' values and priorities for natural & historic resource protection, which can serve as a foundation for community-informed decision-making by Winneshiek County governmental and non-governmental entities.*

https://tinyurl.com/winnco-resources

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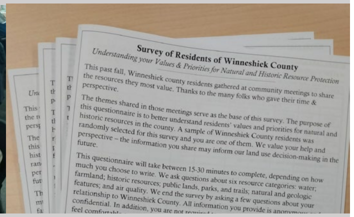

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Monthly Waiver Report

May 2025

Item #	DNR Reviewer	Facility/City	Program	Subject	Decision	Date	Agency Reference
1	Julie Ritter	International Paper	AQ	Request to begin construction of new corrugated box manufacturing plant.	Approved	4.29.25	25aqw076
2	Tara Naber, PE	City of Yale	WC - Water Supply Construction	Request is to install and grout an inner casing with less than 1.5-inches of grout in order to rehabilitate an existing water supply well as part of Water Supply Engineering project W2022-0299.	Approved	4.25.25	25wcw077
3	Jessica Ragsdale, Erik Day, Kelli Book	Jelsma Dairy	AFO	Separation distance from existing well to confinements is not met. Calf huts have been moved to be in compliance. Well head will be protected and runoff diverted. Cost of drilling a new well would set the Dairy back financially.	Approved	4.23.25	25cpw078
4	John Curtin	Grain Processing Corporation	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement for four gluten filters.	Approved	5.2.25	25aqw079
5	Danjin Zulic	University of Iowa	Air Quality Construction Permits	Air Quality Construction Permits	Approved	5.5.25	25aqw080
6	Lucas Tenborg	Grain Processing Corporation	AQ	Grain Processing Corporation is requesting a variance from the requirement to vent digester emissions through the Biogas Desulfurization Process and the Biogas flare to conduct scheduled maintenance.	Approved	5.7.25	25aqw081
7	Dallas Heikens, Kelli Book, Chad Fields	Kevin Wynja Feedlot	AFO	er of existing beef cattle open feedlot requested variance for private drinking water shallow well too close to proposed settled open feedlot effluent basin. Minimum required distance is 400 ft. Well is approximately 345 ft away.	Approved	5.7.25	25cpw082
8	John Curtin	Grain Processing Corporation	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement for a concrete batch plant that is being modified.	Approved	5.8.25	25aqw083
9	Michael Hermsen	Bazooka Farmstar, Inc.	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.8.25	25aqw084
10	Nate Tatar	International Paper - Waterloo Container Plant	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.9.25	25aqw085
11	Brandon Polzin	Dick's Machine Shop	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.9.25	25aqw086
12	Keith Wilken	Moe's Mart #1 198608509	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Approved	5.7.25	25utw087
13	Keith Wilken	Moe's Mart #2 198710679	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Approved	5.7.25	25utw088
14	Keith Wilken	Moe's Mart #3 198608398	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Denied	5.7.25	25utw089

15	Keith Wilken	Moe's Mart #4 198608390	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Denied	5.7.25	25utw090
16	Keith Wilken	Moe's Mart #7 198608222	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Approved	5.7.25	25utw091
17	Keith Wilken	Moe's Mart #9 198608397	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Approved	5-8-25	25utw092
18	Keith Wilken	Moe's Mart #10 198608408	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Approved	5-8-25	25utw093
19	Keith Wilken	Moe's Mart #11 198608220	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Approved	5-8-25	25utw094
20	Keith Wilken	Moe's Mart #12 198606784	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Approved	5-8-25	25utw095
21	Keith Wilken	Moe's Mart #13 198607025	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Approved	5-8-25	25utw096
22	Keith Wilken	Moe's Mart #13 198607037	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Approved	5-8-25	25utw097
23	Keith Wilken	Moe's Mart #15 198600274	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Approved	5-8-25	25utw098
24	Keith Wilken	Moe's Mart #16 198608203	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Approved	5-8-25	25utw099
25	Keith Wilken	Moe's Mart #17 198609969	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Approved	5-8-25	25utw100

26	Keith Wilken	Moe's Mart #18 198710618	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Approved	5-8-25	25utw101
27	Karen Kuhn	City of Eldridge WWTP	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.12.25	25aqw102
29	Julie Duke	Gevo NW Iowa RNG, LLC	AQ	Request to utilize temp control equip due to damage to existing control equipment	Approved	5.12.25	25aqw104
30	Jasmine Bootman	Remsen RO Water Facility	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.13.25	25aqw105
31	Michael Hermsen	City of Ames Combustion Turbine Station	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.13.25	25aqw106
32	Meesha Legg	Iowa DNR	Flood Plain Management and Dam Safety	The applicant is requesting a variance to IAC 567—72.4(1)f. Offset: A minimum offset equal to 100 feet or twice the width of a river or stream measured from top of bank to top of bank, whichever distance is less, shall be required for all...	Approved	5.2.25	25fpw107
33	Keith Wilken	Gas America 198606994	Underground Storage Tank Section	Per 567 IAC Chapter 135.15(1)"e", an underground storage tank system that has not been properly temporarily closed for more than 12 months must be permanently closed. The waiver requests allowance of return to service requirements in lieu of closure.	Approved	5.15.25	25utw108
34	Nate Tatar	Ag Processing, Inc. - Emmetsburg	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.16.25	25aqw109
35	Danjin Zulic	Cemstone Concrete Materials	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.16.25	25aqw110
36	Brian Jergenson	Rolinda Acres & Dalby Site 71195 & 68326	AFO/Water Supply	4 wells were drilled b/w 2006 & 2020 under the assumption they met the definition of deep wells. After review of the logs as part of a self-audit, all four wells appear to be shallow. They are all more than 100' but less than 200' from AFO structures	Approved	5.16.25	25cpw111
37	Fields, Book, Lambert and Bly	Gordon Boge	AFO	Variance requested from 200' separation distance requirement between an open feedlot and a shallow private well (60' deep). The 160' well was determined to be a deep well and is >100' away, so no variance is needed for this well.	Denied	5.19.25	25cpw112
38	Jasmine Bootman	Iowa Army Ammunition Plant	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.20.25	25aqw113
39	Jasmine Bootman	Den Hartog Industries, Inc.	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.21.25	25aqw114
40	Karen Kuhn	VT Industries	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.21.25	25aqw115
41	Jessica Ragsdale, Erik Day, Kelli Book	C & K Site 23	AFO - Facility ID 61417	Separation distance from existing well to confinement is not met. Parcel is not large enough to place a well 200' from the confinements. Wellhead will be protected and runoff diverted.	Approved	5.22.25	25cpw116
42	Karen Kuhn	MidAmerican Energy - George Neal South	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.28.25	25aqw117
43	Karen Kuhn	MidAmerican Energy - George Neal North	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.28.25	25aqw118
44	Brandon Polzin	Cryotech Deicing Technology	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.22.25	25aqw119
45	Brandon Polzin	Sukup Manufacturing Co.	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.28.25	25aqw120
46	Kristi Burg, FO4	Denison Municipal Utilities (DMU) WWTF	Wastewater	Request to reuse treated effluent from Denison Municipal Utilities Wastewater Treatment Facility for the purpose of watering public plantings throughout the community. Additional uses may also include dust control with the street sweeper.	Approved	5.28.25	25cpw121

47	John Curtin	Koch Fertilizer Fort Dodge LLC	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement for the Primary Reformer Feed Gas Coil Vent (EP-51)	Approved	5.29.25	25aqw122
48	Karen Kuhn	Walter Scott Jr Energy Center	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.29.25	25aqw123
49	Karen Kuhn	MidAmerican Energy - Louisa Station	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	Approved	5.29.25	25aqw124
50	Alison Manz	Fair Creek	Animal Feeding Operations	This facility broke out with PERS and the existing compost facility is not large enough to handle the volume. The facility would like to bury the animals. The proposed location is in a low risk burial advisory zone and will meet all separation distance requirements.	Approved	5.30.25	25cpw125

Iowa Department of Natural Resources
Environmental Protection Commission

Decision Item

5. Chapter 40, Scope of Division, Definitions, Forms, Public Notice and Education, Consumer Confidence Reports, Reporting, and Record Maintenance – Final Rule

The Commission is requested to approve the Adopted and Filed rule to rescind Chapters 40 and 42 and adopt a new Chapter 40. This is the result of Water Quality Bureau's Executive Order 10 rule review.

Basic Intent of Rule: Chapter 40 is being rescinded and readopted. This chapter establishes the rules of practice for the department's administration of the water supply programs in the State and provides definitions used in the administration of those programs. Chapters 40 and 42 were reviewed and edited consistent with Executive Order 10. Accordingly, new Chapter 40 incorporates rule language from Chapter 42, which is being rescinded. New Chapter 40 includes rules formerly in Chapter 42 regarding public notice, public education, consumer confidence reports, reporting, and record maintenance for the public water system supervision program, all of which are necessary elements of the SDWA.

NOIA: The Notice of Intended Action (NOIA) was approved by the Commission at its November 11, 2024 meeting. The NOIA was published in the Iowa Administrative Bulletin on January 8, 2025 as ARC 8616C. Two public hearings were held on January 30, 2025 and January 31, 2025**.**

Changes from NOIA: Four people attended the first public hearing, and four attended the second hearing. No public comments were received at the hearings. Two email comments and one comment letter were received during the public comment period. This final rule is substantially identical to the NOIA. Minor corrections were made to the final rule to address minor omissions from the NOIA and to correct rule references. No changes were made in response to the comments.

Effective Date of Final Rule: August 13, 2025

Lori McDaniel, Water Quality Bureau Chief
Environmental Services Division
Meeting Date: June 17, 2025

Attached: Chapter 40 – Final rule

ENVIRONMENTAL PROTECTION COMMISSION[567]

Adopted and Filed

The Environmental Protection Commission (Commission) hereby rescinds Chapter 40, "Scope of Division—Definitions—Forms—Rules of Practice"; adopts a new Chapter 40, "Scope of Division, Definitions, Forms, Public Notice and Education, Consumer Confidence Reports, Reporting, and Record Maintenance"; and rescinds Chapter 42, "Public Notification, Public Education, Consumer Confidence Reports, Reporting, and Record Maintenance," Iowa Administrative Code.

Legal Authority for Rulemaking

This rulemaking adopted under the authority provided in Iowa Code sections 455B.103(2), 455B.105(3), 455B.173, 455B.173(5) and 455B.173(6).

State or Federal Law Implemented

This rulemaking implements, in whole or in part, Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192 and the Safe Drinking Water Act (SDWA) as amended (42 U.S.C. §300f et seq.).

Purpose and Summary

Chapter 40 establishes the rules of practice for the Department's administration of the water supply programs in the State and provides definitions used in the administration of those programs. The programs with definitions included in Chapter 40 include the public water supply program (including SDWA implementation), the private well program, the water use and allocation program, the water supply and well contractor operator certification programs, the drinking water laboratory certification program, the Drinking Water State Revolving Fund loan program, the water supply construction standards, and the water supply construction permitting program.

These chapters were reviewed and edited consistent with Executive Order 10. Former Chapters 40 and 42 are rescinded and merged into new Chapter 40, which includes rules formerly in Chapter 42 regarding public notice, public education, consumer confidence reports, reporting, and record maintenance for the public water system supervision program, all of which are necessary elements of the SDWA.

Public Comment and Changes to Rulemaking

Notice of Intended Action for this rulemaking was published in the Iowa Administrative Bulletin on January 8, 2025, as **ARC 8616C**. A public hearing was held on the following dates(s):

- January 30, 2025
- January 31, 2025

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This rulemaking is substantially identical to the Notice; however, some changes from the Notice have been made. The definition of the SDWA was modified to allow for rule-specific date references. Abbreviations for project priority list and separation distance were added, as they were mistakenly omitted in the NOIA. Erroneous rule references were corrected in the final rule. No changes were made in response to the comments.

Adoption of Rulemaking

This rulemaking was adopted by the Commission on June 17, 2025.

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.

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).

Effective Date

This rulemaking will become effective on August 13, 2025.

The following rulemaking action is adopted:

ITEM 1. Rescind 567—Chapter 40 and adopt the following **new** chapter in lieu thereof:

DIVISION B

DRINKING WATER

CHAPTER 40

SCOPE OF DIVISION, DEFINITIONS, FORMS, PUBLIC NOTICE AND EDUCATION, CONSUMER CONFIDENCE REPORTS, REPORTING, AND RECORD MAINTENANCE

567—40.1(455B) Scope of division.

40.1(1) The department conducts the public water supply program and establishes minimum standards for private water supply system construction. The public water supply program includes the following: establishing drinking water standards, including maximum contaminant levels, treatment techniques, maximum residual disinfectant levels, action levels, monitoring, viability assessment, consumer confidence reporting, public notice, public water supply system (PWS) operator certification standards, environmental drinking water

laboratory certification program, a state revolving fund loan program consistent with the federal Safe Drinking Water Act (SDWA), and establishing construction standards. The construction, modification, and operation of any PWS requires a permit from the department. Certain construction permits are issued upon certification by a licensed professional engineer that a project meets standards, and in certain instances, permits are issued by local authorities. Private water supplies are regulated by local boards of health.

40.1(2) The chapters listed below contain the requirements and provisions for the noted portions of the public water supply program.

567—Chapter 39: proper well closure or abandonment.

567—Chapter 40: scope of division, public notice and education, consumer confidence reports, reporting, and recordkeeping requirements.

567—Chapter 41: drinking water standards and monitoring requirements.

567—Chapter 43: design, construction, fee, operating, and operation permit requirements.

567—Chapter 44: drinking water state revolving fund program.

567—Chapter 49: nonpublic water supply wells.

567—Chapter 50: water use, withdrawals, and diversions.

567—Chapter 53: protected water sources.

567—Chapter 54: water use permit restrictions and well interference compensation.

567—Chapter 55: aquifer storage and recovery.

567—Chapter 81: operator certification.

567—Chapter 82: water well contractor certification.

567—Chapter 83: laboratory certification.

567—40.2(455B) Definitions, references, and abbreviations. The terms, references, and abbreviations defined in this rule are applicable to this division and the chapters listed in rule 567—40.1(455B), unless otherwise specified.

40.2(1) *Defined terms.*

"Action level" or *"AL"* means the lead or copper concentration(s) in water that determine, in some cases, the treatment requirements that a water system is required to complete.

"Acute health effect" means the health effect of a contaminant that is an immediate rather than a long-term risk to health.

"Animal confinement" means a lot, yard, corral, or similar structure in which the concentration of livestock or poultry is such that a vegetative cover is not maintained.

"Animal pasturage" means a fenced area where vegetative cover is maintained and animals are enclosed.

"Animal waste" means animal wastes consisting of excreta, leachings, feed losses, litter, washwaters or other associated wastes.

"Animal waste stockpiles" means the stacking, composting or containment of animal wastes.

"Animal waste storage basin or lagoon" means a fully or partially excavated or diked earthen structure used for containing animal waste, including earthen side slopes or floor.

"Animal waste storage tank" means a completely fabricated structure, with or without a cover, either formed in place or transported to the site, used for containing animal wastes.

"Antisiphon device" means a device that prevents back siphonage by means of a relief valve that automatically opens to the atmosphere, preventing the creation of subatmospheric pressure within a pipe, thereby preventing water from reversing its flow.

"Authority" means the Iowa finance authority (IFA) as established by Iowa Code chapter 16.

"Backflow" means the flow of water or other liquids, mixtures, or substances into a potable water supply's distribution system from any source other than its permitted source.

"Backflow preventer" is a device or means to prevent backflow into a potable water system.

"Back siphon" means the flowing back of used, contaminated, or polluted water from a plumbing fixture or vessel as a result of negative or subatmospheric pressure within the distribution system.

"Best available technology" or *"BAT"* means the best technology, treatment techniques, or other means that the state finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are available after taking cost into consideration.

"CFR" or *"Code of Federal Regulations"* means the federal administrative rules adopted by the United States in effect as of July 1, 2024. The amendment of the date contained in this definition shall constitute the amendment of all CFR references contained in Division B unless a date of adoption is set forth in a specific rule.

"Cistern" means a tank that stores rainwater from roofs.

"Clean compliance history" means, for the purposes of 567—paragraph 41.2(1)*"e"*(4)"2," a record of no monitoring violations and no coliform treatment technique trigger exceedances or treatment technique violations under 567—subrule 41.2(1).

"Combined filter effluent" or *"CFE"* is generated when the effluent water from the individual filters in operation is combined into one stream. Representative samples of the combined filter effluent are monitored to determine compliance with treatment technique requirements.

"Composite correction program" or *"CCP"* is a systematic procedure that identifies and corrects the unique factor combinations in the areas of design, operation, maintenance and administration that limit the performance of a filtration plant. A CCP includes a comprehensive performance evaluation (CPE) and comprehensive technical assistance (CTA).

"Comprehensive technical assistance" or *"CTA"* is a CCP's performance improvement phase that is implemented if the CPE results indicate improved performance potential by a filtration plant, in which the system must identify and address plant-specific factors.

"Consecutive PWS" means an active PWS that purchases or obtains all or a portion of its water from another PWS, also called a wholesale system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

"Conservation easement" means an interest in land that entitles a person to use the land possessed by another (affirmative easement), or to restrict uses of the land subject to the easement (negative easement). A conservation easement restricts the landowner to uses that are compatible with resource conservation.

"Contiguous" means directly adjacent along all or most of one side of a legally defined piece of property. Tracts of land involved in the same operation or water supply and separated only by roads, railroads, or bike trails are deemed contiguous tracts.

"Corrosive water" means a water that, due to its physical and chemical characteristics, may cause leaching or dissolving of the constituents of the transporting system in which it is contained.

"Cross connection" means any actual or potential connection between a potable water supply and any other source or system through which it is possible to introduce into the potable system any used water, industrial fluid, gas, or other substance other than the intended potable water with which the system is supplied.

"CT" means the product of the residual disinfectant concentration (C, in mg/L) determined before or at the first customer and the corresponding disinfectant contact time (T, in minutes), C x T. If a PWS applies disinfectants at more than one point prior to the first customer, it must determine the CT for each disinfectant sequence at or before the first customer to determine the total inactivation ratio (also known as total percent inactivation). When determining the

total inactivation ratio, a PWS must determine C for each disinfection sequence and the corresponding T before any subsequent disinfection application point(s). The CT is dependent upon the microorganism to be inactivated and is affected by the disinfectant type, pH, and water temperature.

"Customers" in consumer confidence reports are defined as billing units or service connections to which a CWS delivers water.

"Deep well" means a well located and constructed such that there is a continuous layer of low permeability soil or rock at least 5 feet thick located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

"Disinfection profile" is defined in 40 CFR §141.2. The procedure for developing a disinfection profile is contained in 567—paragraph 43.9(2)*"b"* and 567—subrule 43.10(2).

"Drinking water state revolving fund" or *"DWSRF"* means the department-administered fund intended to develop drinking water revolving loans to help finance drinking water infrastructure improvements, source water protection, system technical assistance, and other activities intended to encourage and facilitate PWS rule compliance and public health protection.

"DWSRF funds" means the combination of a particular fiscal year's federal capitalization grant appropriation plus the 20 percent state of Iowa match, and any additional funds made available through the program.

"Eligible cost" means the cost of all labor, material, machinery, equipment, loan initiation and loan service fees, project planning, design and construction engineering services, legal fees and expenses directly related to projects, capitalized interest during the construction of projects, and all other expansion, construction, and rehabilitation of all or part of projects included in the funding request placed on the draft intended use plan as a fundable project, subject to commission approval.

"Emergency/standby well or connection" means a well or a connection to another PWS that is used less than 30 calendar days per calendar year.

"Federal cross-cutters" means the federal laws and authorities that apply to projects funded through the DWSRF.

"Federal fiscal year" or *"FFY"* means the federal fiscal year starting October 1 and ending September 30.

"First draw sample" means a one-liter tap water sample, collected in accordance with 567—paragraph 41.4(1)*"c,"* that has been standing in plumbing pipes at least six hours and is collected without flushing the tap.

"GAC10" means granular activated carbon filter beds with an empty-bed contact time of ten minutes based on average daily flow and a 180-day carbon reactivation frequency, except that the reactivation frequency for GAC10 is 120 days when used as a BAT for compliance with the MCL locational running annual average for TTHMs and HAAs.

"Health advisory" or *"HA"* means a group of levels set by the EPA below which no harmful health effect is expected from a given contaminant in drinking water. The HAs used by the department are listed in the most current edition of the EPA's Drinking Water Regulations and Health Advisories, available at www.epa.gov/sdwa/drinking-water-health-advisories-has. The lifetime HA is the concentration of a chemical in drinking water that is not expected to cause any adverse noncarcinogenic effects over a lifetime of exposure, with a margin of safety. The long-term HA is the concentration of a chemical in drinking water that is not expected to cause any adverse noncarcinogenic effects up to approximately seven years (10 percent of an individual's lifetime of exposure), with a margin of safety.

"Human consumption" means water used as part of or in connection with drinking; washing; food processing; incidental to commercial food preparation, such as water used in beverages or other food items; ice used in drinks or in salad bars; water for washing of food;

water used for washing dishes, pans or utensils used in food preparation or service; water used for cleanup and washing of food preparation or service areas; or water for bathing, showering, hand washing, or oral hygiene purposes. Human consumption does not include water for production of packaged or bulk food products regulated by other state or federal regulatory agencies, such as livestock slaughtering or bottled or canned food and beverages; cooling water; industrial or commercial wash waters used for nonfood products; irrigation water; or water used in toilets or urinals.

"Impoundment" means a reservoir, pond, or lake in which surface water is retained for a period of time, ranging from several months upward, created by constructing a barrier across a watercourse and used for water storage, regulation, or control.

"Individual filter effluent" or *"IFE"* means the effluent water from a specific filter. Representative samples of the IFE are monitored to determine compliance with TT requirements.

"Influenced groundwater" or *"IGW,"* also known as groundwater under the direct influence (GWUDI) of surface water, means any groundwater that is under the direct or indirect influence of surface water, as determined by the presence of (1) significant occurrence of insects or other macroorganisms, algae or large-diameter pathogens such as *Cryptosporidium* or (2) significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH that correlate to climatological or surface water conditions or other parameters as specified in 567—43.5(455B).

"Initial compliance period" means the first full three-year compliance period of a compliance cycle.

"Intended use plan" or *"IUP"* means a plan identifying the intended uses of funds available for loans in the DWSRF for each fiscal year as described in Section 1452 of the SDWA.

"Lead free," when used with respect to solder and flux, refers to solders and flux containing not more than 0.2 percent lead and not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures in accordance with 42 U.S.C. 300-g-6. The following requirements of 40 CFR 143, Subpart B, that pertain to PWSs are adopted by reference: 40 CFR §143.10, 40 CFR §143.11, and 40 CFR §143.12(b-f).

"Lead service line" or *"LSL"* means a service line made of lead that connects the water main to the building inlet and any lead pigtail, gooseneck, or other fitting that is connected to such a lead line. A lead gooseneck is not considered a lead service line unless it exceeds ten feet.

"Level 2 assessment" is defined in 40 CFR §141.2. A Level 2 assessment is conducted by a department water supply inspector and will typically include the system operator. The department may tailor specific assessment elements with respect to a system's size and type and a distribution system's size, type and characteristics. A system must comply with any expedited actions or additional actions required by the department in the case of an *E. coli* MCL violation.

"Maintenance" means the replacement of equipment or materials that are necessary to maintain the operation of a PWS but do not alter capacity, water quality or treatment method, or effectiveness.

"Nonacute health effect" means the health effect of a contaminant which is a long-term rather than immediate risk to health.

"Nontransient noncommunity water system" or *"NTNC"* means a PWS, other than a CWS, that regularly serves at least 25 of the same persons four hours or more per day, for four or more days per week, for 26 or more weeks per year. Examples of NTNCs are schools, day-care centers, factories, offices and other PWSs that provide water to a fixed population of 25

or more people. In addition, other service areas, such as hotels, resorts, hospitals and restaurants, are considered as NTNCs if they regularly serve at least 25 or more of the same persons for four or more hours per day, for four or more days per week, for 26 or more weeks of the year.

"Point-of-use treatment device" or *"POU"* is a treatment device applied to a single tap or multiple taps that reduces contaminants in drinking water at those taps but is not intended to treat all of the water in the facility.

"Population served" means the total number of persons served by a PWS that provides water intended for human consumption. For municipalities that serve only the population within their incorporated boundaries, it is the last official (or officially amended) U.S. census population. For all other CWSs, it is either the actual counted population that is verifiable by the department or the population calculated by multiplying the number of service connections by an occupancy factor of 2.5 persons per service connection. For municipalities that also serve outside their incorporated boundaries, the served population must be added to the official census population as determined either by verifiable count or by the 2.5 persons per service connection occupancy factor. For NTNC and TNC systems, it is the average number of daily employees plus the average number of other persons served, such as customers or visitors during the peak month of the year, regardless of whether each person actually uses the water for human consumption. Where a system provides water to another PWS (consecutive PWS) that is required to have an operation permit, the population of the recipient PWS shall not be counted as a part of the system providing the water. CWSs and NTNCs will pay their operation permit fees based upon the population served.

"Potable water" means water that is suitable for human consumption. Drinking water that meets the requirements of 567—Chapters 40, 41, and 43 is considered to be potable water.

"Privy" means a structure used for the deposition of human body wastes.

"Project" includes the planning, design, construction, alteration or extension of any PWS but does not include the maintenance of a system.

"Project priority list" or *"PPL"* means the list of projects in priority order that may qualify for DWSRF loan assistance contained in the IUP document prepared pursuant to 567—44.8(455B). The priority list identifies all projects eligible for funding and the points assigned to each project pursuant to 567—44.7(455B).

"Public water supply system" or *"PWS"* means a system that provides water to the public for human consumption through pipes or other constructed conveyances, if such a 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. This includes any collection, treatment, storage, and distribution facilities under the system operator's control and used primarily in connection with such a system and any collection or pretreatment storage facilities not under such control that are used primarily in connection with such a system. The term does not include any special irrigation district. A PWS is either a community water system (CWS) or a noncommunity water system (NCWS).

"Public water supply system control" is defined as one of the following forms of authority over a service line: authority to set standards for construction, repair, or maintenance of the service line; authority to replace, repair, or maintain the service line; or ownership of the line. Contaminants added to the water under circumstances controlled by the water consumer or user, with the exception of those contaminants resulting from the corrosion of piping and plumbing caused by water quality, are excluded from this definition.

"Regional water system" means a PWS in which the projected number of service connections, in at least 50 percent of the distribution system's length, does not average more than eight service connections per linear mile of water main.

"Sanitary sewer pipe" means a sewer complying with the department's standards for sewer construction.

"Sanitary survey" means a review and on-site inspection conducted by the department of a PWS's water source(s), facilities, equipment, operation and maintenance (O&M), and records for the purpose of evaluating the adequacy of such source(s), and facilities, equipment, and O&M for producing and distributing safe drinking water, in order to identify improvements necessary to maintain or improve drinking water quality pursuant to 567—subrule 43.1(7).

"SDWA" or *"Act"* means the Safe Drinking Water Act as amended (42 U.S.C. 300f et seq.), unless a date of adoption is set forth in a specific rule.

"Sedimentation" means a water treatment process for solid particle removal from a suspension before filtration by gravity or separation.

"Septic tank" means a watertight structure into which wastewater is discharged for solids separation and digestion.

"Service connections" means the total number of active and inactive service lines originating from a water distribution main for the purpose of delivering water intended for human consumption. For municipalities, rural water districts, mobile home parks, housing developments, and similar facilities, this includes, but is not limited to, occupied and unoccupied residences and buildings, provided that there is a service line connected to the water main (or another service line), and running onto the property. For rental properties which are separate PWSs, this includes, but is not limited to, the number of rental units. Connections to a system that delivers water by a constructed conveyance other than a pipe are excluded from this definition if:

1. The water is used exclusively for purposes other than human consumption;

2. The department determines that alternative water to achieve the equivalent level of public health protection provided by the applicable national primary drinking water regulation is provided for human consumption; or

3. The department determines that the water provided for human consumption is centrally treated or treated at the entry point by the provider, a pass-through entity, or the user to achieve the equivalent level of protection provided by the applicable national primary drinking water regulations.

"Service line sample" means a sample of water, one liter in volume, that has been standing for at least six hours in a service line, collected in accordance with 567—paragraph 41.4(1)*"c,"* and used to determine a lead or copper concentration.

"Shallow well" means a well located and constructed such that there is not a continuous layer of low permeability soil or rock (or equivalent retarding mechanism acceptable to the department) at least 5 feet thick, the top of which is located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

"Significant deficiency" includes a defect in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the department determines to be causing, or has the potential for causing the introduction of contamination into the water delivered to consumers.

"Significant noncompliance" or *"SNC"* means the failure to comply with any national primary drinking water standard as adopted by the state of Iowa according to criteria established by the EPA administrator.

"Source/entry point" or *"SEP"* means the entry point of water into the distribution system that is representative of each source after application of all treatment and before the first service connection. This point is used for the collection of certain compliance samples. If a representative sample of all water sources cannot be obtained, as determined by the

department, separate SEPs with the appropriate monitoring requirements will be assigned by the department.

"Special irrigation district" means an irrigation district in existence prior to May 18, 1994, that provides primarily agricultural service through a piped water system with only incidental residential or similar use where the system or the residential or similar users of the system comply with numbered paragraphs "2" and "3" in the definition of "service connections."

"Standard specifications" means specifications submitted to the department for use as a reference in reviewing future plans for proposed water main construction.

"Ten States Standards" means the "Recommended Standards for Water Works," 2022 edition, a report of the Great Lakes—Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, available on their website at www.health.state.mn.us/communities/environment/water/tenstates/standards.html.

"Transient noncommunity water system" or *"TNC"* is defined in 40 CFR §141.2.

"Treatment technique" or *"TT"* means a treatment process required to minimize the level of a contaminant in drinking water. A treatment technique is specified in cases where it is not technically or economically feasible to establish an MCL, and it is an enforceable procedure or level of technological performance which PWSs must follow to ensure control of a contaminant.

"Uncovered finished water storage facility" is defined in 40 CFR §141.2. Such facilities are prohibited.

"Unregulated contaminant" means a contaminant for which no MCL has been set, but which does have federal monitoring requirements for certain PWSs set forth in 40 CFR §141.40, and additional reporting requirements in 567—40.7(455B).

"Viability" means the technical, financial, and managerial ability to comply with applicable national primary drinking water standards as adopted by the state of Iowa. Viability is the ability of a system to remain in compliance insofar as the requirements of the SDWA.

"Waterborne disease outbreak" means the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a PWS that is deficient in treatment, as determined by the Iowa department of health and human services.

"Water distribution system" is defined in Iowa Code section 455B.211. The term includes any storage facilities and pumping stations.

"Water main pipe" means a water main complying with the department's standards for water main construction.

40.2(2) *Definitions in Iowa Code and the CFR.* The following terms are defined in the referenced locations.

a. Iowa Code section 455B.101: "commission," "department," and "director."

b. Iowa Code section 455B.171: "maximum contaminant level."

c. 40 CFR §141.2: "bag filters," "bank filtration," "cartridge filters," "coagulation," "combined distribution system" or "CDS," "community water system" or "CWS," "compliance cycle," "compliance period," "comprehensive performance evaluation" or "CPE," "confluent growth," "contaminant," "conventional filtration treatment," "corrosion inhibitor," "diatomaceous earth filtration," "direct filtration," "disinfectant," "disinfection," "dose equivalent," "effective corrosion inhibitor residual," "enhanced coagulation," "enhanced softening," "filter profile," "filtration," "finished water," "flocculation," "flowing stream," "GAC20," "gross alpha particle activity," "gross beta particle activity," "haloacetic acids" or "HAA5," "halogen," "lake" or "reservoir," "large water system," "legionella," "level 1 assessment," "locational running annual average" or "LRAA," "man-made beta particle and photon emitters," "maximum contaminant level" or "MCL," "maximum

contaminant level goal" or "MCLG," "maximum residual disinfectant level" or "MRDL," "maximum residual disinfectant level goal" or "MRDLG," "medium-size water system," "membrane filtration," "noncommunity water system" or "NCWS," "optimal corrosion control treatment," "performance evaluation sample," "picocurie" or "pCi," "plant intake," "point of disinfectant application," "point-of-entry treatment device" or "POE," "presedimentation," "rem," "repeat compliance period," "residual disinfectant concentration," "sanitary defect," "seasonal system," "single-family structure," "slow sand filtration," "small water system," "standard sample," "supplier of water," "surface water" or "SW," "SUVA," "too numerous to count," "total organic carbon" or "TOC," "total trihalomethanes" or "TTHM," "trihalomethane" or "THM," "two-stage lime softening," "virus," and "wholesale system."

40.2(3) *References and abbreviations.*

a. References. The abbreviated name of the professional associations and societies whose standards are referenced in this division and the websites where the standards, methods, or guidance documents may be obtained are listed in the following table. Unless otherwise noted in a specific rule of this division, the effective date of the specific standards, editions, or volumes is September 1, 2024.

Abbreviated Name	Association/Society Name	Standards/Publications Website
ANSI	American National Standards Institute	webstore.ansi.org
APHA	American Public Health Association	www.apha.org
API	American Petroleum Institute	www.api.org/products-and-services/standards
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers	www.ashrae.org/technical-resources/standards-and-guidelines
ASME	American Society of Mechanical Engineers	www.asme.org/codes-standards
ASTM	Annual Book of Standards published by ASTM International	www.astm.org/products-services/standards-and-publications.html
AWS	American Welding Society	www.aws.org/Standards-and-Publications
AWWA	American Water Works Association	www.awwa.org/Publications/Standards
Iowa DOT	Iowa department of transportation	iowadot.gov/specifications

NACE	National Association of Corrosion Engineers International, part of the Association for Materials Protection and Performance (AMPP)	www.ampp.org/standards/ampp-standards/about-ampp-standards
NARA	National Archives and Records Administration	www.archives.gov
NEC	National Electrical Code, part of the National Fire Codes published by the National Fire Protection Association (NFPA)	www.nfpa.org
NEMI	National Environmental Methods Index	www.nemi.gov
NGWA	National Ground Water Association	www.ngwa.org/publications-and-news/industry-resource-library
NSF	National Sanitation Foundation	www.nsf.org/nsf-standards
NTIS	National Technical Information Service, a bureau of the U.S. Department of Commerce	www.ntis.gov
Standard Methods, SM, or SM Online	Standard Methods for the Examination of Water and Wastewater, published by the American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF)	www.standardmethods.org
USGS	United States Geological Survey	www.usgs.gov
WSC	Water Systems Council	www.watersystemscouncil.org/resources/well-standards

b. Abbreviations. In addition to the abbreviations listed in the definitions in 40.2(1), the following abbreviations are used in this division.

Abbreviation	**Meaning**
ALE	action level exceedance
ASR	aquifer storage and recovery
CCR	consumer confidence report
CCT	corrosion control treatment
CDC	Centers for Disease Control and Prevention
CEU	continuing education unit
DBP	disinfection byproduct
DIT	direct integrity test
DOC	dissolved organic carbon
DRC	direct responsible charge
EPA	U.S. Environmental Protection Agency
FDA	U.S. Food and Drug Administration
ft	foot
GAC	granular activated carbon
GW	groundwater
HAA	haloacetic acids
HAL	health advisory level
HPC	heterotrophic plate count
ID	identification (number)
IDSE	initial distribution system evaluation
IFA	Iowa finance authority
IGS	Iowa geological survey
IOC	inorganic chemical
IWFDS	Iowa Wastewater Facilities Design Standards

L	liter
LRV	log removal value
LSLR	lead service line replacement
MDL	method detection limit
µg/L	microgram per liter
mg/L	milligram per liter
mL	milliliter
mm	millimeter
MOR	monthly operating report
mrem	1/1000 of a rem
MRT	maximum residence time
MS	matrix spike
NRCS	Natural Resources Conservation Service (part of the U.S. Department of Agriculture)
NTU	nephelometric turbidity units
O&M	operation and maintenance
OCC	optimal corrosion control
OCCT	optimal corrosion control treatment
OEL	operational evaluation level
OWQP	optimal water quality parameter
OXID	oxidation
P/A	presence-absence
PAC	powdered activated carbon
PCB	polychlorinated biphenyl
pCi/L	picocuries per liter
PE	public education
PN	public notice
PQL	practical quantification level
psi	pounds per square inch
PTA	packed tower aeration
PVC	polyvinyl chloride
QCRV	quality control release value
RAA	running annual average
RDC	residual disinfectant concentration
SCH	schedule (as in schedule 40 rating)
SD	separation distance
SDR	standard dimension ratio
SEP	source/entry point
SMP	standard monitoring plan
SMR	self-monitoring requirement
SOC	synthetic organic chemical
SW/IGW	surface water/influenced groundwater
SRF	state revolving fund (see DWSRF)
TRC	total residual chlorine
U.S.C.	United States Code
URTH	unacceptable risk to health
UV	ultraviolet
VOC	volatile organic chemical
WCP	watershed control program

567—40.3(17A,455B) Forms. All forms used by the public to apply for department approvals and to report on activities related to the department's public water supply program may be

obtained on the department's website at www.iowadnr.gov or upon request. Properly completed forms shall be submitted to the department as noted in the form instructions.

40.3(1) *Construction permit application forms.* The required public water supply construction permit application forms (also known as schedules) and other forms are listed below.

Schedule No.	Form Name	Form Number
-	Water Supply Service Agreement	542-3121
1a	General Information	542-3178
1b	Minor Water Main Construction Permit	542-3151
1c	Fee Calculations	542-3179
2a	Water Mains, General	542-3030
2b	Water Mains, Specifications	542-3031
2c	Notification of Minor Water Main Construction	542-3152
3a	Water System, Design Capacity Data	542-3032
3b	Source Information	542-3029
3c	Water Quality Data	542-3028
4	Site Approval	542-3078
5a	Well Construction	542-3027
5b	Well Appurtenances	542-3026
5c	Well Profile	542-3077
5d	Surface Water Supply	542-3139
6a	Distribution Water Storage Facilities	542-3140
7	Schematic Flow Diagram	542-3142
8	Aeration	542-3143
9	Clarification-Sedimentation	542-3144
10	Suspended Solids Contact	542-3145
11	Ion Exchange	542-3146
12	Filters	542-3147
13a	Chemical Addition	542-3241
13b	Dry Chemical Addition	542-3130
13c	Gas Chlorination	542-3131
13d	Fluoridation	542-3132
13e	Sampling and Testing	542-3133
14	Pumping Station	542-3134
15	Water Storage Facilities	542-3135
16a	Wastewater General	542-3136
16b	Waste Treatment Ponds	542-3137
16c	Filtration and Mechanical	542-3138
16d	Discharge to Sewer	542-3103
-	Notification of Completion of Construction	542-3019

40.3(2) *Operation permit and public water supply forms.* The required public water supply sampling forms and the operation permit application and monthly operating report (MOR) forms are available from the department.

567—40.4(17A,455B) PWS construction permit application procedures.

40.4(1) *General procedures.* Applications for written department approval for any new construction or for reconstruction pursuant to 567—Chapter 43 shall consist of complete plans and specifications, an application fee, and appropriate water supply construction permit application schedules.

a. The department will review a construction permit application and issue a construction permit for project approval if the review shows that a project meets all construction standards, in accordance with 567—Chapter 43. Projects that do not meet all construction standards will not be approved unless a waiver pursuant to 567—paragraph 43.3(2)*"b"* is granted. A waiver may be requested when plans and specifications are submitted or after a design discrepancy is pointed out to the applicant.

b. The department may review project plans and specifications and provide comments or recommendations to the applicant. Departmental comments and recommendations are advisory, except when departmental review determines that a facility does not comply with department-approved plans or specifications or the construction standards, pursuant to the criteria for project design certification. The system owner must correct any deficiencies in a timely manner, as set forth by the department.

40.4(2) *Site survey.* For public water sources and for below-ground level finished water storage facilities, a site survey and approval must be made by the department. The manner and procedures for applying for and processing a site survey are the same as in 40.4(1), except that the following information must be submitted by the applicant's engineer.

a. A preliminary engineering report or cover letter containing a brief description of the proposed source or storage facility and assurance that the project is in conformance with the long-range planning of the area.

b. Completed Schedules 1a and 4.

c. A detailed map showing all potential sources of contamination (567—Chapter 43, Table A, contains more information) within:

(1) 1,000 feet of a proposed well location, with a scale no smaller than one inch = 200 feet;

(2) 200 feet of a proposed below-ground level finished water storage facility;

(3) 2,500 feet from a proposed surface water source, with a scale no smaller than one inch = 660 feet;

(4) 2,500 feet from an impoundment (within the drainage area), with a scale no smaller than one inch = 660 feet; or

(5) Six miles upstream of a proposed river intake.

40.4(3) *Modifications of an approved construction project.* Persons seeking to modify a water supply construction project after receiving a construction permit from the department shall submit the appropriate fee and either an addendum to plans and specifications, a change order, or revised plans and specifications at least 30 days prior to the planned modification. The department shall review the submitted material within 30 days of submission and shall issue a supplemental permit if the proposed modifications meet department standards.

40.4(4) *Certification of project design.* A permit shall be issued for the construction, installation, or modification of a PWS or for a water supply distribution system extension if a qualified, licensed professional engineer certifies that the plans and specifications comply with federal and state laws and regulations or that a waiver to standards has been granted by the department.

567—40.5(455B) Public notice (PN).

40.5(1) *Applicability.* Each owner or operator of a public water supply system (PWS) must give notice for all violations of public drinking water rules and for other situations, as listed in this subrule. The term "violations" includes violations of, or failure to comply with, the maximum contaminant level (MCL), maximum residual disinfection level (MRDL),

treatment technique (TT), monitoring requirements, and testing procedures in 567—Chapters 40, 41, and 43. The term "other situations" includes all situations determined by the department to require a PN, including the violations and situations listed in 40.5(2), 40.5(3), and 40.5(4), and any other situation where the department determines that PN is needed. PN is not required for ammonia monitoring conducted pursuant to 567—subrule 41.11(2).

a. PN tiers. PN requirements are divided into three tiers to account for the seriousness of a violation or situation and of any potential adverse health effects that may be involved. The PN requirements for each violation or situation are determined by the tier to which it is assigned.

(1) Tier 1 PN is required for all drinking water violations and situations with significant potential to have serious adverse effects on human health as a result of short-term exposure.

(2) Tier 2 PN is required for all other drinking water violations and situations with potential to have serious adverse effects on human health.

(3) Tier 3 PN is required for all other drinking water violations and situations not included in Tier 1 or Tier 2.

b. General PN requirements. Each PWS must provide PN to persons served by the system, in accordance with this rule. A copy of the notice must also be sent to the department, in accordance with 40.8(1)*"c."*

(1) Consecutive systems. PWSs that sell or otherwise provide drinking water to other PWS (i.e., to consecutive systems) are required to provide PN to the owner or operator of the consecutive system. The consecutive system is responsible for providing PN to the persons it serves and must meet the appropriate tier requirements for the violation.

(2) Physically or hydraulically isolated distribution systems. If a PWS has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the department may allow the system to limit distribution of the

PN only to persons served by that portion of the system that is out of compliance. Department permission to limit distribution of the notice must be granted in writing.

40.5(2) *Tier 1 PN requirements.*

a. Tier 1 PN—when required. The following violations or situations require Tier 1 PN:

(1) Violation of the *E. coli* MCL, as specified in 567—paragraph 41.2(1)*"a."*

(2) Violation of either the nitrate or nitrite MCL, as defined in 567—subparagraph 41.3(1)*"b"*(1).

(3) Failure by the system to collect a confirmation sample within 24 hours of its receipt of the first sample result showing a nitrate or nitrite MCL exceedance, when directed by the department, as specified in 567—paragraph 41.3(1)*"c"*(7)"2."

(4) Exceedance of the nitrate MCL by NCWSs, where permitted to exceed the MCL by the department under 567—paragraph 41.3(1)*"a,"* as required in 40.5(7)*"c."*

(5) Violation of the chlorine dioxide MRDL when one or more samples, taken in the distribution system on the day following an MRDL exceedance in the sample collected at the entrance to the distribution system, exceeds the MRDL, as defined in 567—paragraph 43.6(1)*"b."*

(6) Failure by the system to collect the required chlorine dioxide samples in the distribution system on the day following an MRDL exceedance in the sample collected at the entrance to the distribution system.

(7) Violation of the TT requirement by a surface water (SW) or influenced groundwater (IGW) PWS resulting from an exceedance of the maximum allowable turbidity limit, as specified in 567—Chapter 43, where the department determines, after consultation with the system, that a Tier 1 PN is required or where the department consultation does not take place within 24 hours after the system learns of the violation.

(8) Occurrence of a waterborne disease outbreak or other waterborne emergency, such as a failure or significant interruption in key water treatment processes, a natural disaster disrupting the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination.

(9) Other violations or situations with significant potential to have serious adverse effects on human health as a result of short-term exposure, as determined by the department either in its rules or on a case-by-case basis.

(10) Detection of *E. coli*, enterococci, or coliphage in source water samples, as specified in 567—paragraphs 41.7(3)*"a"* and *"b."*

b. Tier 1 PN—timing. PWSs must:

(1) Provide PN as soon as practical but no later than 24 hours after learning of the violation;

(2) Initiate consultation with the department as soon as practical, but no later than 24 hours after learning of the violation or situation, to determine additional PN requirements. For consultation after normal business hours, use the department's Environmental Emergency Reporting Hotline, 515.725.8694; and

(3) Comply with any additional PN requirements established as a result of department consultation. Additional requirements may include the timing, form, manner, frequency, and content of repeat PNs (if any) and other actions designed to reach all persons served.

All NTNCs must notify the parent or legal guardian of each child under 18 years of age and any nursing home resident of the Tier 1 violation as soon as possible and within 72 hours, including the PN content in 40.5(5).

c. Tier 1 PN—form and manner. PWSs must provide PN within 24 hours in a form and manner reasonably calculated to reach all persons served. The form and manner used must fit the specific situation and must be designed to reach residential, transient, and nontransient

users of the system. To reach all persons served, systems shall use one or more of the following forms of delivery. The department may require multiple forms of delivery in specific situations.

(1) Appropriate broadcast media, such as radio or television;

(2) Posting of the PN in conspicuous locations throughout the area served;

(3) Hand delivery of the PN to persons served; or

(4) Another delivery method approved in writing by the department.

40.5(3) *Tier 2 PN requirements.*

a. Tier 2 PN—when required. The following violations or situations require Tier 2 PN:

(1) All violations of the MCL, MRDL, and TT requirements, except where a Tier 1 PN is required under 40.5(2);

(2) Violations of the monitoring and testing procedure requirements, where the department determines that a Tier 2 rather than a Tier 3 PN is required, accounting for potential health impacts and persistence of the violation;

(3) Failure to comply with any compliance schedule in an operation permit, administrative order, or court order pursuant to 567—subrule 43.2(4);

(4) Failure to comply with an HA as determined by the department; and

(5) Failure to take corrective action or failure to maintain at least 4-log virus treatment (using inactivation, removal, or a department-approved combination of 4-log virus inactivation and removal) before or at the first customer under 567—paragraph 41.7(4)*"a."*

b. Tier 2 PN—timing. PWSs must:

(1) Provide the initial PN as soon as practical but no later than 30 days after learning of a violation. If PN is posted, it must remain in place for as long as the violation or situation persists but in no case for less than seven days, even if the violation or situation is resolved. The department may allow additional time for the initial notice of up to three months from

the date the system learns of the violation; however, such an extension must be made in writing on a case-by-case basis.

(2) Repeat the PN every three months as long as the violation or situation persists unless the department determines that circumstances warrant a different repeat frequency. A determination that a repeat PN frequency of longer than every three months is allowed must be made in writing on a case-by-case basis. The repeat PN frequency may not be less than once per year. Repeat PNs for an *E. coli* MCL violation, a TT violation under 567—paragraph 41.2(1)*"a"* or *"i,"* or a turbidity TT violation under 567—43.9(455B) or 567—43.10(455B) must be made every three months or more frequently.

(3) A PWS using SW or IGW with a TT violation resulting from a single exceedance of the maximum allowable turbidity limit, pursuant to 567—43.9(455B) or 567—43.10(455B), must consult with the department as soon as practical, but no later than 24 hours after learning of the violation, to determine whether a Tier 1 or Tier 2 PN is required to protect public health. For consultation after normal business hours, use the department's Environmental Emergency Reporting Hotline, 515.725.8694. If the consultation does not occur within the 24-hour period, the PWS must distribute a Tier 1 PN within the next 24 hours, or no later than 48 hours after learning of the violation, following the requirements of 40.5(2)*"b"* and *"c."*

c. Tier 2 PN—form and manner. PWSs must provide the initial PN and any repeat PN in a form and manner that is reasonably calculated to reach persons served in the required time period. The PN form and manner may vary based on the specific situation and type of PWS, but the PN must meet the requirements of this paragraph unless directed otherwise in writing by the department.

d. Tier 2 PN—CWS PN methods. CWSs must provide PN by the following methods:

(1) Mail or other direct delivery to each customer receiving a bill and to other service connections receiving water from the PWS; and

(2) Any other method reasonably calculated to reach other persons regularly served by the system if they would not normally be reached by mail or direct delivery. Such persons may include those who do not pay water bills or do not have service connection addresses, such as renters, students, nursing home residents, or prison inmates. Other methods may include:

1. Publication in a local newspaper;

2. Delivery of multiple copies for distribution by customers that provide their drinking water to others, such as apartment building owners or large private employers;

3. Posting in public places served by the system or on the internet; or

4. Delivery to community organizations.

e. Tier 2 PN—NCWS PN methods. NCWSs (TNCs or NTNCs) must provide PN by the following methods:

(1) Posting PN in conspicuous locations throughout the distribution system frequented by persons served by the system or by mail or direct delivery to each customer and service connection (where known); and

(2) Any other method reasonably calculated to reach other persons served who would not normally be reached by posting, mail, or direct delivery. Such persons may include those who may not see a posted PN because it is not in a location they routinely visit. Other methods may include:

1. Publication in a local newspaper or newsletter distribution to customers;

2. Use of email to notify employees or students; or

3. Delivery of multiple copies in central locations, such as community centers.

In addition to the previous requirements, NTNCs that serve children under 18 years of age (such as child care facilities, schools, and hospitals) or nursing home residents (including elder care facilities) must provide PN in writing to the parent or legal guardian of each person

within the department-specified time period. The PN content must meet the requirements of 40.5(5).

40.5(4) *Tier 3 PN requirements.*

a. Tier 3 PN—when required. The following violations or situations require Tier 3 PN:

(1) Monitoring violations or a failure to comply with a department-required testing procedure, except where a Tier 1 PN is required under this rule or where the department determines that a Tier 2 PN is required;

(2) Availability of unregulated contaminant monitoring results, as required of certain PWSs by 40 CFR §141.40, in accordance with 40.5(7)*"a"*;

(3) Exceedance of the fluoride level of 2.0 mg/L and not exceeding the MCL of 4.0 mg/L, in accordance with 40.5(7)*"b"*;

(4) Failure to report required data or analytical results to the department;

(5) Failure to meet the requirements of this chapter for PN, PE, or the development and distribution of the Consumer Confidence Report (CCR);

(6) Failure to retain a certified operator in accordance with 567—subrule 43.1(5), where the department determines that PN is required;

(7) Failure to maintain department-required records; and

(8) Any other situation where the department determines PN is needed.

b. Tier 3 PN—timing.

(1) Initial PN.

1. For violations or situations listed in 40.5(4)*"a"*(1), 40.5(4)*"a"*(4), or 40.5(4)*"a"*(5), PWSs must provide the initial PN within 12 months after learning of the violation or situation. If the violation pertains to a contaminant that could have acute health effects as determined by the department, such as coliform bacteria, nitrate, nitrite, or turbidity, the initial notice must be provided within three months. If the PN is posted, it must remain in place for as long

as the violation or other situation persists, but in no case less than seven days, even if the violation or situation is resolved.

2. For availability of unregulated contaminant monitoring results pursuant to 40.5(4)*"a"*(2), the system must provide the initial PN within 12 months of receiving the results.

3. For 40.5(4)*"a"*(3), 40.5(4)*"a"*(6), or 40.5(4)*"a"*(7), the initial PN timing is at the department's discretion but the notice must be made within 12 months of the violation or situation.

(2) Repeat PN.

1. For violations or situations listed in 40.5(4)*"a"*(1), 40.5(4)*"a"*(3), 40.5(4)*"a"*(4), or 40.5(4)*"a"*(5), PWSs must repeat the PN every 12 months in which the violation or situation persists. If the violation pertains to a contaminant that could have acute health effects, such as coliform bacteria, nitrate, nitrite, or turbidity, the system must repeat the PN every three months in which the violation or situation persists. If the PN is posted, it must remain in place for as long as the violation or other situation persists, but in no case less than seven days, even if the violation or situation is resolved.

2. For availability of unregulated contaminant monitoring results pursuant to 40.5(4)*"a"*(2), the system is not required to repeat the PN once the initial PN requirement has been met.

3. For 40.5(4)*"a"*(3), 40.5(4)*"a"*(6), or 40.5(4)*"a"*(7), the requirement for and timing of the repeat PN is at the department's discretion. If required, the repeat PN must be made within 12 months of the initial PN.

c. Tier 3 PN—form and manner. PWSs must provide the initial PN and any repeat PN in a form and manner that is reasonably calculated to reach persons served in the required time period. The PN form and manner may vary based on the specific situation and type of system,

but it must meet the requirements of this paragraph unless directed otherwise in writing by the department.

d. Tier 3 PN—CWS PN methods. CWSs must provide PN by:

(1) Mail or other direct delivery to each customer receiving a bill and to other service connections receiving water from the PWS; and

(2) Any other method reasonably calculated to reach other persons regularly served by the system if they would not normally be reached by mail or direct delivery. Such persons may include those who do not pay water bills or do not have service connection addresses, such as renters, students, nursing home residents, or prison inmates. Other methods may include:

1. Publication in a local newspaper;

2. Delivery of multiple copies for distribution by customers that provide their drinking water to others, such as apartment building owners or large private employers;

3. Posting in public places or on the internet; or

4. Delivery to community organizations.

(3) Use of the CCR for initial and repeat PNs. For CWSs, the CCR required under 567—40.7(455B) may be used as a vehicle for initial and repeat Tier 3 PNs as long as:

1. The CCR is provided to persons served within the time frames under 40.5(4)*"b"*;

2. The Tier 3 PN in the CCR follows the content requirements under 40.5(5); and

3. The CCR is distributed following the delivery requirements under 40.5(4)*"c"*(1) and 40.5(4)*"c"*(2).

e. Tier 3 PN—NCWS PN methods. NCWSs (TNCs and NTNCs) must provide PN by:

(1) Posting PN in conspicuous locations throughout the distribution system frequented by persons served by the system or by mail or direct delivery to each customer and service connection (where known); and

(2) Any other method reasonably calculated to reach other persons served if they would not normally be reached by the posted, mailed, or delivered notice. Such persons may include those who may not see a posted PN because it is not in a location they routinely visit. Other methods may include:

1. Publication in a local newspaper or newsletter distributed to employees;
2. Use of email to notify employees or students; or
3. Delivery of multiple copies in central locations, such as community centers.

40.5(5) *PN content.*

a. Required elements. Each PN must contain the following:

(1) A description of the violation or situation, including the contaminant(s) of concern and, as applicable, the contaminant level(s);

(2) When the violation or situation occurred;

(3) Any potential adverse health effects from the violation or situation, including the standard language in 40.5(5)*"c"*(1) or 40.5(5)*"c"*(2), where applicable;

(4) The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in their drinking water;

(5) Whether alternative water supplies or bottled water should be used or require a boil-water order;

(6) What actions consumers should take, including when they should seek medical help, if known;

(7) What the system is doing to correct the violation or situation;

(8) When the system expects to return to compliance or resolve the situation;

(9) The name, business address, and telephone number of the PWS owner, operator, or designee as a source of additional information concerning the PN; and

(10) A statement to encourage the PN recipient to distribute the notice to other persons served, using the standard language under 40.5(5)*"c"*(3), where applicable.

b. Appearance and presentation.

(1) Each PN must:

1. Be displayed in a conspicuous way when printed or posted;

2. Not contain overly technical language or very small print;

3. Not be formatted in a way that defeats the purpose of the notice; and

4. Not contain language that nullifies the purpose of the notice.

(2) Each PN must comply with multilingual requirements, as follows:

1. For PWSs serving a large proportion of non-English speaking consumers, as determined by the department, a PN must contain information about its importance in the appropriate language(s) or contain a telephone number or address where persons served may contact the system to obtain a translated copy of the notice or to request assistance in the appropriate language.

2. In cases where the department has not determined what constitutes a large proportion of non-English speaking consumers for a PWS, a PN must contain the same information as in 40.5(5)*"b"*(2)"1" above, where appropriate, to reach a large proportion of non-English speaking persons served by the system.

c. Standard language. PWSs must include the following statements in PNs:

(1) Health effects for MCL, MRDL, or TT violations. Each PN must include the health effects language in Appendix B to 40 CFR Part 141, Subpart Q, for the specific contaminant, disinfectant residual, or TT that incurred the violation.

(2) Monitoring and testing procedure violations. Each PN must include the following statement, including the bracketed language necessary to complete the notice, for all monitoring and testing procedure violations:

"We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During [compliance period], we [use either the phrase "did not monitor or test" or "did not complete all monitoring or testing," whichever is more applicable] for [contaminant(s)], and therefore cannot be sure of the quality of your drinking water during that time."

(3) Language to encourage PN distribution to all persons served. Each PN must include the following statement, where applicable:

"Please share this information with all the other people who drink this water, especially those who may not have received this notice directly, such as people in apartments, nursing homes, schools, and businesses. You can do this by posting this notice in a public place or distributing copies by hand or mail."

40.5(6) *PN for new billing units or new customers.*

a. Community water systems (CWSs). CWSs must give a copy of the most recent PN for any continuing violation or other ongoing situations requiring PN to all new billing units or new customers prior to or at the time service begins.

b. Noncommunity water systems (NCWSs). NCWSs (TNCs and NTNCs) must continuously post the PN in conspicuous locations in order to inform new consumers of any continuing violation or other situation requiring PN for as long as the violation or other situation persists.

40.5(7) *Special PNs.*

a. Availability of unregulated contaminant monitoring results.

(1) Applicability. The owner or operator of a CWS or NTNC required to monitor under the federal unregulated contaminant monitoring rule must notify persons served by the system

of the availability of such sample results no later than 12 months after the monitoring results are known.

(2) Form and manner. The special PN must follow the Tier 3 PN requirements in 40.5(4)*"c"* and must identify a person and provide the telephone number to contact for information on the monitoring results.

b. Fluoride level between 2.0 and 4.0 mg/L at CWSs or NTNCs.

(1) Applicability. CWSs and NTNCs that exceed the fluoride level of 2.0 mg/L as determined by the last single sample taken in accordance with 567—paragraph 41.3(1)*"c"* but do not exceed the MCL of 4.0 mg/L must provide the special PN in accordance with this paragraph to persons served. If the NTNC is a school or child care facility serving children under nine years of age, the system shall provide the PN in writing to the legal guardians of each child within the department-specified time period.

(2) Initial PN. A fluoride PN must be provided as soon as practical but no later than three months from the day the system learns of the exceedance. A copy of the notice must also be sent to all new billing units and new customers at the time service begins and to the Public Health Dental Director, Iowa Department of Health and Human Services, Lucas State Office Building, Des Moines, Iowa 50319-0075.

(3) Repeat PN. The PWS must repeat the fluoride PN at least every three months for as long as the fluoride level exceeds 2.0 mg/L. If the PN is posted, it must remain in place for as long as the fluoride level exceeds 2.0 mg/L but in no case less than seven days (even if the exceedance is eliminated). The department may require the repeat PN to be conducted more frequently.

(4) Form and manner. The form and manner of the fluoride PN, including repeat PNs, must follow the Tier 3 PN requirements in 40.5(4)*"c."*

(5) Mandatory language. A fluoride PN must contain the following language, including the bracketed language necessary to complete the notice:

"This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/L) of fluoride may develop cosmetic discoloration of their permanent teeth, called dental fluorosis. The drinking water provided by your public water system [PWS name] has a fluoride concentration of [analytical result] mg/L."

"Dental fluorosis, in its moderate or severe forms, may result in a brown staining and pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water."

"Drinking water containing more than 4.0 mg/L of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4.0 mg/L of fluoride, but we are required to notify you when we discover that the fluoride levels in your drinking water exceed 2.0 mg/L because of this cosmetic dental problem."

"For more information, please call [PWS contact person] of [PWS name] at [telephone number]. Some home water treatment units are also available to remove fluoride from drinking water. In Iowa, home water treatment units are regulated under 641—Chapter 14, and the water treatment unit registration program is administered by the Health & Safety

Division of the Iowa Department of Inspections, Appeals, and Licensing. In addition, you may call the National Sanitation Foundation (NSF) International at 1-877-867-3435."

c. Nitrate level between 10 and 20 mg/L for NCWSs, where allowed by the department. NCWSs granted permission by the department under 567—paragraph 41.3(1)*"a"* to exceed the nitrate MCL must:

(1) Provide PN to persons served according to the Tier 1 PN requirements under 40.5(2)*"a"* and *"b."*

(2) Provide continuous posting of the fact that nitrate levels exceed 10 mg/L and the potential health effects of exposure, according to the Tier 1 PN delivery requirements under 40.5(2)*"c"* and the content requirements under 40.5(5).

d. Repeated failure to conduct source water monitoring for Cryptosporidium.

(1) Applicability. The owner or operator of any PWS that is required to monitor source water under 567—43.11(455B) must notify persons served by the system that required monitoring has not been completed no later than 30 days after the system has failed to collect samples in any three months of monitoring, as specified in 567—paragraph 43.11(3)*"a."* This special PN must be repeated as specified in 40.5(3).

(2) Form and manner. This special PN must follow the Tier 2 PN requirements in 40.5(3) and be presented as required in 40.5(5)*"b."*

(3) Mandatory language. This special PN must contain the following language, including the language necessary to fill in the brackets.

"We are required to monitor the source of your drinking water for *Cryptosporidium*. Results of the monitoring are to be used to determine whether water treatment at the [treatment plant name] is sufficient to adequately remove *Cryptosporidium* from your drinking water. We are required to complete this monitoring and make this determination by [required bin determination date]. We ["did not monitor or test" or "did not complete all monitoring or

testing"] on schedule and, therefore, we may not be able to determine by the required date what treatment modifications, if any, must be made to ensure adequate *Cryptosporidium* removal. Missing this deadline may, in turn, jeopardize our ability to have the required treatment modifications, if any, completed by the required deadline of [date]. For more information, please call [PWS contact person] of [PWS name] at [telephone number]."

(4) Each special PN must include a description of what the system is doing to correct the violation and when the system expects to return to compliance or resolve the situation.

e. Failure to determine bin classification or mean Cryptosporidium level.

(1) Applicability. The owner or operator of a PWS that is required to determine a bin classification under 567—subrule 43.11(5) must notify persons served by the system that the required determination has not been made no later than 30 days after the system has failed to report the determination, as specified in 567—paragraph 43.11(5)*"c."* This special PN must be repeated as specified in 40.5(3). This PN is not required if the system is in compliance with a department-approved schedule to address the violation.

(2) Form and manner. This special PN must follow the Tier 2 PN requirements in 40.5(3) and be presented as required in 40.5(5)*"b."*

(3) Mandatory language. This special PN must contain the following language, including the language necessary to fill in the brackets.

"We are required to monitor the source of your drinking water for *Cryptosporidium* in order to determine by [date] whether water treatment at the [treatment plant name] is sufficient to adequately remove *Cryptosporidium* from your drinking water. We have not made this determination by the required date. Our failure to do this may jeopardize our ability to have the required treatment modifications, if any, completed by the required deadline of [date]. For more information, please call [PWS contact person] of [PWS name] at [telephone number]."

(4) Each special PN must include a description of what the system is doing to correct the violation and when the system expects to return to compliance or resolve the situation.

40.5(8) *PN by department on behalf of a PWS.* The department may provide PN on behalf of a PWS owner or operator in compliance with this rule. However, the PWS owner or operator remains responsible for ensuring the PN requirements of this rule are met.

40.5(9) *Small water system—operation permit PN requirements.* When the department determines that a small PWS cannot promptly comply with one or more MCLs pursuant to 567—Chapter 41 and that there is no immediate, unreasonable health risk to persons served by the system, an operation permit will be drafted with interim contaminant levels or a compliance schedule. The department may require the applicant to present the reasons the small water system cannot come into immediate compliance. Prior to issuance of a final permit with a compliance schedule, notice and opportunity for public participation must be given in accordance with this subrule. The PN shall be circulated in a manner designed to inform interested and potentially interested persons of any proposed interim contaminant level or compliance schedule.

a. Small water system—PN preparation. A PN shall be prepared by the department and circulated by the applicant within its geographical area through publication in a local newspaper with general circulation or through mail or direct delivery to the system's customers. The PN shall be mailed by the department to any person upon request.

b. Small water system—public comment period. The department shall provide a period of at least 30 days following the PN date during which time interested persons may submit their written views on the tentative determinations with respect to the operation permit. All written comments submitted during the 30-day comment period shall be retained by the department and considered in the formulation of the department's final determination with respect to the operation permit. The department may extend the comment period.

c. Small water system—PN content. A PN of a proposed operation permit shall contain at least the following:

(1) The name, address, website, and telephone number of the department.

(2) The name and address of the applicant.

(3) A statement of the department's tentative determination to issue the operation permit.

(4) A brief description of each applicant's operations that necessitate the proposed permit conditions.

(5) A brief description of the procedures for the formulation of final determinations, including the 30-day comment period required by 40.5(9)*"b."*

(6) The right to request a public hearing pursuant to 40.5(9)*"d"* and any other means by which interested persons may influence or comment upon those determinations.

(7) The website location where interested persons may obtain further information, request a copy of the proposed operation permit prepared pursuant to this subrule, and inspect and copy the application forms and related documents.

d. Small water system—public hearings. The applicant or any interested agency, person or group of persons may request or petition for a public hearing with respect to a proposed operation permit.

(1) Any such request or petition shall:

1. Clearly state the issues to be addressed at a hearing;

2. Be filed with the department within the 30-day period prescribed in 40.5(9)*"b"*; and

3. Indicate the interest of the party filing the petition or request and the reasons why a hearing is warranted.

(2) The department shall hold an informal and noncontested case hearing if there is a significant public interest in holding a hearing, including the filing of requests or petitions for

a hearing. Frivolous or insubstantial hearing requests may be denied by the department. Instances of doubt should be resolved in favor of holding a hearing.

(3) Any hearing held pursuant to this subrule shall be held in the geographical area of the system, or other appropriate area, at the department's discretion.

(4) The department may, as appropriate, consider related groups of permit applications at a hearing.

e. Small water system—PN for public hearings. PN of any hearing held pursuant to this subrule shall:

(1) Be circulated at least as widely as the notice under 40.5(9)*"a"* at least 30 days in advance of the hearing.

(2) Contain at least the following:

1. The name, address, website, 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 previously issued PN, including identification number and date of issuance;

4. 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. The website location where interested persons may obtain further information, request a copy of the draft operation permit or modification prepared pursuant to this subrule, and inspect and copy the application forms and related documents; and

8. A brief description of the nature of the hearing, including the rules and procedures to be followed.

f. Small water system—operation permit decision. The department shall issue or deny an operation permit within 30 days after a public hearing held pursuant to this subrule, or, if no public hearing is held, within 30 days after the end of the period for requesting a hearing.

567—40.6(455B) Lead consumer notice and public education (PE) for lead action level exceedance (ALE).

40.6(1) *Lead consumer notice.*

a. Reporting. All CWSs and NTNCs must provide a consumer notice of the individual lead tap water monitoring results required by 567—paragraph 41.4(1)*"c"* to the persons served at the tested sites (taps). Any system with a lead ALE shall also implement the PE requirements of 40.6(2).

b. Consumer notice timing. A system must provide the notice as soon as practical but no later than 30 days after the system learns of the tap monitoring results.

c. Consumer notice content. A consumer notice must contain the following:

(1) Results of the lead tap water monitoring for the tested tap,

(2) An explanation of the health effects of lead,

(3) A list of steps consumers can take to reduce exposure to lead in drinking water,

(4) PWS contact information, and

(5) The lead MCLG of 0 mg/L, the 90th percentile lead AL of 0.015 mg/L, and the definitions for these two terms from 567—40.2(455B).

d. Consumer notice delivery. The notice must be provided to persons served at the tested tap either by mail or by another department-approved method. For example, upon department approval, an NTNC could post results on a bulletin board in the facility. Systems must provide the notice to customers at sample taps tested, including consumers who do not receive water bills.

e. Inclusion of copper results. Systems may also include copper testing results in the consumer notice, along with the 90th percentile copper ALE of 1.3 mg/L, copper MCLG of 1.3 mg/L, and copper health effects language.

40.6(2) *Lead PE for lead ALE.* Systems with a lead ALE based on tap water samples collected in accordance with 567—paragraph 41.4(1)*"c"* shall prepare and deliver PE materials and sample the tap water of any customer who requests it in accordance with this subrule.

a. Content of materials. Systems must include the following statements in written PE materials in the same order as listed in this paragraph. Language in 40.6(2)*"a"*(1), 40.6(2)*"a"*(2), and 40.6(2)*"a"*(5) must be included exactly as written, except for the bracketed text for which the system must substitute system-specific information. Any additional information presented by a system must be consistent with this paragraph and be in plain language that can be understood by the general public. Systems must submit all PE materials to the department prior to delivery. The department may require a system to obtain approval of the content of PE materials prior to delivery. PE materials must:

(1) Include the following statements exactly as written.

"IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER. [Insert system name] found elevated levels of lead in drinking water in some homes/buildings. Lead can cause serious health problems, especially for pregnant women and young children. Please read this information closely to see what you can do to reduce lead in your drinking water."

"Health effects of lead. Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women.

Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development."

(2) Discuss lead and sources of lead, as follows:

1. Explain what lead is.

2. Explain possible sources of lead in drinking water, explain how lead enters drinking water, and include information on home/building plumbing materials and service lines that may contain lead.

3. Discuss other important sources of lead exposure in addition to drinking water (e.g., paint).

(3) Discuss steps the consumers can take to reduce their exposure to lead in drinking water, as follows:

1. Encourage running the water to flush out the lead.

2. Explain concerns with using hot water from the tap and specifically caution against the use of hot water for preparing baby formula.

3. Explain that boiling the water does not reduce lead levels.

4. Discuss other options consumers can take to reduce exposure to lead in drinking water, such as alternative sources or water treatment.

5. Suggest that parents have their child's blood tested for lead.

(4) Explain why there are elevated levels of lead in the system's drinking water (if known) and what the system is doing to reduce the lead levels in homes/buildings in this area.

(5) Include the following statement exactly as written.

"For more information, call us at [insert your telephone number] or visit our website at [insert your website link here]. For more information on reducing lead exposure around your home/building and the health effects of lead, visit EPA's website at www.epa.gov/lead or contact your health care provider."

(6) Include the following if the system is a CWS:

1. Tell consumers how to get their water tested.

2. Discuss lead in plumbing components and the difference between low lead and lead free.

b. Outreach to non-English speaking consumers. For PWSs serving a large proportion of non-English speaking consumers, as determined by the department, the PE materials must contain information about the importance of PE in the appropriate language(s) or contain a telephone number or address where persons served may contact the system to obtain a translated copy of the PE materials or to request assistance in the appropriate language.

c. PE materials delivery by CWS. A CWS that exceeds the lead ALE on the basis of tap water samples collected in accordance with 567—paragraph 41.4(1)*"c"* must conduct the following PE tasks within 60 days of the date of notification of the ALE. All PE materials must meet the content requirements of 40.6(2)*"a."*

(1) Deliver PE materials to all bill-paying customers.

(2) Contact customers who are most at risk by delivering PE materials to local public health agencies, even if they are not located within the system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or the CWSs users. Systems must contact the local public health agencies directly by phone or in person. The local public health agencies may provide a specific list of additional community-based organizations serving target populations, which may include

organizations outside the system's service area. If such lists are provided, systems must deliver PE materials to all organizations on the provided lists.

(3) Contact customers who are most at risk by delivering PE materials to the following organizations that are located within the system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or the CWSs users:

1. Public and private schools or school boards;
2. Women, Infants, and Children (WIC) and Head Start programs;
3. Public and private hospitals and medical clinics;
4. Pediatricians;
5. Family planning clinics; and
6. Local welfare agencies.

(4) Make a good-faith effort to locate the following organizations within the service area and deliver PE materials, along with an informational notice encouraging distribution to all potentially affected customers or users. This effort to contact at-risk customers may include requesting a contact list of these organizations from the local public health agencies, even if the agencies are not located within the system's service area:

1. Licensed child care centers;
2. Public and private preschools;
3. Obstetricians, gynecologists, doulas, and midwives.

(5) No less often than quarterly, provide information with each water bill as long as the system exceeds the lead AL. The water bill must include the following statement exactly as written, except for the text in brackets for which the system must substitute system-specific information:

"[Insert system name] found high levels of lead in drinking water in some homes. Lead can cause serious health problems. For more information, please call [insert system telephone number] or visit [insert system website link here]."

The message or delivery mechanisms can be modified in consultation with the department; specifically, the department may allow a separate mailing of PE materials to customers if the system cannot place the information on water bills.

(6) Post PE material on the system's website if the system serves a population greater than 100,000.

(7) Submit a press release to newspaper, television, and radio stations.

(8) In addition to those items previously listed, systems must implement at least three activities from one or more of the following categories. The educational content and appropriate activities must be determined in consultation with the department.

1. Public service announcement;
2. Paid advertisement;
3. Public area information displays;
4. Emails to customers;
5. Public meetings;
6. Household deliveries;
7. Targeted individual customer contact;
8. Direct material distribution to all multifamily homes and institutions; and
9. Other department-approved methods.

d. Continuing and special population PE by a CWS.

(1) As long as a CWS exceeds the AL, it must repeat the following activities:

1. Repeat the tasks in 40.6(2)*"c"*(1), 40.6(2)*"c"*(2), and 40.6(2)*"c"*(8) every 12 months.
2. Repeat the tasks in 40.6(2)*"c"*(5) with each billing cycle.

3. A CWS serving a population greater than 100,000 shall post and retain PE materials on a publicly accessible website pursuant to 40.6(2)*"c"*(6).

4. Repeat the task in 40.6(2)*"c"*(7) twice every 12 months on a schedule agreed upon with the department. The department can allow activities in 40.6(2)*"c"* to extend beyond the 60-day requirement on a case-by-case basis; however, this extension must be approved in writing by the department in advance of the 60-day deadline, and the system must already have initiated PE activities prior to the end of the 60-day deadline.

(2) A CWS meeting either of the following criteria may apply to the department in writing for reduced PE and community notice requirements:

1. The CWS is a facility, such as a prison or hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing POU treatment devices; or

2. The CWS provides water as part of the cost of services provided and does not separately charge for water consumption.

If the department approves the request in writing, the CWS is not required to include the language in 40.6(2)*"a"*(6) and must deliver the PE materials in accordance with 40.6(2)*"e,"* in lieu of 40.6(2)*"c"* and *"d."*

(3) A CWS serving 3,300 or fewer people may limit certain aspects of its PE programs as follows:

1. The system must implement at least one of the activities in 40.6(2)*"c"*(8).

2. The system may limit the distribution of the PE materials in 40.6(2)*"c"*(2) and 40.6(2)*"c"*(3) to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children.

3. The department may waive the requirements of 40.6(2)*"c"*(7) for the system provided it distributes notices to every household served.

e. Delivery of and continuing PE by an NTNC.

(1) PE delivery by an NTNC. Within 60 days of the date of notification of the ALE, an NTNC shall deliver the specified PE materials as follows:

1. Post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system; and

2. Distribute informational pamphlets or brochures on lead in drinking water to each person served by the NTNC. The department may allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as at least the same coverage is achieved. If the system serves children 18 years of age and under, such as a school or child care facility, the PE materials must be provided to the parents or legal guardians of the children.

(2) Continuing PE by an NTNC. An NTNC shall repeat the tasks in 40.2(2)*"e"*(1) at least once during each calendar year in which the system exceeds the lead AL. The department can allow activities in 40.2(2)*"e"*(1) to extend beyond the 60-day requirement on a case-by-case basis; however, this extension must be approved in writing by the department in advance of the 60-day deadline, and the system must already have initiated PE activities prior to the end of the 60-day deadline.

f. Discontinuation of PE activities. A CWS or NTNC may discontinue delivery of PE materials if it has met the lead AL during the most recent six-month monitoring period conducted pursuant to 567—paragraph 41.4(1)*"c."* Such systems shall recommence PE in accordance with this subrule if it subsequently exceeds the lead AL during any monitoring period.

g. Supplemental monitoring and notification of results. A system that fails to meet the lead AL on the basis of tap samples collected in accordance with 567—paragraph 41.4(1)*"c"* shall offer to sample the tap water of any customer who requests it. The system is not required to

pay for collecting or analyzing the sample, nor is the system itself required to collect and analyze the sample.

567—40.7(455B) Consumer confidence reports (CCRs).

40.7(1) *Applicability and purpose.* This rule applies to all CWSs and establishes the requirements for the content of annual CCRs that CWSs must deliver to their customers. These CCRs must contain information on the quality of the water delivered by the systems and characterize the risks (if any) from exposure to contaminants in the drinking water in an accurate and understandable manner. The department may assign PN requirements and assess administrative penalties to any CWS that fails to fulfill the requirements of this rule.

40.7(2) *CCR delivery frequency.*

a. Existing CWSs. Existing CWSs must deliver CCRs annually by July 1.

b. New CWSs. New CWSs must deliver their first CCR by July 1 of the year after their first full calendar year in operation and annually thereafter.

c. CWSs that sell water to another CWS. A CWS that sells water to another CWS must deliver the applicable information in 40.3(7) to the buyer (or consecutive) system:

(1) Annually by April 1, or

(2) On a date mutually agreed upon by the seller and the purchaser and specifically included in a contract between the parties.

When a consecutive system sells water to another CWS, the seller must provide all applicable information in 40.3(7) to the CWS buying the water from them.

40.7(3) *CCR content—source water identification and definitions.* Each annual CCR must contain the following information.

a. Source water identification. A CCR must identify the source(s) of water delivered by the CWS, including:

(1) Type of water (e.g., SW, groundwater (GW), GW purchased from another PWS).

(2) Commonly used name of the aquifer, reservoir, or river (if any) and location of the body(ies) of water.

(3) The availability of a source water assessment and the means to obtain it if an assessment has been completed. Systems are encouraged to highlight significant sources of contamination in the source water area if information is available. Where a system has received a source water assessment from the department, the CCR must include a brief summary of the system's susceptibility to potential sources of contamination using language provided by the department or its designee or written by the owner or operator.

b. Definitions. Each CCR using any of the following terms must include the applicable definitions of MCL, MCLG, MRDL, and MRDLG from 40 CFR §141.153.

(1) A CCR that contains data on a contaminant for which EPA has set a TT or an AL must include the applicable definitions from 40 CFR §141.153.

(2) A CCR that contains information regarding a Level 1 or Level 2 assessment required under 567—subrule 41.2(1) must include the applicable assessment definitions from 40 CFR §141.153.

40.7(4) *CCR content—information on detected contaminants.* This subrule specifies the information required in each CCR for contaminants subject to mandatory monitoring as follows: regulated contaminants subject to an MCL, AL, MRDL, or TT; contaminants for which monitoring is required by either 40 CFR §141.40 (unregulated contaminants), 567—subrule 41.9(1) (sodium), or 567—41.11(455B) (other contaminants); and, except as provided under 40.7(6)*"a,"* contaminants with department-required monitoring that are detected in the finished water (disinfection byproducts (DBPs) or microbial contaminants), and *Cryptosporidium*. Ammonia monitoring conducted pursuant to 567—subrule 41.9(2) is not subject to this paragraph. For the purposes of this subrule, "detected" means at or above the levels prescribed as follows: inorganic contaminants in 567—subparagraph 41.3(1)*"b"*(1);

VOCs and SOCs in 567—paragraph 41.5(1)*"b"*; radionuclide contaminants in 567—paragraph 41.8(1)*"c"*; DBPs in 567—paragraph 41.6(1)*"b"*(1); and other contaminants with HAs, as assigned by the department.

a. Contaminant data must be displayed in one or more tables. Any additional monitoring results that a CWS chooses to include in its CCR must be displayed separately.

(1) Contaminant data must be derived from data collected to comply with departmental monitoring and analytical requirements. Where a system is allowed to monitor for contaminants less often than once a year, the CCR table(s) must include the results, the most recent sampling date, and a brief statement indicating that the data in the CCR are from the most recent testing done in accordance with the regulations. No data older than five years need be included.

(2) For detected regulated contaminants listed in Appendix A to 40 CFR Part 141, Subpart O, the table(s) must contain:

1. The contaminant MCL, expressed as a number equal to or greater than 1.0 (as provided in Appendix A to 40 CFR Part 141, Subpart O);

2. The contaminant MCLG, expressed in the same units as the MCL;

3. If there is no MCL for a detected contaminant, the table(s) must indicate that there is a TT, or specify the AL applicable to that contaminant, and the CCR must include the definition for TT or AL, as appropriate.

(3) For contaminants subject to an MCL, except turbidity and *E. coli*, the table(s) must contain the highest contaminant level used to determine compliance with a primary drinking water standard and the range of detected levels, expressed in the same units as the MCL, as follows:

1. When MCL compliance is determined annually or less frequently: the highest detected level at any sampling point and the range of detected levels.

2. When MCL compliance is determined by calculating a running annual average (RAA) of all samples taken at a sampling point: the highest average of any of the sampling points and the range of all sampling points. For TTHM and HAA5 MCLs, systems must include the highest locational running annual average (LRAA) for TTHM and HAA5 and the range of individual sample results for all monitoring locations. If more than one location exceeds the TTHM or HAA5 MCL, the system must include the LRAAs for all locations that exceed the MCL.

3. When MCL compliance is determined on a systemwide basis by calculating an RAA of all samples at all sampling points: the average and range of detection. When rounding of results to determine MCL compliance is allowed by the regulations, rounding should be done prior to multiplying the results by the factor in Appendix A to 40 CFR Part 141, Subpart O.

(4) For turbidity: The highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in 567—43.5(455B), 567—43.9(455B), or 567—43.10(455B) for the filtration technology being used when turbidity is being reported pursuant to the cited rules. The CCR should include an explanation of the reasons for measuring turbidity.

(5) For lead and copper: the 90th percentile value of the most recent round of sampling and the number of sampling sites exceeding the AL.

(6) For *E. coli* analytical results under 567—subrule 41.2(1): the total number of positive samples.

(7) The likely source(s) of detected contaminants to the best of the owner's or operator's knowledge. If specific contaminant information is in sanitary surveys or source water assessments, it should be used. If the owner or operator lacks specific information on the likely contaminant source, the CCR must include one or more of the typical contaminant

sources (from Appendix A to 40 CFR Part 141, Subpart O) that are most applicable to the system.

(8) If a CWS distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources, the CCR should identify each separate distribution system and the table(s) should contain a separate column for each service area. Alternatively, systems may produce separate CCRs tailored to include data for each service area.

(9) The table(s) must clearly identify any data indicating MCL, MRDL, or TT violations, and the CCR must contain a clear and readily understandable explanation of the violation, including:

1. The length of the violation;
2. The potential adverse health effects;
3. Actions taken by the system to address the violation; and
4. The relevant language from Appendix A to 40 CFR Part 141, Subpart O, describing the potential health effects.

(10) For detected unregulated contaminants for which monitoring is required, except *Cryptosporidium*, the table(s) must contain the average and range at which the contaminant was detected. The CCR may include a brief explanation of the reasons for monitoring for unregulated contaminants.

(11) CWSs may list the most recent results of the special sodium monitoring requirement, according to 567—subrule 41.11(1), in the CCR instead of providing a separate PN.

(12) If a contaminant that does not have an MCL, MRDL, TT, or AL is detected in the water, the PWS must contact the department for the specific health effects language, health advisory level (HAL), and contamination sources.

b. If monitoring indicates that *Cryptosporidium* may be present in the source water or the finished water, or that radon may be present in the finished water, the CCR must include:

(1) A summary of the *Cryptosporidium* monitoring results;

(2) The radon monitoring results; and

(3) An explanation of the results' significance.

c. If a system has performed additional monitoring that indicates the presence of other contaminants in the finished water, it must report any results that may indicate a health concern. To determine if results may indicate a health concern, a CWS can inquire about a current or proposed MCL, MRDL, TT, AL, or HA by contacting the department or by calling the National Safe Drinking Water Hotline (800.426.4791). The department considers the detection of a contaminant above a proposed MCL or HAL to indicate possible health concerns. For such contaminants, the CCR should include:

(1) The monitoring results; and

(2) An explanation of the results' significance, noting the existence of an HA or a proposed regulation.

d. If a system was required to comply with the federal Information Collection Rule pursuant to 40 CFR Part 141, it must include the results of monitoring in compliance with 40 CFR Part 141. These results need only be included for five years from the date of the sample or until any of the detected contaminants become regulated and subject to routine monitoring requirements, whichever comes first.

40.7(5) *CCR content—compliance with 567—Chapters 41 and 43.* In addition to the requirements of 40.7(4)*"a"*(8), the CCR must note any violation of a requirement listed below that occurred during the year covered by the report and include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps

the system has taken to correct the violation. The system must note any violation of the following:

a. Monitoring and reporting of compliance data pursuant to 567—Chapters 41 and 43, including any contaminant with a MCL, TT, AL, or HA;

b. The following TTs:

(1) Filtration and disinfection prescribed by 567—43.5(455B). For systems that have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of such equipment or processes that constitutes a violation, the CCR must include the following statement with the explanation of potential adverse health effects:
"Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches."

(2) Lead and copper control requirements. For systems that fail to take one or more actions prescribed by 567—Chapters 41 and 43 pertaining to lead and copper, the CCR must include the relevant language from Appendix A to 40 CFR Part 141, Subpart O.

(3) Acrylamide and epichlorohydrin control technologies. Systems in violation of 567—subparagraph 41.5(1)*"b"*(3) must include the relevant language from Appendix A to 40 CFR Part 141, Subpart O, in their CCR.

c. Recordkeeping of compliance data pursuant to 567—Chapters 41 and 43;

d. Special monitoring requirements; and

e. Violation of an operation permit compliance schedule, administrative order, or judicial order.

40.7(6) *CCR content—operation permit or administrative order with a compliance schedule.* If a system has been issued a compliance schedule with an extension for compliance, the CCR must contain:

a. An explanation of the reasons for the extension;

b. The date on which the extension was issued;

c. A brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the compliance schedule; and

d. A notice of any opportunity for public input in the review or renewal of the compliance schedule.

40.7(7) *CCR content—mandatory CCR language explaining contaminant occurrence.* CCRs must contain a brief explanation regarding contaminants that may reasonably be expected to be found in drinking water, including bottled water. This explanation may include the statements in 40.7(7)*"a"* through 40.7(7)*"c"*. Paragraph 40.7(7)*"d"* is provided as a minimal alternative to 40.7(7)*"a"*(1) through 40.7(7)*"c"*(3). Systems may also develop their own comparable language. A CCR must include the language of 40.7(8).

a. "The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material, and can pick up substances resulting from the presence of animals or from human activity."

b. "Contaminants that may be present in source water include:"

(1) "Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife."

(2) "Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming."

(3) "Pesticides and herbicides, which may come from a variety of sources such as agriculture, storm water runoff, and residential uses."

(4) "Organic chemical contaminants, including synthetic and volatile organics, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems."

(5) "Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities."

c. "In order to ensure that tap water is safe to drink, the department prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health."

d. "Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the National Safe Drinking Water Hotline ((800)426-4791)."

40.7(8) *Required additional health information.*

a. All systems.

(1) All CCRs must prominently display the following statement:

"Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the national Safe Drinking Water Hotline ((800)426-4791)."

(2) Systems may write their own educational statements for arsenic in 40.7(8)*"b"*(1), nitrates in 40.7(8)*"c,"* and lead in 40.7(8)*"d"* but only in consultation with the department.

b. Arsenic.

(1) A CWS that detects arsenic at levels above 0.005 mg/L and less than or equal to 0.010 mg/L must include in its CCR a short information statement about arsenic, using language such as:

"While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems."

(2) A CWS that detects arsenic above 0.010 mg/L and less than or equal to 0.05 mg/L must include in its CCR the arsenic health effects language in Appendix A to 40 CFR Part 141, Subpart O.

c. Nitrates.

(1) A system that detects nitrate at levels above 5.0 mg/L (half the MCL) but below the MCL must include in its CCR a short informational statement about the impacts of nitrate on children, using language such as:

"Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider."

(2) A system that detects nitrite at levels above 0.50 mg/L (half the MCL) but below the MCL must include in its CCR a short informational statement about the impacts of nitrite on children, using language such as:

"Nitrite in drinking water at levels above 1 ppm is a health risk for infants of less than six months of age. High nitrite levels in drinking water can cause blue baby syndrome. If you are caring for an infant you should ask advice from your health care provider."

d. Lead. All systems must include in their CCR a short informational statement about lead in drinking water and the effects it has on children, using language such as:

"If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from material and components associated with service lines and home plumbing. [Insert name of system] is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the National Safe Drinking Water Hotline (800)426-4791 or at www.epa.gov/safewater/lead."

e. Total trihalomethanes (TTHMSs). A CWS that detects TTHMs above 0.080 mg/L but below the MCL in 567—subrule 41.6(1)*"b"*(1) as an annual average, monitored and calculated under the provisions of 567—paragraph 41.6(1)*"d,"* must include in its CCR the health effects language for total trihalomethanes listed in Appendix A to 40 CFR Part 141, Subpart O.

40.7(9) *Additional mandatory CCR requirements.*

a. The CCR must include the telephone number of the owner, operator, or designee of the CWS as a source of additional information concerning the report.

b. In communities with a large proportion of non-English speaking residents, as determined by the department, the CCR must contain information regarding the importance of the CCR in the appropriate language(s) or contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language.

c. The CCR must include information (e.g., time and place of regular board meetings) about opportunities for public participation in decisions that may affect the quality of the water.

d. Systems may include such additional information as they deem necessary for the PE, consistent with, and not detracting from, the purpose of the CCR.

e. Systems required to comply with the GW rule (567—41.7(455B)) must include the following in the CCR, when applicable:

(1) Any GW system that receives notice from the department of a significant deficiency must inform its customers of any significant deficiency that is uncorrected at the time of the next CCR. The system must continue to inform the public annually until the department determines that particular deficiency is corrected. Each CCR must include the following:

1. The nature of the particular significant deficiency and the date the deficiency was identified by the department; and

2. For each significant deficiency, the department-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed. If directed by the department, a system with one or more significant deficiencies that have been corrected before the next CCR must inform its customers of the deficiencies, how the deficiencies were corrected, and the date(s) of correction.

(2) Any GW system that receives notice from the department or laboratory of a fecal indicator-positive GW source sample that is not invalidated under 567—paragraph 41.7(3)*"d"* must inform its customers of such a sample in the next CCR. The system must continue to inform the public annually until the department determines that the fecal contamination in the GW source is addressed under 567—paragraph 41.7(4)*"a."* Each CCR must include the following:

1. The fecal contamination source (if known) and the dates of the fecal indicator-positive GW source samples;

2. Whether the fecal contamination in the GW source has been addressed under 567—paragraph 41.7(4)*"a"* and the date of such action;

3. For each fecal contamination in the GW source that has not been addressed under 567—paragraph 41.7(4)*"a,"* the department-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed; and

4. The potential health effects, using the "Fecal coliform or *E. coli*" or "Fecal Indicators (enterococci or coliphage)" health effects language in Appendix A to 40 CFR Part 141, Subpart O.

f. Pursuant to 567—subrule 41.2(1), any system required to conduct a Level 1 or Level 2 assessment that is not due to an *E. coli* MCL violation must include in the CCR the statements below in 40.7(9)*"f"*(1) through 40.7(9)*"f"*(3), as appropriate, filling in the blanks accordingly and including the appropriate statements in 40.7(9)*"f"*(4).

(1) "Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that the potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in

water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments."

(2) "During the past year, we were required to conduct [insert number of required Level 1 assessments] Level 1 assessment(s). [Insert number of completed Level 1 assessments] Level 1 assessment(s) were completed. In addition, we were required to take [insert number of required corrective actions] corrective actions, and we completed [insert number of completed corrective actions] of these actions."

(3) "During the past year, [insert number of required Level 2 assessments] Level 2 assessments were required to be completed for our water system. [Insert number of completed Level 2 assessments] Level 2 assessment(s) were completed. In addition, we were required to take [insert number of required corrective actions] corrective actions, and we completed [insert number of completed corrective action*s*] of these actions."

(4) Any system that has failed to complete all the required assessments or correct all identified sanitary defects is in violation of the TT requirement and must also include one or both of the following statements in its CCR, as appropriate:

1. "During the past year, we failed to conduct all of the required assessment(s)."

2. "During the past year, we failed to correct all identified defects that were found during the assessment."

g. Pursuant to 567—subrule 41.2(1), any system required to conduct a Level 2 assessment due to an *E. coli* MCL violation must include the statements in 40.7(9)*"g"*(1) and 40.7(9)*"g"*(2) in its CCR as appropriate, filling in the blanks accordingly and including the appropriate text in 40.7(9)*"g"*(3).

(1) "*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health

risk for infants, young children, the elderly, and people with severely compromised immune systems. We found *E. coli* bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments."

(2) "We were required to complete a Level 2 assessment because we found *E. coli* bacteria in our water system. In addition, we were required to take [insert number of required corrective actions] corrective actions, and we completed [insert number of completed corrective actions] of these actions."

(3) Any system that has failed to complete the required assessment or correct all identified sanitary defects is in violation of the TT requirement and must also include one or both of the following statements in its CCR, as appropriate:

1. "We failed to conduct the required assessment."

2. "We failed to correct all sanitary defects that were identified during the assessment that we conducted."

h. Pursuant to 567—subrule 41.2(1), if a system detects *E. coli* and has violated the *E. coli* MCL, in addition to completing the CCR table(s) as required in 40.7(4), the system must include in its CCR one or more of the following statements to describe any noncompliance, as applicable:

(1) "We had an *E. coli*-positive repeat sample following a total coliform-positive routine sample."

(2) "We had a total coliform-positive repeat sample following an *E. coli*-positive routine sample."

(3) "We failed to take all required repeat samples following an *E. coli*-positive routine sample."

(4) "We failed to test for *E. coli* when any repeat sample tested positive for total coliform."

i. Pursuant to 567—subrule 41.2(1), if a system detects *E. coli* and has not violated the *E. coli* MCL, in addition to completing the CCR table(s) as required in 40.7(4), the system may include in its CCR a statement that explains that although the system has detected *E. coli*, the system is not in violation of the *E. coli* MCL.

40.7(10) *CCR delivery.*

a. Required CCR recipients. Each CWS must mail or otherwise directly deliver one copy of the CCR to each customer.

(1) Systems must make a good-faith effort to reach consumers who do not get water bills, using department-recommended means. An adequate good-faith effort will be tailored to the consumers who are served by the system but are not bill-paying customers. A good-faith effort would include a mix of methods appropriate to the particular system. Reports could be:

1. Posted on the internet;
2. Mailed to postal patrons in metropolitan areas;
3. Advertised in the news media;
4. Published in a local newspaper;
5. Posted in public places;
6. Delivered for distribution by single-billed customers such as apartment buildings or large private employers;
7. Delivered to community organizations.

(2) No later than the date the system is required to distribute the CCR to its customers, each CWS must provide the CCR to the department, followed within three months by a certification that the CCR has been distributed to customers and that it is correct and consistent with the previously submitted compliance monitoring data.

(3) No later than the date the system is required to distribute the CCR to its customers, each CWS must deliver the report to any other agency or clearinghouse identified by the

department, such as the Iowa department of health and human services or county board of health.

b. CCR availability. Each CWS must make its CCR available to the public upon request. Each CWS serving 100,000 or more persons must post its current year's CCR to a publicly accessible website.

c. CCR mailing requirement waiver for systems serving 10,000 or fewer in population. All CWSs serving fewer than 10,000 persons will qualify for a mailing waiver, except for those systems that have one or more exceedances of a MCL, TT, AL, or HA; an administrative order; a court order; significant noncompliance with monitoring or reporting requirements; or an extended compliance schedule in an operation permit. Even if a PWS qualifies for a mailing waiver, 40.7(10)*"a"* and *"b"* still apply to all CWSs. A mailing waiver is not allowed for the CCR covering the year during which one of the previously listed exceptions occurred. Systems qualifying for a mailing waiver must:

(1) Publish their CCR in one or more local newspapers serving the area where the system is located;

(2) Inform customers that their CCR will not be mailed, either in the newspapers in which the CCR is published or by other department-approved means; and

(3) Make their CCR available to the public upon request.

d. CCR mailing requirements waiver for systems serving 500 or fewer in population. All CWSs serving 500 or fewer persons will qualify for a mailing waiver, except for those systems that have one or more exceedances of an MCL, TT, AL, or HA; an administrative order; a court order; significant noncompliance with monitoring or reporting requirements; or an extended compliance schedule in an operation permit. Systems serving 500 or fewer persons that qualify for the waiver may forego the requirements of 40.7(10)*"c"*(1) and 40.7(10)*"c"*(2) if they provide notice at least once per year to their customers that the CCR is available upon

request, by mail, door-to-door delivery, or by posting in conspicuous places within the service area acceptable to the department. A mailing waiver is not allowed for the CCR covering the year during which one of the previously listed exceptions occurred. Even if a PWS serving 500 or fewer persons qualifies for a mailing waiver, 40.7(10)*"a"*(2), 40.7(10)*"a"*(3) and 40.7(10)*"b"* still apply.

567—40.8(455B) Reporting.

40.8(1) *Reporting requirements other than for lead and copper.*

a. When required by the department, a PWS shall report to the department within ten days following a test, measurement, or analysis required by this chapter and 567—Chapters 41 and 43, the results of that test, measurement, or analysis in the form and manner prescribed by the department. This shall include reporting of all positive detects within the same specific analytical method.

b. Except where a different reporting period is specified in this rule or 567—Chapters 41 and 43, a PWS shall report to the department within 48 hours after any failure to comply with the monitoring requirements in 567—Chapters 41 and 43. The PWS shall also notify the department within 48 hours of failure to comply with any primary drinking water regulations.

c. The PWS, within ten days of completion of each initial and repeat PNs required in 567—40.5(455B), shall submit to the department a certification that it has fully complied with the PN rules. The certification must include a representative copy of each type of notice distributed, published, posted, or made available to the persons served by the system or to the media.

d. Additional reporting requirements for the GW rule are listed in 567—paragraph 41.7(6)*"a."*

e. Additional reporting requirements for the coliform rule are listed in 567—paragraph 41.2(1)*"n."*

40.8(2) *Lead and copper reporting requirements.* All PWSs shall report all of the following to the department.

a. Reporting for tap water monitoring and water quality parameter (WQP) monitoring.

(1) Except as provided below in 40.8(2)*"a"*(1)"6," a system shall report the information specified below for all tap water samples specified in 567—paragraph 41.4(1)*"c"* and all WQP samples specified in 567—paragraph 41.4(1)*"d"* within the first ten days following the end of each applicable monitoring period specified in 567—41.4(455B). For monitoring periods with a duration of less than six months, the end of the monitoring period is the last date samples can be collected during that period.

1. The results of all tap samples for lead and copper, including the location of each site and the site selection criteria;

2. Documentation for each tap water lead or copper sample for which the system requests invalidation pursuant to 567—paragraph 41.4(1)*"c"*(6)"2";

3. The 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period (calculated in accordance with 567—subparagraph 41.4(1)*"b"*(3));

4. With the exception of initial tap sampling conducted pursuant to 567—paragraph 41.4(1)*"c"*(4)"1," the system shall designate any site that was not sampled during previous monitoring periods and include an explanation of why sampling sites have changed;

5. For samples collected under 567—subparagraphs 41.4(1)*"d"*(2) through 41.4(1)*"d"*(5), tap sample results for pH; where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica; and SEP sample results for applicable WQPs; and

6. The results of all WQP samples collected under 567—subparagraphs 41.4(1)*"d"*(3) through 41.4(1)*"d"*(6) during each six-month monitoring period in 567—subparagraph

41.4(1)*"d"*(4) within the first ten days following the end of the monitoring period unless the department has specified a more frequent reporting requirement.

(2) Certain systems that do not have enough taps that can provide first-draw samples and that have met the six-hour stand time criteria, such as an NTNC with 24-hour operation or a CWS meeting the criteria of 40.6(2)*"d"*(2), must either:

1. If the department has not approved the non-first-draw sample sites, provide written documentation to the department identifying stand times and locations for enough non-first-draw samples to make up its sampling pool under 567—paragraph 41.4(1)*"c"*(2)"5" by July 1, 2003; or

2. If the department has already approved the non-first-draw sample sites, identify each site that did not meet the six-hour minimum stand time and the length of stand time for that particular substitute sample (collected pursuant to 567—paragraph 41.4(1)*"c"*(2)"5.") Certain systems already include this information in writing with the lead and copper tap sample results required by 567—paragraph 41.4(1)*"d"*(1)"1."

(3) At a time specified by the department or, if no specific time is specified, then as early as possible prior to the addition of a new source or any long-term change in water treatment, a system subject to this subparagraph shall send written documentation to the department describing the addition or change. The department must review and approve the addition or change before it is implemented by the system.

1. Systems subject to this subparagraph are those that have optimized corrosion control under 567—subparagraph 43.7(1)*"b"*(3), are subject to reduced monitoring pursuant to 567—paragraph 41.4(1)*"c"*(4)"4," or are subject to a monitoring waiver pursuant to 567—subparagraph 41.4(1)*"c"*(7).

2. Examples of long-term treatment changes include the addition of a new treatment process or modification of an existing process. Long-term changes can include dose changes

to existing chemicals but do not include chemical dose fluctuations associated with daily water quality changes.

3. Examples of modifications include the switching of secondary disinfectants, coagulants, or corrosion inhibitor products. In those instances where prior department approval of a new source addition or long-term treatment change is not required, systems are encouraged to provide notification to the department beforehand to minimize the risk that the new source addition or treatment change will adversely affect optimal corrosion control (OCC).

(4) Any small system applying for or subject to a monitoring waiver under 567—subparagraph 41.4(1)*"c"*(7) shall provide the following information to the department in writing by the specified deadline:

1. By the start of the first applicable monitoring period in 567—subparagraph 41.4(1)*"c"*(4), any small system applying for a monitoring waiver shall provide documentation demonstrating that it meets the waiver criteria of 567—paragraphs 41.4(1)*"c"*(7)"1" and "2."

2. No later than nine years after the monitoring previously conducted pursuant to 567—paragraph 41.4(1)*"c"*(7)"2" or 41.4(1)*"c"*(7)"4," first bulleted paragraph, each small system desiring to maintain its monitoring waiver shall provide the information required by 567—paragraph 41.4(1)*"c"*(7)"4," first and second bulleted paragraphs.

3. No later than 60 days after the system becomes aware that it is no longer free of lead- or copper-containing materials, as appropriate, each small system with a monitoring waiver shall provide written notification, setting forth the circumstances resulting in the lead- or copper-containing materials being introduced into the system and what corrective action, if any, the system plans to remove these materials.

(5) Each GW system that limits WQP monitoring to a subset of entry points under 567—paragraph 41.4(1)*"d"*(3)"3" shall provide, by the commencement of such monitoring, written

correspondence to the department that identifies the selected entry points and includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

b. Source water monitoring reporting.

(1) Systems shall report the sampling results for all source water samples collected within the first ten days following the end of each source water monitoring period in accordance with 567—paragraph 41.4(1)*"e."*

(2) With the exception of the first round of source water sampling conducted pursuant to 567—subparagraph 41.4(1)*"e"*(2), the system shall specify any site that was not sampled during previous monitoring periods and include an explanation of why the sampling point has changed.

c. Corrosion control treatment (CCT) reporting. By the applicable dates in 567—subrule 43.7(1), systems shall report the following:

(1) For systems demonstrating that they have already optimized corrosion control, information required in 567—subparagraph 43.7(1)*"b"*(2) or 43.7(1)*"b"*(3).

(2) For systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment (OCCT) under 567—paragraph 43.7(2)*"a."*

(3) For systems required to evaluate the effectiveness of CCTs under 567—paragraph 43.7(2)*"c,"* the information required by that paragraph.

(4) For systems required to install OCC designated by the department under 567—paragraph 43.7(2)*"d,"* a letter certifying that the system has completed installing that treatment.

d. Source water treatment reporting. By the applicable dates in 567—paragraph 43.7(3)*"a"*, systems shall provide the following to the department:

(1) If required under 567—subparagraph 43.7(3)*"b"*(1), their recommendation regarding source water treatment; and

(2) For systems required to install source water treatment under 567—subparagraph 43.7(3)*"b"*(1), a letter certifying that the system has completed installing the designated treatment within 24 months of the department designation.

e. Lead service line replacement (LSLR) reporting. Systems shall report the following to the department to demonstrate compliance with 567—subrule 43.7(4):

(1) No later than 12 months after the end of a monitoring period in which a system exceeds the lead AL when sampling pursuant to 567—paragraph 43.7(4)*"a,"* the system must submit written documentation of the material evaluation pursuant to 567—subparagraph 41.4(1)*"c"*(1), identify the initial number of lead service lines (LSLs) in its distribution system at the time it exceeds the lead AL, and provide its schedule for replacing annually at least 7 percent of the initial number of LSLs in its distribution system.

(2) No later than 12 months after the end of a monitoring period in which a system exceeds the lead AL when sampling pursuant to 567—paragraph 43.7(4)*"a,"* and every 12 months thereafter, the system shall demonstrate in writing that it has either:

1. Replaced in the previous 12 months at least 7 percent of the initial LSLs (or a greater number of lines specified by the department under 567—paragraph 43.7(4)*"e"* in its distribution system), or

2. Conducted sampling that demonstrates that the lead concentration in all service line samples from individual line(s), taken pursuant to 567—paragraph 41.4(1)*"c"*(2)"3," is less than or equal to 0.015 mg/L. In such cases, the total number of lines replaced plus those lines meeting the criteria in 567—paragraph 43.7(4)*"c"* shall either equal at least 7 percent of the initial number of lead lines identified under 40.8(2)*"e"*(1) above or equal the percentage specified by the department under 567—paragraph 43.7(4)*"e."* An LSL meeting the criteria

of 567—paragraph 43.7(4)*"c"* may only be used to comply with the 7-percent criteria for a specific year and may not be used again to calculate compliance with the 7-percent criteria in future years.

(3) The annual letter submitted under 40.8(2)*"e"*(2) above shall contain the following:

1. The number of LSLs scheduled to be replaced during the previous year of the system's replacement schedule;

2. The number and location of each LSL replaced during the previous year of the system's replacement schedule; and

3. If measured, the water lead concentration and location of each LSL sampled, the sampling method, and the sampling date.

(4) Any system that collects LSL samples following partial LSL replacement required by 567—subrule 43.7(4) shall report the results within the first ten days of the month following the month in which the system receives the laboratory results or as specified by the department. Systems shall also submit any additional requested information in a time and manner prescribed by the department to verify that all partial LSL replacement activities have taken place.

f. PE program reporting.

(1) Any system subject to the PE requirements in 40.6(2) shall, within ten days after the end of each period in which the system is required to perform PE, send written documentation to the department containing:

1. A demonstration that the system has delivered the PE materials that meet the content and delivery requirements in 40.6(2); and

2. A list of all the newspapers, radio stations, television stations, facilities, and organizations to which the system delivered PE materials during the PE period.

(2) Unless required by the department, a system that previously submitted the information required by 40.8(2)*"f"*(1)"2" need not resubmit the same information, provided there have been no changes in the distribution list and the system certifies that the PE materials were distributed to the same list previously submitted. This certification is due within ten days after the end of each period in which the system is required to perform PE.

(3) No later than three months following the end of the monitoring period, each system must mail a sample copy of the consumer notice of tap results to the department along with a certification that the notice has been distributed in a manner consistent with 40.6(1).

g. Additional monitoring data reporting. A system that collects sampling data in addition to that required by 567—Chapters 41 and 43 shall report the results to the department within the first ten days following the end of the applicable monitoring period under 567—paragraphs 41.4(1)*"c," "d,"* and *"e"* during which the samples are collected.

40.8(3) *PWS operation and maintenance.*

a. Required operation records.

(1) Monthly operation records (MORs) shall be completed by all PWSs on forms provided by the department or on similar forms unless a PWS meets all of the following conditions:

1. Supplies an annual average of not more than 25,000 gpd or serves no more than an average of 250 individuals daily;

2. Is a CWS and does not provide any type of treatment, or is a NCWS (NTNC or TNC) that has only a cation-exchange softening or iron/manganese removal treatment unit, and meets the requirements of 40.8(3)*"a"*(4)"7";

3. Does not utilize either a SW or an IGW, either in whole or in part, as a water source;

4. Does not use a TT such as blending to achieve compliance with an MCL, TT, AL, or HA.

(2) MORs shall be completed as described in 40.8(3)*"a"*(4), submitted to the department within ten days after the end of each month the system serves water to the public, and maintained at the facility for department inspection for a period of five years. For CWSs and NTNCs, the MOR must be signed by the certified operator in charge. For TNCs, the MOR, if required by the department, must be signed by the owner or the owner's designee.

(3) In addition to the requirements of this paragraph, all PWSs using a SW or IGW source must also comply with the applicable recordkeeping requirements in 567—Chapter 43.

(4) MORs shall be completed as follows. Daily monitoring is seven days a week unless otherwise specified by the department.

1. Pumpage or flow. NCWS shall measure and record the total water used each week. Daily measurement and recording is recommended. CWS shall measure and record the total water used each day. Pumpage or flow reporting may be required in an operation permit where needed to verify MCL compliance.

2. General treatment effectiveness. Where treatment is practiced, the intended effect of the treatment shall be measured and recorded at locations and by methods which best indicate effectiveness of the treatment process, at a frequency specified in Appendix A of this chapter.

3. Primary standard treatment effectiveness. Where the raw water quality does not meet the requirements of 567—Chapters 41 and 43 and treatment is practiced to comply with an MCL, AL, TT, or HA, the primary standard constituent or an appropriate department-designated indicator constituent shall be measured and recorded daily. Reporting of these results will be required in the operation permit to verify MCL compliance.

4. Secondary standard treatment effectiveness. Where treatment is practiced to achieve the recommended level of any constituent designated in the federal secondary standards, measurements shall be conducted and recorded at a frequency specified in Appendix A of this chapter.

5. Chemical application. Chemicals, such as fluoride, iodine, bromine, and chlorine, that are potentially toxic in excessive concentration shall be measured and recorded daily. Recording shall include the amount of chemical applied each day. Where the PWS is attempting to maintain a residual of the chemical throughout the system, the residual in the system shall be measured and recorded daily. The quantity of all other chemicals applied shall be measured and recorded at least once each week.

6. Static and pumping water levels must be measured and recorded once per month for all GW sources. More or less frequent measurements may be approved by the department where historical data justifies it.

7. NCWS are exempt from the self-monitoring requirements for cation-exchange softening and iron/manganese removal if the treatment unit:

- Is a commercially available "off-the-shelf" unit designed for home use;
- Is self-contained, requiring only a piping connection for installation;
- Operates throughout a range of 35 to 80 psi; and
- Has not been installed to remove a contaminant that has an MCL, TT, AL, or HA.

b. Chemical quality and application. Any chemical added to raw, partially treated, or finished water must be suitable for the intended use in a potable water system. The chemical must be certified by an ANSI-accredited third party for conformance with the ANSI/NSF Standard 60, if such certification exists for the particular product, unless certified chemicals are not reasonably available for use, in accordance with department guidelines. If the chemical is not certified for conformance with the ANSI/NSF Standard 60 or no certification is available, the person seeking to supply or use the chemical must prove to the department's satisfaction that the chemical is not toxic or otherwise a potential hazard in a potable PWS. PWSs shall keep a record of all chemicals used. This record should include a clear identification of the chemical by brand or generic name and the dosage rate. When chemical

treatment is applied with the intent of obtaining an in-system residual, the residuals will be monitored regularly. When chemical treatment is applied and in-system residuals are not expected, the treatment effectiveness will be monitored through an appropriate indicative parameter.

(1) Continuous disinfection.

1. When required. Continuous disinfection must be provided at all PWSs, except for GW supplies that either have no treatment facilities or have only fluoride, sodium hydroxide, or soda ash addition; meet the bacterial standards in 567—subrule 41.2(1); and do not show other actual or potential hazardous contamination by microorganisms. For an NCWS that only uses a cation-exchange softening unit meeting the requirements of 40.8(3)*"a"*(4)"7", this requirement is based on both the system's history of coliform bacteria detection and its compliance with the coliform bacteria monitoring requirements in 567—subrule 41.2(1).

2. Method. Chlorine is the preferred disinfecting agent. Chlorination may be accomplished with liquid chlorine, calcium or sodium hypochlorites, or chlorine dioxide. Other disinfecting agents will be considered, provided a residual can be maintained in the distribution system, reliable application equipment is available, and residual testing procedures are recognized in the Standard Methods.

3. Chlorine residual. A minimum free available chlorine residual of 0.3 mg/L or a minimum total available chlorine residual of 1.5 mg/L must be continuously maintained throughout the distribution system, except for those points in the distribution system that terminate as dead ends or areas that represent very low use when compared to usage throughout the rest of the distribution system, as determined by the department. All systems using water to which chlorine has been added must monitor daily in the distribution system to ensure the minimum disinfectant residual concentration is met, including both wholesale systems and consecutive systems.

4. Measurement. Chlorine may be measured by a test kit or an online analyzer meeting the specifications in 40.8(3)*"b"*(1)"5" and "6."

5. Test kit. A test kit capable of measuring free and combined chlorine residuals in increments no greater than 0.1 mg/L in the range below 0.5 mg/L, in increments no greater than 0.2 mg/L in the range from 0.5 mg/L to 1.0 mg/L, and in increments no greater than 0.3 mg/L in the range from 1.0 mg/L to 2.0 mg/L must be provided at all chlorination facilities. The test kit must use an analysis method recognized in the Standard Methods.

6. Online analyzer. Free and total chlorine may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument provided the chemistry, accuracy, and precision remain the same. Continuous monitoring instruments must be verified with a grab sample measurement at least every seven days. The analyzer concentration must be within plus or minus 0.1 mg/L or plus or minus 15 percent (whichever is larger) of the grab sample measurement. If the verification is not within this range, immediate actions must be taken to resolve the issue and another verification must be conducted.

7. Leak detection, control, and operator protection. A bottle of at least 56 percent ammonium hydroxide must be provided at all gas chlorination installations for leak detection. Leak repair kits must be available where ton chlorine cylinders are used.

8. Other disinfectant residuals. If an alternative disinfecting agent is approved by the department, the residual levels and test kit type will be assigned by the department in accordance with and based upon the analytical methods in the Standard Methods.

(2) Phosphate compounds.

1. When phosphate compounds are added to any PWS that uses iron or manganese removal or ion-exchange softening, the compounds must be applied after the iron or manganese removal or ion-exchange softening treatment units unless the department has approved an

engineering report demonstrating the suitability for addition prior to these units in accordance with 567—subrule 43.3(2). The department may require the discontinuance of phosphate addition where it interferes with other treatment processes or system operation or if there is a significant increase in microorganism populations associated with phosphate application.

2. The total phosphate concentration in finished water must not exceed 10 mg/L as PO_4.

3. Chlorine shall be applied to the phosphate solution in sufficient quantity to give an initial concentration of 10 mg/L in the phosphate solution. A chlorine residual must be maintained in the phosphate solution at all times.

4. Test kits capable of measuring polyphosphate and orthophosphate in a range from 0.0 to 10.0 mg/L in increments no greater than 0.1 mg/L must be provided.

5. Continuous application or injection of phosphate compounds directly into a well is prohibited.

(3) Fluorosilicic acid. Where fluorosilicic acid (H_2SiF_6, also called hydrofluosilicic acid) is added to a PWS, a fluoride test kit with a minimum range of from 0.0 to 2.0 mg/L in increments no greater than 0.1 mg/L must be provided. Distilled water and standard fluoride solutions of 0.2 mg/L and 1.0 mg/L must be provided.

c. Reporting and recordkeeping requirements for systems using surface water (SW) and groundwater under the direct influence of surface water (IGW). In addition to the monitoring requirements in 40.8(3)*"a"* and *"b"* above, a PWS that uses a SW or IGW source must report monthly to the department the information specified in this subrule when filtration is installed.

(1) Turbidity measurements required by 567—subrule 43.5(3) must be reported within ten days after the end of each month the system serves water to the public. The following information must be reported.

1. The total number of filtered water turbidity measurements taken during the month.

2. The number and percentage of filtered water turbidity measurements taken during the month that are less than or equal to the turbidity limits in 567—paragraphs 43.5(3)*"b"* through *"e"* for the filtration technology being used.

3. The date and value of any turbidity measurements taken during the month which exceed 1 NTU. If at any time the turbidity exceeds 1 NTU, the system must inform the department as soon as possible, but no later than 24 hours after the exceedance is known, in accordance with the PN requirements in 40.5(2). This is in addition to the monthly reporting requirement, pursuant to 567—43.5(455B).

(2) The disinfection information in 567—subrule 43.5(2) and 40.8(3)*"b"* above must be reported within ten days after the end of each month the system serves water to the public. The following information must be reported.

1. For each day, the lowest measurement of residual disinfectant concentration in mg/L in water entering the distribution system.

2. The date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine (TRC) and when the department was notified of the occurrence. If at any time the residual falls below 0.3 mg/L free residual chlorine or 1.5 mg/L TRC in the water entering the distribution system, the system must notify the department as soon as possible but no later than by the end of the next business day. The system also must notify the department by the end of the next business day whether or not the residual was restored to at least 0.3 mg/L free residual chlorine or 1.5 mg/L TRC within four hours. This is in addition to the monthly reporting requirement in 567—43.5(455B).

3. The information on the samples taken in the distribution system in conjunction with the total coliform monitoring in 567—paragraph 43.5(2)*"d"* and pursuant to 567—subparagraph 41.2(1)*"c"*(7).

(3) The total inactivation ratio must be calculated each day the treatment plant is in operation, pursuant to 567—paragraph 43.5(2)*"a,"* and reported on the MOR. If the total inactivation ratio is below 1.0, the system must notify the department within 24 hours.

d. Reporting and recordkeeping requirements for DPBs, disinfectants, and DBP precursors.

(1) General.

1. In addition to the monitoring requirements in 40.8(3)*"a"* and *"b"* above, a CWS or NTNC that adds a chemical disinfectant to the water in any part of the treatment process or that provides water containing a chemical disinfectant must report monthly to the department the information specified in the tables in this paragraph by the dates in 567—subparagraphs 41.6(1)*"a"*(2) and 43.6(1)*"a"*(3). A TNC that adds chlorine dioxide as a disinfectant or oxidant must report monthly to the department the information specified in this paragraph in accordance with 567—paragraph 43.6(1)*"a"*(3)"3."

2. Systems required to sample quarterly or more frequently must report to the department within ten days after the end of each quarter in which samples were collected, notwithstanding the PN provisions of 567—40.5(455B). Systems required to sample less frequently than quarterly must report to the department within ten days after the end of each monitoring period in which samples were collected.

(2) DBPs.

DBPs Reporting Table

If you are a system monitoring for ...	**You must report the following ...**
TTHMs and HAA5 under 567—subparagraph 41.6(1)*"c"*(4) on a quarterly or more frequent basis	1. Number of samples taken during the last quarter. 2. Location, date, and result of each sample taken during the last quarter. 3. Arithmetic average of all samples taken in the last quarter. 4. Annual arithmetic average of the quarterly arithmetic averages for the last four quarters.* 5. Whether the MCL was exceeded. 6. Under Stage 2, any OELs that were exceeded during the quarter, including the location and date and the calculated TTHM and HAA5 levels.
TTHMs and HAA5 under 567—subparagraph 41.6(1)*"c"*(4) less frequently than quarterly, but at least annually	1. Number of samples taken during the last year. 2. Location, date, and result of each sample taken during the last monitoring period. 3. Arithmetic average of all samples taken over the last year.* 4. Whether the MCL was exceeded.

TTHMs and HAA5 under 567—subparagraph 41.6(1)*"c"*(4) less frequently than annually	1. Location, date, and result of the last sample taken. 2. Whether the MCL was exceeded.
Chlorite under 567—subparagraph 41.6(1)*"c"*(3)	1. Number of samples taken each month for the last three months. 2. Location, date, and result of each sample taken during the last quarter. 3. For each month in the reporting period, arithmetic average of all samples taken in each three sample sets taken in the month. 4. Whether the MCL was exceeded and in which month it was exceeded.
Bromate under 567—subparagraph 41.6(1)*"c"*(2)	1. Number of samples taken during the last quarter. 2. Location, date, and result of each sample taken during the last quarter. 3. Arithmetic average of the monthly arithmetic averages of all samples taken in the last year. 4. Whether the MCL was exceeded.

The calculation of the RAA will transition from a systemwide RAA calculation under Stage 1 to an LRAA under Stage 2. The transition will commence according to the system schedule listed in 567—paragraph 41.6(1)"b."* Beginning at the end of the fourth calendar quarter that follows the compliance date, and at the end of each subsequent quarter, the system must report the arithmetic average of quarterly results for the last four quarters of each monitoring location. If the calculated LRAA based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters, the system must report this information to the department no later than the due date of the next compliance report.

(3) Disinfectants. The reporting in the following table is in addition to the requirements in 567—subparagraph 41.2(1)*"c"*(7).

Disinfectants Reporting Table

If you are a system monitoring for ...	**You must report the following ...**
Chlorine or chloramines under 567—paragraph 43.6(1)*"c"*(2)	1. Number of samples taken during each month of the last quarter. 2. Monthly arithmetic average of all samples taken in each month for the last 12 months. 3. Arithmetic average of all monthly averages for the last 12 months. 4. Whether the MRDL was exceeded.
Chlorine dioxide under 567—paragraph 43.6(1)*"c"*(3)	1. Dates, results, and locations of samples taken during the last quarter. 2. Whether the MRDL was exceeded. 3. Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acute or nonacute.

(4) DBP precursors and enhanced coagulation or enhanced softening.

DBP Precursors and Enhanced Coagulation or Enhanced Softening Reporting Table

If you are a ...	You must report the following ...
System monitoring TOC monthly or quarterly under 567—subparagraph 43.6(2)*"b"*(1) and required to meet the enhanced coagulation or enhanced softening requirements in 567—subparagraph 43.6(3)*"b"*(2) or 43.6(3)*"b"*(3)	1. Number of paired (source water and treated water, prior to continuous disinfection) samples taken during the last quarter. 2. Location, date, and result of each paired sample and associated alkalinity taken during the last quarter. 3. For each month in the reporting period that paired samples were taken, arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal. 4. Calculations for determining compliance with TOC percent removal requirements in 567—subparagraph 43.6(3)*"c"*(1). 5. Whether the system is in compliance with enhanced coagulation or enhanced softening percent removal requirements in 567—paragraph 43.6(3)*"b"* for the last four quarters.
System monitoring TOC monthly or quarterly under 567—subparagraph 43.6(2)*"b"*(1) and meeting one or more of the alternative compliance criteria in 567—subparagraph 43.6(3)*"a"*(2) or 43.6(3)*"a"*(3)	1. Alternative compliance criterion that the system is using. 2. Number of paired samples taken during the last quarter. 3. Location, date, and result of each paired sample and associated alkalinity taken during the last quarter. 4. RAA based on monthly averages (or quarterly samples) of source water TOC for systems meeting a criterion in 567—paragraph 43.6(3)*"a"*(2)"1" or "3" or of treated water TOC for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"2." 5. RAA based on monthly averages (or quarterly samples) of source water SUVA for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"5" or of treated water SUVA for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"6." 6. RAA of source water alkalinity for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"3" and of treated water alkalinity for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(3)"1." 7. RAA for both TTHM and HAA5 for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"3" or "4." 8. RAA for the amount of magnesium hardness removal (as $CaCO_3$, in mg/L) for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(3)"2." 9. Whether the system is in compliance with the particular alternative compliance criterion in 567—subparagraph 43.6(3)*"a"*(2) or 43.6(3)*"a"*(3).
SW/IGW system on reduced monitoring for TTHM/HAA5 under 567—paragraph 41.6(3)*"d"*	For each treatment plant that treats surface or IGW source water, report the following: 1. Number of source water TOC samples taken each month during the last quarter. 2. Date and result of each sample taken during the last quarter. 3. Quarterly average of monthly samples taken during the last quarter or the quarterly sample result. 4. RAA of quarterly averages from the past four quarters. 5. Whether the TOC RAA exceeded 4.0 mg/L.

567—40.9(455B) Record maintenance. Any PWS owner or operator shall retain the applicable records specified in this rule on its premises or at a convenient location near its premises.

40.9(1) *Analytical records.*

a. Basic information. Actual laboratory reports shall be kept, or data may be transferred to tabular summaries, provided that the following information is included:

(1) Sampling date, place, and time and the name of the person who collected the sample;

(2) Sample identification, indicating whether it was a routine distribution system sample, check sample, raw or process water sample, or other special purpose sample;

(3) Analysis date;

(4) Laboratory and person responsible for performing analysis;

(5) Analytical technique or method used; and

(6) Analysis results.

b. Record retention for specific analytes.

(1) Microbiological and turbidity. Records of microbiological and turbidity analyses made pursuant to 567—Chapters 41 and 43 shall be kept for not less than five years.

(2) Radionuclides, inorganic compounds, and organic compounds. Records of chemical analyses made pursuant to 567—Chapter 41 shall be kept for not less than ten years. Additional lead and copper requirements are listed in 40.9(2).

40.9(2) *Lead and copper.* A system subject to 40.8(2) shall retain original records of all data and analyses, reports, surveys, PE, letters, evaluations, and schedules and any other information required by 567—41.4(455B) and 567—Chapter 43. These records shall be kept for not less than 12 years.

40.9(3) *Records of action.* Records of action taken by a system to correct violations of primary drinking water regulations (including administrative orders) shall be kept for not less than five years after the last action taken with respect to the particular violation involved.

40.9(4) *Sanitary surveys.* Copies of any written reports, summaries, or communications relating to any sanitary surveys of a system shall be kept for not less than ten years after survey completion.

40.9(5) *Operation or construction permits.* Records concerning an operation or a construction permit issued pursuant to 567—Chapter 43 shall be kept for a period ending not

less than ten years after a system achieves compliance with an MCL, TT, AL, or HA or after a system completes the associated construction project.

40.9(6) *PN.* Records of PNs, including the CCR, PN examples, and PN certifications, shall be kept for not less than five years.

40.9(7) *Self-monitoring.* MORs must be completed as described in 40.8(3)*"a"*(4). MORs and all data generated at the facility to comply with the self-monitoring requirements must be maintained at the facility for department inspection for not less than five years. The data shall be in a form that allows easy retrieval and interpretation. Examples of data that must be retained include but are not limited to recorder charts, logbooks, bench sheets, SCADA records, and electronic files.

40.9(8) *Monitoring plans.* Copies of monitoring plans developed pursuant to this chapter and 567—Chapters 41 and 43 shall be kept for the same period of time as the records of analyses taken under the plans are required to be kept unless otherwise specified.

40.9(9) *GW rule.* Additional recordkeeping requirements for the GW rule are listed in 567—paragraph 41.7(6)*"b."*

40.9(10) *Level 1 and 2 assessment forms and corrective action.* The recordkeeping requirements in this subrule pertain to the coliform bacteria sampling requirements in 567—subrule 41.2(1).

a. Systems must maintain any assessment form, regardless of who conducts the assessment, and documentation of corrective actions completed as a result of an assessment or other available summary documentation of the sanitary defects and corrective actions taken under 567—paragraph 41.2(1)*"m."* These records shall be maintained at the facility for department inspection for not less than five years after completion of the assessment or corrective action.

b. Systems must maintain a record of any repeat sample taken that meets department criteria for an extension of the 24-hour period for collecting repeat samples in accordance with 567—paragraph 41.2(1)*"j."*

These rules are intended to implement Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192.

APPENDIX A:

MINIMUM SELF-MONITORING REQUIREMENTS (SMRs)

I. Minimum SMRs for TNCs (excluding SW or IGW PWSs).

(1) The SMRs only apply to those systems meeting the monthly operation report (MOR) criteria in 40.8(3)*"a"*(1), 40.8(3)*"a"*(2), and 40.8(3)*"a"*(3).

(2) TNCs are exempt from the SMRs for point-of-use (POU) treatment devices unless the device is used to remove a contaminant that has an MCL, TT, or HA, in which case additional SMRs will be assigned by the department.

(3) Daily monitoring for TNCs applies only when the facility is in operation.

(4) Additional or more frequent monitoring requirements may be assigned by the department in the operation permit.

(5) Additional SMRs are required if treatment is used to remove a regulated contaminant or a contaminant that has an MCL, TT, or HA. See Section II for the SMRs for specific treatment types.

All TNCs* that meet the MOR criteria in 40.8(3)*"a"*(1), 40.8(3)*"a"*(2), and 40.8(3)*"a"*(3) must measure the following parameters, as applicable.

Parameter	Sample Site	Frequency
GENERAL REQUIREMENTS		
Pumpage (Flow)	raw:	1/week
	finished:	1/week
Disinfectant Residual***	finished:	1/day
	distribution system**:	1/day
Disinfectant, quantity used	day tank/scale:	1/day
Static Water and Pumping Water Levels (Drawdown)****	each active well:	1/month

ION EXCHANGE OR REVERSE OSMOSIS FOR NITRATE REMOVAL		
Nitrate	finished:	1/day
UV LIGHT		
Lamp Status (On/Off)	each lamp:	1/day

*TNCs must measure and record the total water used each week, but daily measurements are recommended, and may be required by the department for specific PWSs.

**Conduct this monitoring at representative points in the distribution system that adequately demonstrate compliance with 40.8(3)*"b"*(1).

***The department may reduce the required sample site locations for a system with a minimal distribution system and only hydropneumatic tank storage.

****More or less frequent measurements may be approved by the department where justified by historical data.

II. Minimum SMRs for CWS, NTNC, and SW/IGW TNC.

(1) The SMRs only apply to those systems meeting the MOR criteria in 40.8(3)*"a"*(1), 40.8(3)*"a"*(2), and 40.8(3)*"a"*(3).

(2) NTNCs are exempt from the SMRs for POU treatment devices unless the device is used to remove a contaminant that has an MCL, TT, AL, or HA; in which case, additional SMRs will be assigned by the department.

(3) Daily monitoring for NTNCs applies only when the facility is in operation.

(4) These are the minimum SMRs. Additional or more frequent monitoring requirements may be assigned in an operation permit.

A. General Requirements. All PWSs meeting the MOR criteria in 40.8(3)*"a"*(1), 40.8(3)*"a"*(2), and 40.8(3)*"a"*(3) must measure the following parameters, as applicable. TNCs that provide treatment other than a cation exchange softening unit or iron/manganese removal treatment unit must meet the requirements in the CWS column.

Parameter	**PWS Type:**	**NTNC* & SW/IGW TNC**	**CWS**
	Sample Site	**Frequency**	
Pumpage (Flow)	raw:	1/week	1/day
	finished:	1/week	1/day
Consecutive systems (flow)	all master meters:	1/day	
Static Water and Pumping Water Levels (Drawdown)**	each active well:	1/month	

*NTNCs must measure and record the total water used each week, but daily measurements are recommended, and may be required by the department for specific PWSs.

**If requested by the system, the department may allow an alternate frequency for systems with pressure tanks or controls that operate the well to ensure constant pump discharge pressure.

B. Chemical Addition. All PWSs that apply chemicals in the treatment process must monitor the following parameters for the applicable processes.

Parameter	Pumpage or Flow:	<0.1 MGD	0.1-0.5 MGD	>0.5 MGD
	Sample Site	Frequency		
DISINFECTION				
Disinfectant Residual**	finished:	1/day		
	distribution system*:	1/day		
Calculated MRDL (monthly average)	distribution system:	1/month		
Calculated MRDL (RAA)	distribution system:	1/calendar quarter		
Disinfectant, quantity used	day tank/scale:	1/day		
FLUORIDATION				
Fluoride	raw:	1/quarter	1/month	
	finished:	1/day		
Fluoride, quantity used	day tank/scale:	1/day		
pH ADJUSTMENT				
pH	finished:	1/week	2/week	1/day
Caustic Soda, quantity used	day tank/scale:	1/week		
PHOSPHATE ADDITION				
Phosphate, as PO_4	finished:	1/week	2/week	1/day
Phosphate, quantity used	day tank/scale:	1/week		
AMMONIA ADDITION				
Chemical, quantity used	day tank/scale:	1/day		
Total residual chlorine (TRC)	finished:	1/day		
	distribution system:	1/day		
Monochloramine	finished:	1/day		
	distribution system:	1/day		
Free ammonia	finished:	1/day		
	distribution system:	1/day		
OTHER CHEMICALS				
Chemical	finished:	1/week	2/week	1/day
Chemical, quantity used	day tank/scale:	1/week		

Conduct this monitoring at representative points in the distribution system that adequately demonstrate compliance with 40.8(3)"b"*(1).

**The department may reduce the required sample sites for a system with a minimal distribution system; only hydropneumatic tank storage; or, if it is a CWS, if it serves fewer than 100 persons.

C. Iron or Manganese Removal. All CWS, NTNC, and publicly owned TNC systems with iron or manganese removal equipment must monitor for the following parameters. This monitoring is not required if the removal equipment is purchased "off the shelf," is self-contained (requiring only a piping connection for installation), and operates throughout a

range of 35 to 80 psi. Any chemicals applied during the treatment process must be measured under section II.B of this appendix. Systems with manganese removal must conduct the manganese monitoring. If a system utilizes the treatment only for iron removal, manganese self-monitoring is not required.

Parameter	Pumpage or Flow:	<0.1 MGD	0.1-0.5 MGD	>0.5 MGD
	Sample Site	Frequency		
Iron	raw:	1/quarter	1/month	
	finished:	1/week	2/week	1/day
Manganese*	raw:	1/quarter	1/month	
	finished:	1/day		
IRON/MANGANESE REMOVAL EQUIPMENT INSTALLED FOR ARSENIC REMOVAL				
Iron	raw:	1/month		
	finished:	1/day		

*A system may be allowed to conduct manganese self-monitoring 1/week if it meets all of the following criteria: an average annual pumpage of less than 0.1 MGD, raw water manganese less than 0.3 mg/L, and agrees to conduct quarterly PN.

D. Lime Softening of GW (Excluding IGW) and pH Adjustment for Iron and Manganese Removal, by precipitation and coagulation processes utilizing lime, soda ash, or other chemical additions. Testing is only required if a specific chemical is added.

Parameter	Pumpage or Flow:	<0.1 MGD	0.1-0.5 MGD	>0.5 MGD
	Sample Site	Frequency		
Alkalinity	raw:	1/quarter	1/month	
	finished:	1/day		
Hardness as $CaCO_3$	raw:	1/quarter	1/month	
	finished:	1/day		
Iron	raw:	1/quarter	1/month	
	finished:	1/week	2/week	1/day
Manganese	raw:	1/quarter	1/month	
	finished:	1/day		
pH	raw:	1/week		
	finished:	1/day		
Temperature	raw:	1/week		

E. Cation Exchange (Zeolite) Softening. All CWS, NTNC, and publicly owned TNC systems with ion exchange softening equipment must monitor for the following parameters. This monitoring is not required if the ion exchange softening equipment is purchased “off the shelf,” is self-contained (needing only a piping connection for installation), and operates throughout a range of 35 to 80 psi. Any chemicals applied during the treatment process must

be measured under section II.B of this appendix. An annual sodium sample of the finished water is required by 567—paragraph 41.9(1)*"f"* for all CWSs that use cation exchange softening, and the sodium monitoring in the following table will meet that requirement.

Parameter	Pumpage or Flow:	<0.1 MGD	0.1-0.5 MGD	>0.5 MGD
	Sample Site	Frequency		
Hardness as $CaCO_3$	raw:	1/quarter	1/month	
	finished:	1/week	2/week	1/day
pH	finished:	1/week	2/week	1/day
Sodium	finished:	1/year		
Bypass, in flow or percent bypassed	bypass:	1/day		
ION EXCHANGE FOR RADIONUCLIDE REMOVAL				
Hardness as $CaCO_3$	raw:	1/month		
	finished:	1/day		

F. Filtration and Disinfection Requirements for SWs or IGWs.

Parameter	Pumpage or Flow:	All
	Sample Site	Frequency
CT Ratio*	finished:	1/day
Calculated V Value	distribution system:	1/month
Calculated MRDL (monthly average)	distribution system:	1/month
Calculated MRDL (RAA)	distribution system:	1/calendar quarter
Disinfectant Residual**	finished:	continuous
	distribution system**:	1/day
Disinfectant, quantity used	day tank/scale:	1/day
pH	finished:	1/day
Temperature	raw:	1/day
	finished:	1/day
Turbidity	IFE:	At least every 15 minutes
	raw and CFE:	567—subrules 43.5(3) and 43.5(4), 567—43.9(455B), and 567—43.10(455B) contain specific requirements; continuous turbidity monitoring may be substituted for grab sample monitoring if the continuous process is validated using a department-approved turbidity protocol.
Turbidity, 95th percentile calculation	CFE:	Monthly, per 567—paragraph 43.5(3)*"b"*
Continuous turbidity monitoring instrument***	Each turbidimeter:	Each turbidimeter must be verified with a grab sample measurement at least once per week.

Determine the total inactivation ratio ($CT_{calc}/CT_{required}$) before the first customer during peak hourly flow each day the treatment plant is in operation; 567—paragraph 43.5(2)"a"* contains more information.

**Conduct this monitoring to demonstrate compliance with 40.8(3)*"b,"* 567—subrules 43.5(2) and 43.5(4), and 567—43.6(455B).

***The calibration of each turbidimeter used for compliance must be verified to demonstrate IFE compliance with 567—paragraphs 43.9(4)*"a"* and 43.10(5)*"a"* and CFE compliance with 567—subparagraph 43.5(4)*"b"*(1) and 43.9(3) and 43.10(4).

G. Clarification or Lime Softening of SW or IGW.

Parameter	Pumpage or Flow:	All
	Sample Site	**Frequency**
Alkalinity	raw:	1/day
	raw:	SW/IGW systems; 1/month at same time raw TOC sample is collected
	finished:	1/day
Carbon dioxide (CO_2), quantity used	tank/scale/feeder:	1/week
Caustic Soda, quantity used	day tank/scale:	1/week
CT Ratio*	finished:	1/day
Disinfectant Residual**	finished:	continuous
	distribution system**:	1/day
Disinfectant, quantity used	day tank/scale:	1/day
Continuous disinfectant monitoring instrument	location of instrument:	The calibration of instruments used for continuous disinfectant monitoring must be verified with a grab sample measurement at least every 7 days
Hardness as $CaCO_3$	raw:	1/day
	finished:	1/day
Lime, quantity used	day tank/scale/feeder:	1/week
pH	raw:	1/day
	finished:	1/day
Temperature	raw:	1/day
	finished:	1/day
TOC	raw:	1/month at same time the CFE sample is taken
	CFE:	1/month at same time the raw sample is taken
	Source water alkalinity:	1/month at same time the raw sample is taken
Turbidity	raw and CFE:	567—subrules 43.5(3) and 43.5(4), 567—43.9(455B), and 567—43.10(455B) contain specific requirements
	IFE:	At least every 15 minutes

Determine the total inactivation ratio ($CT_{calc}/CT_{required}$) before the first customer during peak hourly flow each day the treatment plant is in operation; 567—paragraph 43.5(2)"a"* contains more information.

**Conduct this monitoring to demonstrate compliance with 40.8(3)*"b,"*567—subrules 43.5(2) and 43.5(4), and 567—43.6(455B). Systems serving 3,300 or fewer persons may take grab samples in lieu of providing continuous monitoring at the frequencies in 567—subparagraph 43.5(4)*"b"*(2).

H. Reverse Osmosis, Nanofiltration, or Electrodialysis.

Parameter	Pumpage or Flow:	<0.1 MGD	>0.1 MGD
	Sample Site	**Frequency**	
Alkalinity	raw:	1/quarter	1/month
	finished:	1/day	
Antiscalant, quantity used	day tank/scale:	1/week	
Bypass flow or percent bypassed	bypass:	1/day	
Cleaning chemical, quantity used	day tank/scale:	1/week	

Hardness as $CaCO_3$	raw:	1/quarter	1/month
	finished:	1/day	
Iron	raw:	1/day	
Manganese	raw:	1/day	
pH	raw:	1/week	
	finished:	1/day	
Total Dissolved Solids	raw:	1/month	

I. Anion Exchange (i.e., Nitrate Reduction).

Parameter	**Pumpage or Flow:**	**<0.1 MGD**	**>0.1 MGD**
	Sample Site	**Frequency**	
Bypass flow or percent bypassed	bypass:	1/day	
Nitrate	raw:	1/day	
	finished:	1/day	
Source water	Document which sources were in use during each month and when well or source rotation occurs		
Sulfate*	raw:	1/week	
	finished:	1/week	

*If required by the department.

J. Activated Carbon or Air-Stripping for TTHM, VOC, or SOC Removal (GAC or PAC).

Parameter	**Pumpage or Flow:**	**<0.1 MGD**	**>0.1 MGD**
	Sample Site	**Frequency**	
TOC	finished:	1/quarter	1/month

K. Lead and Copper: Corrosion Control and WQPs. The specific SMRs for corrosion control and WQPs are listed in 567—paragraph 41.4(1)*"d"* and 567—subrules 43.7(1) and 43.7(2).

L. Hydrous Manganese Oxide (HMO) Filtration and Manganese Co-precipitation for Radium Removal.

Parameter	**Pumpage or Flow:**	**All**
	Sample Site	**Frequency**
Chemical additive, quantity used	day tank/scale:	1/day
Manganese	raw:	1/month
	finished:	1/day
Pumpage or Flow	raw:	1/day
Bypass flow, percent bypass, or blend	bypass/blend:	1/day

M. Acrylamide and Epichlorohydrin Addition.

Parameter	**Pumpage or Flow:**	**All**
	Sample Site	**Frequency**
Chemical additive, third-party or manufacturer's certification*	Combination of dose and monomer level:	Annually

Levels must not exceed values specified in 567—subparagraph 41.5(1)"b"*(3).

N. Source Blending for Contaminant Control. Specific SMRs for source water blending to achieve compliance with an MCL, TT, AL, or HA will be specified in an operation permit on a case-by-case basis, in accordance with 40.8(3)*"a"*(4).

O. 4-log Treatment of Viruses for GW Systems. Operation permits will include operational requirements for the approved 4-log virus treatment in accordance with 567—paragraph 41.7(4)*"b."* All GW systems that provide at least 4-log virus treatment must measure the following parameters, where applicable.

Parameter	Population Served:	25 - 3,300	>3,300
	Sample Site	Frequency	
Chemical disinfectant*	finished:	1/day**	continuously
Contact tank level	level:	1/day	
Peak flow rate	flow meter:	continuously	
pH	finished:	1/day	
Temperature***	finished:	1/day	

Monitor residual disinfectant concentration using the analytical methods in 567—subparagraph 43.5(4)"a"*(5) at a department-approved location. Record the concentration each day that water is served to the public.

**GW systems must collect a daily grab sample during the hour of peak flow or at another department-specified time.

***Daily temperature monitoring is assigned initially for one year so that the lowest temperature can be determined and assigned for subsequent compliance monitoring.

P. Biological Treatment Process for Ammonia Removal. Operation permits may include additional mandatory operational requirements for the treatment process.

Parameter	Pumpage or Flow:	All
	Sample Site	Frequency
Ammonia, as N**	finished*:	1/week
	distribution system*:	1/week
Dissolved oxygen (DO)	contactor inlet:	1/day
	contactor outlet:	1/day
Nitrite, as N**	finished*:	1/day
	distribution system*:	1/day

*One sample from the finished water must be collected monthly, split for analysis, and analyzed by a certified laboratory and the system.

**The department may reduce the required sampling frequency once nitrification is achieved in the biological filter or contactor and the system is consistently using free available chlorine for disinfection.

Q. Membrane Filtration (including micro and ultra filtration).

Parameter	Pumpage or Flow:	All
	Sample Site	Frequency
Antiscalant, quantity used	day tank/scale:	1/week
Cleaning chemical, quantity used	day tank/scale:	1/week
Direct integrity test (DIT)*	each membrane unit:	1/day*
Indirect integrity test**	each membrane unit:	continuous**
Log removal value (LRV)*	each membrane unit:	1/day*
Upper control limit***	each membrane unit:	If the DIT result exceeds the control limit, the system must remove the membrane from service
Continuous turbidity monitoring equipment****		Each turbidimeter used for compliance must be verified with a grab sample measurement at least once per week

*Conduct DITs on each membrane unit at a frequency of not less than once each day that the membrane unit is in operation and to verify repairs.

**Unless the department approves an alternative parameter, continuous indirect integrity monitoring must include continuous filtrate turbidity monitoring conducted at a frequency of no less than once every 15 minutes on each membrane unit.

***Systems must establish a control limit within the DIT sensitivity limits in order to demonstrate compliance with 567—paragraphs 43.11(12)*"b"*(3)"4" and "5."

****The calibration of each turbidimeter used for compliance must be verified to demonstrate compliance with 567—paragraphs 43.9(4)*"a"* and 43.10(5)*"a."*

R. CWS and NTNC Systems Using Ozone Treatment. CWS and NTNC systems that use ozone in their treatment process must comply with the bromide requirements of subrule 567—43.6(2).

Parameter	Pumpage or Flow:	All
	Sample Site	Frequency
Bromate	finished:	1/month*

*The department may allow systems required to analyze for bromate to reduce bromate monitoring from monthly to once per quarter if a system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based on representative monthly measurements for one year. Systems must continue bromide monitoring to remain on reduced bromate monitoring.

S. Ultraviolet Light (UV). All CWS and NTNC systems must comply with these requirements.

Parameter	Pumpage or Flow:	All
	Sample Site	Frequency
Alarm during off-specification conditions	each reactor:	1/5 minutes
UV intensity	each lamp:	1/day
UVT	each lamp:	1/day

Ratio of minimum UV dose calculated and recorded every 4 hours to the required UV dose, OR calculate and record the log inactivation every four hours	each reactor:	1/day
Lamp status	each lamp:	1/4 hours**
Individual UV reactor flow	each reactor:	1/4 hours
	max UV flow:	daily
	total UV flow:	daily total
Total volume of off-specification water	each reactor:	1/day
	all reactors:	monthly total
Percent of off-specification water produced	all reactors:	monthly total
Perform UVT analyzer check protocol	-	1/week
Perform UV sensor verification*	each sensor:	1/month

*Reference sensor(s) must be calibrated at least once per year at a qualified facility against a traceable standard. Calibration records must be maintained for inspection during sanitary surveys. If the reference sensor is found to be out of calibration, the calibration frequency should be increased.

**Systems serving fewer than 500 persons may record lamp status 1/day.

T. Chlorine Dioxide. All CWS, NTNC and TNC systems must comply with these requirements. In the event of an acute or nonacute violation, systems must also comply with 567—paragraph 43.6(1)*"e."*

Parameter	**Pumpage or Flow:**	**All**
	Sample Site	**Frequency**
Chlorine dioxide	finished:	1/day
Chlorite	finished:	1/day

U. Copper Ion Generator.

Parameter	**Pumpage or Flow:**	**All**
	Sample Site	**Frequency**
Copper residual	finished:	1/week
	injection stream:	1/week

ITEM 2. Rescind and reserve **567—Chapter 42**.

Iowa Department of Natural Resources
Environmental Protection Commission

Decision Item

6. Chapter 41, Water Supplies – Final Rule

The Commission is requested to approve the Adopted and Filed rule to rescind and replace Chapter 41. This is the result of Water Quality Bureau's Executive Order 10 rule review.

Basic Intent of Rule: Chapter 41 is rescinded and readopted. Chapter 41 establishes certain Safe Drinking Water Act (SDWA) requirements. The SDWA regulations adopted include but are not limited to the establishment of coverage, regulated contaminant requirements, and the federal groundwater rule. Establishing coverage is essential for obtaining and maintaining primacy to enforce the SDWA, and requires that the rules in Chapters 40 through 44 and 83 apply to public water supply systems unless a set of conditions are met. This chapter was reviewed and edited consistent with Executive Order 10.

NOIA: The Notice of Intended Action (NOIA) was approved by the Commission at its November 11, 2024 meeting. The NOIA was published in the Iowa Administrative Bulletin on January 8, 2025 as ARC 8631C. Two public hearings were held on January 30, 2025 and January 31, 2025**.**

Changes from NOIA: Four people attended the first public hearing, and four attended the second hearing. No public comments were received at the hearings. Two email comments and one comment letter were received during the public comment period. This final rule is substantially identical to the NOIA. Minor typos and errors were corrected in the final rule. In response to the comments, typos were corrected and a minor language modification was made.

Effective Date of Final Rule: August 13, 2025

Lori McDaniel, Water Quality Bureau Chief
Environmental Services Division
Meeting Date: June 17, 2025

Attached: Chapter 41 – Final rule

ENVIRONMENTAL PROTECTION COMMISSION[567]

Adopted and Filed

The Environmental Protection Commission (Commission) hereby rescinds Chapter 41, "Water Supplies," Iowa Administrative Code, and to adopt a new chapter with the same title.

Legal Authority for Rulemaking

This rulemaking is adopted the authority provided in Iowa Code sections 455B.103(2), 455B.105(3) and 455B.173.

State or Federal Law Implemented

This rulemaking implements, in whole or in part, Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192 and the federal Safe Drinking Water Act (SDWA) as amended (42 U.S.C. §300f et seq.).

Purpose and Summary

Chapter 41 establishes certain SDWA requirements. Specifically, it establishes programs and processes for administration of these rules in Iowa. The SDWA regulations established include but are not limited to the establishment of coverage, regulated contaminant requirements (including but not limited to biological contaminants, inorganic contaminants, lead and copper, organic contaminants, disinfection byproducts, and radionuclides), and the federal groundwater rule. Establishing coverage is essential for obtaining and maintaining primacy to enforce the SDWA, and requires that the rules in 567—Chapters 40 through 44 and 83 apply to public water supply systems unless a set of conditions are met. This chapter was reviewed and edited consistent with Executive Order 10.

Public Comment and Changes to Rulemaking

Notice of Intended Action for this rulemaking was published in the Iowa Administrative Bulletin on January 8, 2025, as **ARC 8631C**. A public hearing was held on the following dates(s):

- January 30, 2025
- January 31, 2025

Four people attended the first public hearing, and four attended the second hearing. No public comments were received at the hearings. Two email comments and one comment letter were received during the public comment period.

This rulemaking is substantially identical to the Notice; however, some changes from the Notice have been made. In the final rule, erroneous rule references were corrected and a phrase associated with an old date that was mistakenly kept in the NOIA version was struck. In addition, missing method citations were added to the Radionuclide Analytical methodology table in the final rule, as methods were mistakenly omitted in the NOIA. In response to the comments, typos were corrected in the final rule, and the language regarding the measurement of residual disinfectant concentrations was modified by the addition of a new clarifying sentence and the reinsertion of old language that was mistakenly struck in the NOIA.

Adoption of Rulemaking

This rulemaking was adopted by the Commission on June 17, 2025.

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.

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).

Effective Date

This rulemaking will become effective on August 13, 2025.

The following rulemaking action is adopted:

ITEM 1. Rescind 567—Chapter 41 and adopt the following **new** chapter in lieu thereof:

CHAPTER 41

WATER SUPPLIES

567—41.1(455B) Primary drinking water regulations—coverage. 567—Chapters 40 through 44 and 83 shall apply to each public water supply system (PWS) unless the PWS meets all of the following conditions:

1. Consists only of distribution and storage facilities (and does not have any collection and treatment facilities);

2. Obtains all of its water from, but is not owned or operated by, a PWS to which such regulations apply;

3. Does not sell water to any person; and

4. Is not a carrier which conveys passengers in interstate commerce.

567—41.2(455B) Biological maximum contaminant level (MCL), treatment technique (TT), and monitoring requirements.

41.2(1) *Coliform bacteria and Escherichia coli (E. coli).* The provisions of this subrule include both MCL and TT requirements and apply to all PWSs. Failure to comply with the applicable requirements in this subrule is a violation of the national primary drinking water regulations.

a. MCL. A PWS must determine compliance with the *E. coli* MCL for each month in which the system is required to monitor for total coliforms. A system is in compliance with the *E. coli* MCL for samples taken under this subrule unless any of the following conditions occur. For purposes of the public notification (PN) requirements in rule 567—40.5(455B), MCL violation may pose an acute health risk. A system is not in compliance if it:

(1) Has an *E. coli*-positive repeat sample following a total coliform-positive routine sample;

(2) Has a total coliform-positive repeat sample following an *E. coli*-positive routine sample;

(3) Fails to take all required repeat samples following an *E. coli*-positive routine sample; or

(4) Fails to test for *E. coli* when any repeat sample tests positive for total coliform.

b. Analytical methodology.

(1) Sample volume. The standard sample volume required for analysis is 100 mL, regardless of the analytical method used.

(2) Presence/absence (P/A) required. Only the P/A of total coliforms and *E. coli* must be determined in any compliance sample; a determination of density is acceptable but is not required.

(3) Holding time and temperature. The time from sample collection to initiation of test medium incubation shall not exceed 30 hours. Systems are encouraged but not required to hold samples below 10 degrees Celsius during transit.

(4) Dechlorinating agent required for chlorinated water. If water having a residual chlorine (measured as free, combined, or total chlorine) will be analyzed, sufficient sodium thiosulfate ($Na_2S_2O_3$) must be added to the sample bottle before sterilization to neutralize any residual chlorine in the water sample. Dechlorination procedures are addressed in Standard Methods (SM) Section 9060A.2, 20th and 21st editions.

(5) Systems must conduct total coliform and *E. coli* analyses in accordance with one of the analytical methods in the following table.

Bacteria Analytical Methods

Methodology Category	Method Name[1]	Method Citation[1]
Total Coliform Bacteria Methods:		
Lactose Fermentation	Standard Total Coliform Fermentation Technique	SM 9221 B.1, B.2 (20th, 21st, and 22nd ed.)[2, 3] SM Online 9221 B.1, B.2-99, B-06[2, 3]
	P/A Coliform Test	SM 9221 D.1, D.2 (20th and 21st ed.)[2, 7] SM Online 9221 D.1, D.2-99[2, 7]
Membrane Filtration	Standard Total Coliform Membrane Filter Procedure	SM 9222 B, C (20th and 21st ed.)[2, 4] SM Online 9222 B-97[2, 4], 9222 C-97[2, 4]
	Membrane Filtration using MI Medium	EPA Method 1604[2]
	m-ColiBlue24 Test[2, 4]	
	Chromocult[2, 4]	
Enzyme Substrate	Colilert	SM 9223 B (20th, 21st and 22nd ed.)[2, 5] SM Online 9223 B-97, B-04[2, 5]
	Colilert-18	SM 9223 B (21st and 22nd ed.)[2, 5] SM Online 9223 B-04[2, 5]
	Colisure	SM 9223 B (20th, 21st and 22nd ed.)[2, 5, 6] SM Online 9223 B-97, B-04[2, 5, 6]
	E*Colite Test[2]	
	Readycult Test[2]	
	modified Colitag Test[2]	
	Tecta EC/TC Test[2]	
***E. coli* Methods:**		
E. coli Procedures (following Lactose Fermentation Methods)	EC-MUG Medium	SM 9221 F.1 (20th, 21st and 22nd ed.)[2] SM Online 9221 F-06[2]
E. coli Partition	EC broth with MUG (EC-MUG)	SM 9222 G.1*c*(2) (20th and 21st ed.)[2, 8]
	NA-MUG Medium	SM 9222 G.1*c*(1) (20th and 21st ed.)[2]
Membrane Filtration	Membrane Filtration using MI Medium	EPA Method 1604[2]
	m-ColiBlue24 Test[2, 4]	
	Chromocult[2, 4]	
Enzyme Substrate	Colilert	SM 9223 B (20th, 21st and 22nd ed.)[2, 5] SM Online 9223 B-97, B-04[2, 5, 6]
	Colilert-18	SM 9223 B (21st and 22nd ed.)[2, 5] SM Online 9223 B-04[2, 5]
	Colisure	SM 9223 B (20th, 21st and 22nd ed.)[2, 5, 6] SM Online 9223 B-97, 04[2, 5, 6]
	E*Colite Test[2]	
	Readycult[2]	

	modified Colitag Test[2]	
	Tecta EC/TC Test[2]	

[1] Methods are listed in 41.2(1)*"b"*(6). For SM, either the 20th (1998) or 21st (2005) edition may be used. For SM Online, the year in which each method was approved is designated by the last two digits following the hyphen in the method number, and the methods listed are the only online versions that may be used. For vendor methods, the date in 41.2(1)*"b"*(6) is the date/version of the approved method, and the methods listed are the only versions that may be used. Laboratories should use only the approved versions of the methods, as product package inserts may not match the approved versions.

[2]Incorporated by reference. See 41.2(1)*"b"*(6).

[3]Lactose broth may be used in lieu of lauryl tryptose broth (LTB) if the system conducts at least 25 parallel tests between lactose broth and LTB using the water normally tested and if the findings from this comparison demonstrate that the false-positive rate and the false-negative rate for total coliforms, using lactose broth, is less than 10 percent.

[4]All filtration series must begin with membrane filtration equipment that has been sterilized by autoclaving. Exposure of filtration equipment to UV light is not adequate to ensure sterilization. Subsequent to the initial autoclaving, exposure of the filtration equipment to UV light may be used to sanitize the funnels between filtrations within a filtration series. Alternatively, membrane filtration equipment that is presterilized by the manufacturer may be used.

[5]Multiple-tube and multi-well enumerative formats for this method are approved for use in P/A determination under this subrule.

[6]Colisure results may be read after an incubation time of 24 hours.

[7]A multiple-tube enumerative format, as described in SM for the Examination of Water and Wastewater 9221, is approved for this method for use in P/A determination under this subrule.

[8]The following changes must be made to the EC broth with MUG (EC-MUG) formulation: Potassium dihydrogen phosphate, KH_2PO_4, must be 1.5 g, and 4-methylumbelliferyl-beta-D-glucuronide must be 0.05 g.

(6) Methods incorporated by reference. The methods in this subrule are incorporated by reference with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR Part 51. All approved material is available for inspection at www.regulations.gov, in hard copy at the EPA's Drinking Water Docket, (Docket ID EPA-HQ-OW-2008-0878), or from NARA.

1. APHA, SM 20th edition (1998):

- SM 9221, “Multiple-Tube Fermentation Technique for Members of the Coliform Group,” B.1, B.2, “Standard Total Coliform Fermentation Technique;” D.1, D.2, “Presence-Absence (P/A) Coliform Test;” and F.1, “*Escherichia coli* Procedure: EC-MUG Medium.”
- SM 9222, “Membrane Filter Technique for Members of the Coliform Group,” B, “Standard Total Coliform Membrane Filter Procedure,” C, “Delayed-Incubation Total Coliform Procedure,” G.1*c*(1), “*Escherichia coli* Partition Method: NA-MUG Medium,” and G.1*c*(2), “*Escherichia coli* Partition Method: EC Broth with MUG (EC-MUG).”
- SM 9223, “Enzyme Substrate Coliform Test,” B, “Enzyme Substrate Test,” Colilert and Colisure.

2. SM, 21st edition (2005):

- SM 9221, “Multiple-Tube Fermentation Technique for Members of the Coliform Group,” B.1, B.2, “Standard Total Coliform Fermentation Technique;” D.1, D.2, “Presence-Absence (P/A) Coliform Test,” and F.1, “*Escherichia coli* Procedure: EC-MUG Medium.”
- SM 9222, “Membrane Filter Technique for Members of the Coliform Group,” B, “Standard Total Coliform Membrane Filter Procedure;” C, “Delayed-Incubation Total Coliform Procedure;” G.1.*c*(1), “*Escherichia coli* Partition Method: NA-MUG Medium;” and G.1.*c*(2), “*Escherichia coli* Partition Method: EC Broth with MUG (EC-MUG).”
- SM 9223, “Enzyme Substrate Coliform Test,” B, “Enzyme Substrate Test,” Colilert and Colisure.

3. SM Online:

- SM 9221, “Multiple-Tube Fermentation Technique for Members of the Coliform Group” (1999), B.1, B.2-99, B-06, “Standard Total Coliform Fermentation Technique” and D.1, D.2-99, “Presence-Absence (P/A) Coliform Test.”

- SM 9222, "Membrane Filter Technique for Members of the Coliform Group" (1997), B-97, "Standard Total Coliform Membrane Filter Procedure" and C-97, "Delayed-Incubation Total Coliform Procedure."
- SM 9223, "Enzyme Substrate Coliform Test" (1997), B-97, "Enzyme Substrate Test," Colilert and Colisure.

4. Charm Sciences, Inc., 659 Andover Street, Lawrence, MA 01843-1032: E*Colite—"Charm E*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Drinking Water," January 9, 1998.

5. CPI International, Inc., 5580 Skylane Blvd., Santa Rosa, CA 95403: modified Colitag, ATP D05-0035—"Modified Colitag Test Method for the Simultaneous Detection of *E. coli* and other Total Coliforms in Water," August 28, 2009.

6. EMD Millipore (a division of Merck KGaA, Darmstadt, Germany), 290 Concord Road, Billerica, MA 01821:

- Chromocult—"Chromocult Coliform Agar Presence/Absence Membrane Filter Test Method for Detection and Identification of Coliform Bacteria and *Escherichia coli* for Finished Waters," November 2000, Version 1.0.
- Readycult—"Readycult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Finished Waters," January 2007, Version 1.1.

7. EPA's Water Resource Center (MC-4100T), EPA Method 1604, EPA 821-R-02-024—"EPA Method 1604: Total Coliforms and *Escherichia coli* in Water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium)," September 2002, www.nemi.gov.

8. Hach Company, www.hach.com: m-ColiBlue24—"Membrane Filtration Method m-ColiBlue24 Broth," Revision 2, August 17, 1999.

9. SM, 22nd edition (2012):

- SM 9221, "Multiple-Tube Fermentation Technique for Members of the Coliform Group," B.1, B.2, "Standard Total Coliform Fermentation Technique," and F.1, "*Escherichia coli* Procedure: EC-MUG Medium."
- SM 9223, "Enzyme Substrate Coliform Test," B, "Enzyme Substrate Test," Colilert and Colisure.

10. Veolia Water Solutions and Technologies, Suite 4697, Biosciences Complex, 116 Barrie Street, Kingston, Ontario, Canada K7L 3N6: Tecta EC/TC. "Presence/Absence Method for Simultaneous Detection of Total Coliforms and *Escherichia coli* in Drinking Water," April 2014.

(7) Laboratory certification. Systems must have all compliance samples required under this subrule analyzed by a laboratory certified in accordance with 567—Chapter 83. The laboratory used by the system must be certified for each method and associated contaminant used for compliance monitoring analyses under this subrule.

c. Sampling plan.

(1) Written sampling plan required. Systems must collect total coliform samples according to their written sampling plan.

1. Systems must develop a written sampling plan that identifies sample locations and a sample collection schedule that are representative of water throughout the distribution system. Major elements of the plan shall include, but not be limited to, the following:

- Map of the distribution system served by the system;
- List of routine compliance sample locations for each sample period;
- List of repeat compliance sample locations for each routine compliance sample location;
- Any other sample locations necessary to meet the requirements of this subrule;
- Sample collection schedule;

- Proper sampling technique instructions;
- Log of samples taken; and
- For GW systems subject to 567—41.7(455B), triggered source water monitoring plan.

2. The system shall review the sampling plan every two years, update it as needed, and retain it on file at the facility. The plan must be made available to the department upon request and for review during sanitary surveys and must be revised at the department's direction.

3. Monitoring under this subrule may take place at a customer's premises, dedicated sampling station, or other designated compliance sampling location.

(2) Sampling schedule. Systems must collect routine samples at regular time intervals throughout the month. Systems that use only GW and serve 4,900 or fewer people, or regional water systems that use only GW and serve less than 121 miles of pipe, may collect all required routine samples on a single day, if the samples are taken from different sites.

(3) Minimum number of routine samples. Systems must take at least the minimum number of required routine samples even if the system has had an *E. coli* MCL violation or has exceeded the coliform TT triggers in 41.2(1)*"i."* Such samples must be designated as "routine" when submitted to the laboratory.

(4) Additional sampling. A system may conduct more compliance monitoring than is required to uncover or investigate potential problems in the distribution system. A system may take more than the minimum number of required routine samples, and must include the additional routine sample results when calculating whether the coliform TT trigger in 41.2(1)*"i"*(1)"1" and "2" has been exceeded, only if the samples are taken in accordance with the existing sampling plan and are representative of water throughout the distribution system. Such samples must be designated as "routine" when submitted to the laboratory.

(5) Repeat samples. Systems must identify repeat monitoring locations in the sampling plan. Repeat samples must be analyzed at the same laboratory as the corresponding original

routine sample(s), unless written approval for use of a different laboratory is granted by the department. A system must collect at least one repeat sample at the following locations: from the sampling tap where the original routine total coliform-positive sample was taken, at a tap within five service connections upstream of the original sample location, and at a tap within five service connections downstream of the original sample location. Such samples must be designated as "repeat" when submitted to the laboratory.

1. If the sampling location of a total coliform-positive sample is at or within one service connection from the end of the distribution system, the system must still take all required repeat samples. However, the department may allow an alternative sampling location in lieu of one of the upstream or downstream sampling locations.

2. A GW system with two or more wells that is required to conduct triggered source water monitoring under 41.7(3) must collect GW source sample(s) in addition to the required repeat samples.

3. A GW system with a single well that is required to conduct triggered source water monitoring may, with written department approval, collect one of its required repeat samples at the triggered source water sample monitoring location. The system must demonstrate to the department's satisfaction that the sampling plan remains representative of water quality in the distribution system. If approved, the sample result may be used to meet the requirements of 41.7(3) and this subrule. If a repeat sample taken at the triggered source water monitoring location is *E. coli*-positive, the system has violated the *E. coli* MCL, and must also comply with the requirements for additional source water samples under 41.7(3)*"a"*(3).

4. The department may review, revise, and approve, as appropriate, repeat sampling proposed by a system under 41.2(1)*"c"*(5). The system must demonstrate that the sampling plan remains representative of the water quality in the distribution system.

(6) Special purpose samples. Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, must not be used to determine whether the coliform TT trigger has been exceeded. Such samples must be designated as "special" when submitted to the laboratory and cannot be used for compliance. Repeat samples are not considered special purpose samples and must be used to determine whether the coliform TT trigger has been exceeded.

(7) Residual disinfectant measurement. Any system adding a chemical disinfectant to the water must meet the requirements of 567—subparagraph 40.8(3)*"b"*(1). The minimum required residual disinfectant measurements are as follows, unless otherwise directed by the department in writing:

1. GW systems. A system that uses only GW and adds a chemical disinfectant, or provides water that contains a disinfectant, must measure and record the free and total chlorine residual disinfectant concentration at least at the same points in the distribution system and at the same time as routine and repeat total coliform bacteria samples are collected, as specified in 41.2(1)*"e"* through *"g."* The system shall report the total residual disinfectant concentration to the laboratory with the bacteria sample and comply with the reporting requirements in 567—subrule 40.8(3). If a system is chloraminating, it may measure and report only the total chlorine residual.

2. Surface water (SW) and influenced groundwater (IGW) systems.

- Any SW or IGW PWS must meet the requirements for minimum residual disinfectant entering the distribution system pursuant to 567—paragraph 43.5(4)*"b"*(2)"1"; and
- A system that uses SW or IGW must comply with the requirements in 567—subparagraph 43.5(4)*"b"*(2)"2" for daily distribution system residual disinfectant monitoring. The system must measure and record the free and total chlorine residual disinfectant concentration at least at the same points in the distribution system and at the same time as

routine and repeat total coliform bacteria samples are collected, as specified in 41.2(1)*"e"* through *"g."* The residual disinfectant measurements required in this subrule may be used to satisfy the requirement in 567—paragraph 43.5(4)*"b"*(2)"2" on the day(s) when a routine or repeat total coliform bacteria sample(s) is collected, in lieu of separate samples. The system shall report the residual disinfectant concentration to the laboratory with the bacteria sample and comply with the applicable reporting requirements of 567—subrule 40.8(3).

d. Invalidation of total coliform samples. A total coliform-positive sample invalidated under this paragraph does not count toward meeting the minimum monitoring requirements of this subrule.

(1) The department may invalidate a total coliform-positive sample only if the following conditions are met:

1. The laboratory establishes that improper sample analysis caused the total coliform-positive result.

2. The department, on the basis of the results of the required repeat samples, determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem. "Domestic or other non-distribution system plumbing problem" means a coliform contamination problem in a PWS with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken. The department cannot invalidate a total coliform-positive sample on the basis of repeat samples unless all repeat samples collected at the same tap as the original total coliform-positive sample are also total coliform-positive and all repeat samples collected at a location other than the original tap are total coliform-negative. The department cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative or if the system has only one service connection.

3. The department has substantial grounds to believe that the total coliform-positive result is due to a circumstance or condition that does not reflect water quality in the distribution system. The system must still collect all repeat samples required under 41.2(1)*"g"* and use them to determine whether a coliform TT trigger in 41.2(1)*"i"* has been exceeded.

The decision and supporting rationale for invalidating a total coliform-positive sample under this subparagraph must be in writing and signed by the supervisor of the water supply operations section or water supply engineering section and the department official who recommended the decision. The department must make this document available to EPA and the public. The documentation must state the specific cause of the total coliform-positive sample and what action the system has taken, or will take, to correct this problem. The department may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative or because of poor sampling technique.

(2) Laboratory invalidation. A laboratory must invalidate a total coliform sample (unless total coliforms are detected, in which case the sample is valid) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined, produces a turbid culture in the absence of an acid reaction in the P/A coliform test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter. If a laboratory invalidates a sample because of such interference, the system must collect another sample from the same location as that of the original within 24 hours of being notified of the interference and must have the sample analyzed for the presence of total coliforms. The system must continue to resample within 24 hours and have the samples analyzed until a valid result is obtained. The department may waive the 24-hour time limit on a case-by-case basis.

e. Routine monitoring for specific groundwater (GW) NCWS serving 1,000 or fewer people. This paragraph applies to NCWS using only GW (not IGW) as a source and serving

1,000 or fewer people. GW NCWS that serve schools, preschools, and child care facilities and all PWSs owned or managed by state agencies must monitor at the same frequency as a like-sized CWS, in accordance with 41.2(1)*"f"*(1), 41.2(1)*"f"*(2), or 41.2(1)*"f"*(3).

(1) General. Following any total coliform-positive sample taken under this paragraph, systems must comply with the repeat monitoring and *E. coli* analytical requirements in 41.2(1)*"g."* Once all monitoring required by this paragraph and 41.2(1)*"g"* for a calendar month has been completed, systems must determine whether any coliform TT triggers in 41.2(1)*"i"* have been exceeded. If any trigger has been exceeded, systems must complete the assessments required by 41.2(1)*"i."*

(2) Monitoring frequency for total coliforms. Systems must monitor each calendar quarter that they provide water to the public, with the following exceptions:

1. A system on quarterly monitoring that experiences any of the following events must begin monthly monitoring in the month following the event. A system must continue on monthly monitoring until it meets the requirements for returning to quarterly monitoring. The events include:

- An *E. coli* MCL violation;
- The triggering of one Level 2 assessment under 41.2(1)*"i"* in a rolling 12-month period.
- The triggering of two Level 1 assessments under 41.2(1)*"i"* in a rolling 12-month period.
- One coliform TT violation.
- Two coliform monitoring violations in a rolling 12-month period.
- One monitoring coliform violation and one Level 1 assessment under 41.2(1)*"i"* in a rolling 12-month period.

2. A system on monthly monitoring for reasons other than those identified above in 41.2(1)*"e"*(2)"1" is not considered to be on increased monitoring for the purposes of 41.2(1).

3. Seasonal systems must sample each month in which they are in operation. All seasonal systems must demonstrate completion of a department-approved start-up procedure before serving water to the public, which includes a requirement for a coliform-negative start-up sample.

(3) Sampling frequency evaluation during a sanitary survey. During each sanitary survey, the department must evaluate the status of a system, including the distribution system, to determine whether the system is on an appropriate monitoring schedule. The department may modify a system's monitoring schedule, as necessary, or may allow a system to stay on its existing monitoring schedule, consistent with this paragraph.

(4) Returning from monthly to quarterly sampling for nonseasonal NCWSs. The department may reduce the monitoring frequency for a nonseasonal NCWS on monthly monitoring triggered under 41.2(1)*"e"*(2)"1" to quarterly monitoring if the system meets the following criteria. For the purposes of this subparagraph, "protected water source" means either the well meets separation distances from sources of microbial contamination pursuant to 567—subrule 43.3(7), Table A; or the system has department-approved 4-log virus inactivation treatment in continuous usage.

1. The system must have a completed sanitary survey or voluntary Level 2 assessment within the previous 12 months, be free of sanitary defects, and have a protected water source;

2. The system must have a clean compliance history for at least the previous 12 months; and

3. The department must review the approved sampling plan, which must designate the monitoring time period(s) based on site-specific considerations (e.g., during periods of highest

demand or highest vulnerability to contamination). The system must collect compliance samples during these time periods.

(5) Additional routine monitoring for systems on quarterly sampling in the month following a total coliform-positive routine sample. Systems collecting samples on a quarterly frequency must conduct additional routine monitoring the month following one or more total coliform-positive samples (with or without a Level 1 TT trigger). Systems must collect at least three routine samples during the next month. Systems may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. Systems must use the results of additional routine samples in coliform TT trigger calculations under 41.2(1)*"i."*

f. Routine monitoring requirements for other systems.

(1) GW CWS serving 1,000 or fewer people. This subparagraph applies to CWS using only GW (not IGW) as a source and serving 1,000 or fewer people. The routine total coliforms monitoring frequency for such systems is one sample per month.

(2) SW/IGW PWS serving 1,000 or fewer people. This subparagraph applies to all PWSs serving 1,000 or fewer people that use SW/IGW sources, including consecutive systems.

1. The routine total coliforms monitoring frequency for such systems is one sample per month. Systems may not reduce monitoring frequency.

2. Seasonal systems must sample each month in which they are in operation, and the monitoring frequency cannot be reduced. All seasonal systems must demonstrate completion of a department-approved start-up procedure before serving water to the public, which includes a requirement for a coliform-negative start-up sample.

(3) PWSs serving more than 1,000 people. This subparagraph applies to all PWSs serving more than 1,000 people, except regional water systems. The regional water system requirements are in 41.2(1)*"f"*(4) below.

1. The routine total coliforms monitoring frequency for PWSs serving more than 1,000 people is based upon the population served by the system, as follows:

Population Served	Minimum Number of Routine Samples per Month	Population Served	Minimum Number of Routine Samples per Month
1,001 to 2,500	2	41,001 to 50,000	50
2,501 to 3,300	3	50,001 to 59,000	60
3,301 to 4,100	4	59,001 to 70,000	70
4,101 to 4,900	5	70,001 to 83,000	80
4,901 to 5,800	6	83,001 to 96,000	90
5,801 to 6,700	7	96,001 to 130,000	100
6,701 to 7,600	8	130,001 to 220,000	120
7,601 to 8,500	9	220,001 to 320,000	150
8,501 to 12,900	10	320,001 to 450,000	180
12,901 to 17,200	15	450,001 to 600,000	210
17,201 to 21,500	20	600,001 to 780,000	240
21,501 to 25,000	25	780,001 to 970,000	270
25,001 to 33,000	30	970,001 to 1,230,000	300
33,001 to 41,000	40		

2. Seasonal systems must sample each month in which they are in operation, and the monitoring frequency cannot be reduced. All seasonal systems must demonstrate completion of a department-approved start-up procedure before serving water to the public, which includes a requirement for a coliform-negative start-up sample.

3. CWSs may not reduce the number of required routine samples.

4. If the department, on the basis of a sanitary survey or monitoring results history, determines that some greater monitoring frequency is more appropriate, that frequency shall be the frequency required under these rules. The increased frequency shall be confirmed or changed on the basis of subsequent surveys.

(4) Regional PWSs. This subparagraph applies to all regional water systems. The supplier of water for a regional PWS shall sample for coliform bacteria at a frequency based upon the miles of pipe in its distribution system.

1. The routine total coliforms monitoring frequency for regional PWSs is based on the miles of pipe in a system's distribution system, as indicated in the following table. The sampling frequency for a regional water system shall not be less than as set forth in this

subparagraph, based upon the population equivalent served. The following table represents sampling frequency per miles of pipe in a distribution system and is determined by calculating one-half the square root of the miles of pipe.

Miles of Pipe	Minimum Number of Routine Samples per Month	Miles of Pipe	Minimum Number of Routine Samples per Month
0 – 9	1	1,850 – 2,025	22
10 – 25	2	2,026 – 2,209	23
26 – 49	3	2,210 – 2,401	24
50 – 81	4	2,402 – 2,601	25
82 – 121	5	2,602 – 2,809	26
122 – 169	6	2,810 – 3,025	27
170 – 225	7	3,026 – 3,249	28
226 – 289	8	3,250 – 3,481	29
290 – 361	9	3,482 – 3,721	30
362 – 441	10	3,722 – 3,969	31
442 – 529	11	3,970 – 4,225	32
530 – 625	12	4,226 – 4,489	33
626 – 729	13	4,490 – 4,671	34
730 – 841	14	4,672 – 5,041	35
842 – 961	15	5,042 – 5,329	36
962 – 1,089	16	5,330 – 5,625	37
1,090 – 1,225	17	5,626 – 5,929	38
1,226 – 1,364	18	5,930 – 6,241	39
1,365 – 1,521	19	6,242 – 6,561	40
1,522 – 1,681	20	6,562 and greater	41
1,682 – 1,849	21		

2. Regional PWSs may not reduce the number of required routine samples.

3. If the department, on the basis of a sanitary survey or monitoring results history, determines that some greater monitoring frequency for a regional PWS is more appropriate, that frequency shall be the frequency required under these rules. The increased frequency shall be confirmed or changed on the basis of subsequent surveys.

(5) Requirements for all systems subject to this paragraph. Following any total coliform-positive sample taken under this paragraph, systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in 41.2(1)*"g."* Once all monitoring required by this paragraph and 41.2(1)*"g"* for a calendar month has been completed, systems must

determine whether any coliform TT triggers in 41.2(1)*"i"* have been exceeded. If any trigger has been exceeded, systems must complete assessments pursuant to 41.2(1)*"i."*

g. Repeat monitoring. If a routine sample taken under 41.2(1)*"e"* and *"f"* is total coliform-positive, a system must collect a set of repeat samples. The department cannot waive this requirement.

(1) A system must:

1. Collect no fewer than three repeat samples for each total coliform-positive routine sample.

2. Collect repeat samples within 24 hours of receipt of the positive result. The department may extend the 24-hour limit on a case-by-case basis if the system has a logistical problem collecting the repeat samples within 24 hours that is beyond its control. In the case of an extension, the department must specify how much time a system has to collect the repeat samples.

3. Collect all repeat samples on the same day, except that the department may allow a system with a single service connection to collect the required set of repeat samples over a three-day period. "System with a single service connection" means a system that supplies drinking water to consumers through a single service line.

4. Collect an additional set of repeat samples as specified above in 41.2(1)*"g"*(1)"1" through 41.2(1)*"g"*(1)"3" if one or more repeat samples in the current set of repeat samples is total coliform-positive. A system must collect the additional set of repeat samples within 24 hours of receipt of a positive result, unless the department extends the time limit in 41.2(1)*"g"*(1)"2". A system must continue to collect additional sets of repeat samples until either total coliforms are not detected in one complete set of repeat samples or it determines that a coliform TT trigger in 41.2(1)*"i"* has been exceeded as a result of a total coliform-positive repeat sample and notifies the department. If a TT trigger is exceeded as a result of a

total coliform-positive routine sample, systems only need to conduct one round of repeat monitoring for each total coliform-positive routine sample.

(2) Results of all routine and repeat samples taken under 41.2(1)*"e"* through *"g"* that are not invalidated by the department must be used to determine whether a coliform TT trigger in 41.2(1)*"i"* has been exceeded.

h. E. coli testing requirements.

(1) If any routine or repeat sample is total coliform-positive, a system must analyze that total coliform-positive culture medium to determine the presence of *E. coli*. If *E. coli* are present, the system must notify the department by the end of the same day the system receives notification of the test result. If the notification is outside of the department's routine office hours, the system shall call the department's Environmental Emergency Reporting Hotline at 515.725.8694.

(2) The department has the discretion to allow a system, on a case-by-case basis, to forgo *E. coli* testing on a total coliform-positive sample if that system assumes that the total coliform-positive sample is *E. coli*-positive. Accordingly, the system must notify the department as specified above in 41.2(1)*"h"*(1), and the provisions of 41.2(1)*"a"* apply.

i. Coliform TT triggers. Systems must conduct assessments in accordance with 41.2(1)*"j"* after exceeding any TT trigger.

(1) Level 1 TT triggers.

1. For systems taking 40 or more samples per month, the system exceeds 5.0 percent total coliform-positive samples for the month.

2. For systems taking fewer than 40 samples per month, the system has two or more total coliform-positive samples in the same month.

3. The system fails to take every required repeat sample after any single total coliform-positive sample.

(2) Level 2 TT triggers.

1. An *E. coli* MCL violation, as specified in 41.2(1)*"m"*(1).

2. A second Level 1 trigger as defined above in 41.2(1)*"i"*(1) within a rolling 12-month period, unless the department has determined a likely reason that the samples that caused the first Level 1 TT trigger were total coliform-positive and has established that the system has corrected the problem.

j. Assessment requirements. Systems must ensure that Level 1 and 2 assessments are conducted to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. Level 1 assessments may be conducted by a system owner or operator. Level 2 assessments must be conducted by the department with the assistance of the system owner or operator.

(1) General. Systems must conduct assessments consistent with any department directives and ensure that the assessor evaluates minimum elements, including:

1. A review and identification of inadequacies in sample sites;

2. Sampling protocol and processing;

3. Atypical events that could affect or indicate an impairment in distributed water quality;

4. Changes in distribution system operation or maintenance that could affect distributed water quality (including water storage);

5. Source and treatment considerations that bear on distributed water quality, where appropriate (e.g., small GW systems); and

6. Existing water quality monitoring data.

(2) Level 1 assessment. A system must conduct a Level 1 assessment if it exceeds one of the TT triggers in 41.2(1)*"i"*(1).

1. A system must complete a Level 1 assessment as soon as practical after any trigger in 41.2(1)*"i"*(1). The assessment form must describe the sanitary defects detected and corrective

actions completed and include a proposed timetable for any other corrective action completion. It may also be noted on the assessment form that no sanitary defects were identified. A system must submit the completed Level 1 assessment form to the department within 30 days of learning that it has exceeded a trigger.

2. If the department reviews the completed Level 1 assessment and determines that it is not sufficient (including any proposed timetable for corrective action completion), the department must consult with the system. If the department requires revisions after consultation, the system must submit a revised assessment form to the department on an agreed-upon schedule, not to exceed 30 days.

3. Upon submission of an assessment form, the department must determine if the system has identified the likely cause for the Level 1 trigger and, if so, establish that the system has corrected the problem or has included an acceptable schedule to correct the problem.

(3) Level 2 assessment. A system must ensure that a Level 2 assessment is conducted if it exceeds one of the TT triggers in 41.2(1)*"i"*(2). A system must comply with any department-required expedited or additional actions in the case of an *E. coli* MCL violation.

1. A system must ensure that a Level 2 assessment is completed by the department as soon as practical after any trigger in 41.2(1)*"i"*(2). The assessment form must describe the sanitary defects detected and corrective actions completed and include a proposed timetable for any other corrective action completion. It may also be noted on the assessment form that no sanitary defects were identified. A system must submit a completed Level 2 assessment form to the department within 30 days of learning that the system has exceeded a trigger.

2. If the department reviews the completed Level 2 assessment and determines that it is not sufficient (including any proposed timetable for corrective action completion), the department must consult with the system. If the department requires revisions after

consultation, the system must submit a revised assessment form to the department on an agreed-upon schedule, not to exceed 30 days.

3. Upon submission of an assessment form, the department must determine if a system has identified the likely cause for the Level 2 trigger and determine whether the system has corrected the problem or has included an acceptable schedule to correct the problem.

(4) Corrective actions. A system must correct sanitary defects found through either a Level 1 or 2 assessment. Corrective action(s) that are not completed by a system prior to the submission of the assessment form must be completed in compliance with a timetable approved by the department in consultation with the system. Systems must notify the department when each scheduled corrective action is completed.

(5) Consultation. At any time during the assessment or corrective actions phase, either the system or the department may request a consultation with the other party to determine appropriate actions. A system may consult with the department on all relevant information that may impact its ability to comply with this subrule.

k. Reporting requirements.

(1) *E. coli.*

1. A system must notify the department by the end of the same day when it learns of an *E. coli*-positive violation or routine sample.

2. If a notification is outside of the department's routine office hours, the system shall call the department's Environmental Emergency Reporting Hotline at 515.725.8694.

(2) A system that has violated the coliform TT in 41.2(1)*"i"* must report the violation to the department no later than the end of the next business day after learning of the violation and must provide PN in accordance with rule 567—40.5(455B).

(3) A system required to conduct an assessment under the provisions of 41.2(1)*"i"* must submit an assessment form within 30 days. Systems must notify the department in accordance with 41.2(1)*"j"*(4) when each scheduled corrective action is completed.

(4) A system that has failed to comply with a coliform monitoring requirement must report the monitoring violation to the department within ten days of discovering the violation and must provide PN in accordance with rule 567—40.5(455B).

(5) A seasonal system must certify, prior to serving water to the public, that it has complied with the department-approved start-up procedure.

l. Recordkeeping requirements. Additional recordkeeping requirements are listed in 567—subrule 40.9(10).

m. Violations. A system is in violation and must conduct PN in accordance with rule 567—40.5(455B) in any of the following instances.

(1) *E. coli* MCL violation. A system is in violation of the MCL for *E. coli* when any of the following occurs:

1. An *E. coli*-positive repeat sample following a total coliform-positive routine sample;

2. A total coliform-positive repeat sample following an *E. coli*-positive routine sample;

3. Failure to take all required repeat samples following an *E. coli*-positive routine sample; or

4. Failure to test for *E. coli* when any repeat sample tests positive for total coliform.

(2) TT violation. A system is in violation of a TT trigger when any of the following occurs:

1. Exceedance of a TT trigger specified in 41.2(1)*"i"* and failure to conduct the required assessment within the time frame specified in 41.2(1)*"j"*;

2. Exceedance of a TT trigger specified in 41.2(1)*"i"* and failure to conduct the required corrective actions within the time frame specified in 41.2(1)*"j"*(4); or

3. A seasonal system failing to complete a department-approved start-up procedure prior to serving water to the public, including collection of a finished water sample that tests total coliform-negative.

(3) Monitoring violation. A system is in violation of monitoring requirements if it fails to either:

1. Take every required routine or additional routine sample in a compliance period; or

2. To analyze for *E. coli* following a total coliform-positive routine sample.

(4) Reporting violation. A system is in violation of the reporting requirements if it fails to:

1. Submit a monitoring report in a timely manner after a system properly conducts monitoring;

2. Submit a completed assessment form in a timely manner after a system properly conducts an assessment;

3. Notify the department in a timely manner following an *E. coli*-positive sample, as required by 41.2(1)*"h"*(1); or

4. Submit the certification of completion of department-approved start-up procedure by a seasonal system.

n. Best available technology (BAT). The EPA identifies, and the department has adopted, the following as the best technology, TTs, or other means available for all systems in achieving compliance with the *E. coli* MCL in 41.2(1)*"a."* The following is also identified as affordable technology, TTs, or other means available to systems serving 10,000 or fewer people for achieving compliance with the *E. coli* MCL.

(1) Protection of wells from fecal contamination by appropriate placement and construction.

(2) Maintenance of a disinfectant residual throughout the distribution system.

(3) Proper distribution system maintenance, including appropriate pipe replacement and repair procedures, main flushing programs, proper operation and maintenance of storage tanks and reservoirs, cross-connection control, and continual maintenance of a minimum positive water pressure of 20 psi in all parts of the distribution system at all times.

(4) Filtration or disinfection of surface water (SW) or influenced groundwater (IGW) in accordance with rules 567—43.5(455B), 567—43.9(455B), and 567—43.10(455B) or disinfection of GW in accordance with rule 567—41.7(455B) using strong oxidants such as, but not limited to, chlorine, chlorine dioxide, or ozone.

(5) For GW systems, compliance with the requirements of the department's wellhead protection program.

41.2(2) *Heterotrophic plate count (HPC) bacteria.*

a. Applicability. All PWSs that use a SW source or source under the direct influence of SW must provide treatment consisting of disinfection, as specified in 567—subrule 43.5(2), and filtration treatment, as specified in 567—subrule 43.5(3). The HPC is an alternate method to demonstrate a detectable disinfectant residual in accordance with 567—paragraph 43.5(2)*"d."*

b. Analytical methodology. PWSs shall conduct HPC bacteria analysis in accordance with 567—subrule 43.5(2) and the following analytical methods. When HPC bacteria are being measured in lieu of a detectable residual disinfectant pursuant to 567—paragraph 43.5(2)*"d,"* measurements must be conducted by a laboratory certified by the department to do such analysis. The time from sample collection to initiation of analysis may not exceed eight hours, and systems must hold the samples below 10 degrees Celsius during transit to the laboratory.

(1) Methods. The HPC shall be performed in accordance with one of the following methods:

1. Method 9215B Pour Plate Method, SM, 18th (1992), 19th (1995), 20th (1998), 21st (2005), and 22nd (2012) editions. The cited method in any of these editions may be used. SM Online method 9215 B-04 may be used.

2. SimPlate Method, "IDEXX SimPlate TM HPC Test Method for Heterotrophs in Water," November 2000, IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, ME 04092.

(2) Reporting. A PWS shall report the results of HPC bacteria in accordance with 567—subparagraph 40.8(3)*"c"*(2).

41.2(3) *Macroscopic organisms and algae.*

a. Applicability. This subrule applies to CWSs, NTNCs, and TNCs using SW or IGW, as defined by 567—subrule 43.5(1).

b. MCLs for macroscopic organisms and algae. Finished water shall be free of any macroscopic organisms such as plankton, worms, or cysts. The finished water algal cell count shall not exceed 500 organisms per mL or 10 percent of the total cells found in the raw water, whichever is greater.

c. Analytical methodology. Algal cell measurement shall be in accordance with Method 10200F: Phytoplankton Counting Techniques, SM, 18th edition, pp. 10-13 to 10-16. Such measurement shall be required only when the department determines, on the basis of complaints or otherwise, that excessive algal cells may be present.

567—41.3(455B) MCLs and monitoring requirements for inorganic contaminants other than lead or copper.

41.3(1) *MCLs and other requirements for inorganic chemical (IOC) contaminants.*

a. Applicability. The MCLs, BATs, and analytical methods for IOC contaminants specified in this subrule apply to CWSs and NTNCs as specified herein. The fluoride MCL applies only to CWSs and NTNCs that primarily serve children (child care facilities and schools). The nitrate, nitrite, and total nitrate and nitrite MCLs apply to CWSs, NTNCs and TNCs. At the

department's discretion, nitrate levels not to exceed 20.0 mg/L may be allowed in a NCWS if the supplier of water demonstrates to the department's satisfaction that:

(1) Such water will not be available to children under six months of age;

(2) The system is meeting the PN requirements of rule 567—40.5(455B), including continuous posting of the fact that nitrate levels exceed 10 mg/L and the potential health effects of exposure;

(3) The following public health authorities will be notified annually of nitrate levels that exceed 10 mg/L, in addition to the reporting requirements of 567—Chapters 40 and 41: the local county health officials, including the health department, sanitarian, and public health administrator, and the Iowa department of health and human services; and

(4) No adverse health effects shall result.

b. IOC MCLs.

(1) The following table specifies the IOC MCLs:

IOC Contaminant	EPA Contaminant Code	MCL (mg/L)
Antimony	1074	0.006
Arsenic	1005	0.010
Asbestos	1094	7 million fibers/liter (longer than 10 micrometers in length)
Barium	1010	2
Beryllium	1075	0.004
Cadmium	1015	0.005
Chromium	1020	0.1
Cyanide (as free Cyanide)	1024	0.2
Fluoride*	1025	4.0
Mercury	1035	0.002
Nitrate	1040	10 (as nitrogen)
Nitrite	1041	1.0 (as nitrogen)
Total Nitrate and Nitrite	1038	10 (as nitrogen)
Selenium	1045	0.05
Thallium	1085	0.002

*The recommended fluoride level is 0.7 mg per liter as published by the U.S. Department of Health and Human Services, Public Health Service (July-August 2015). At this optimum level in drinking water, fluoride has been shown to have beneficial effects in reducing the occurrence of tooth decay.

(2) Compliance calculations. IOC MCL compliance shall be determined using the analytical result(s) obtained at each source/entry point (SEP). When the department requires a system to collect nitrate or nitrite samples in its distribution system, IOC MCL compliance

shall also be determined using the analytical result(s) obtained at each discrete sampling point in the distribution system. Arsenic sampling results must be reported to the nearest 0.001 mg/L.

1. Sampling frequencies greater than annual. For PWSs monitoring at a frequency greater than annual, compliance with the MCLs for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium is determined by a running annual average (RAA) at any sampling point. If the RAA at any sampling point is greater than the MCL, then the system is out of compliance. If any one sample would cause the RAA to be exceeded, then the system is out of compliance immediately. Any sample below the method detection limit (MDL) shall be calculated at zero for the purpose of determining the RAA. If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

2. Sampling frequencies of annual or less. For PWSs monitoring annually or less frequently, the system is out of compliance with the MCLs for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the department, it must be collected as soon as possible from the same sampling location, but not to exceed two weeks, and the compliance determination will be based on the average of the two samples. If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

3. Nitrate and nitrite. Compliance with the nitrate and nitrite MCLs is determined based on one sample if the level of these contaminants is below the MCLs. If the level of nitrate or nitrite exceeds the MCLs in the initial sample, a confirmation sample may be required in

accordance with 41.3(1)*"c"*(7)"2" and compliance shall be determined based on the average of the initial and confirmation samples.

(3) Additional requirements. The department may assign additional requirements deemed necessary to protect public health, including PN requirements or earlier compliance dates than indicated in rule. When a system is not in compliance with an MCL in this paragraph, the supplier of the water shall notify the department according to 567—subrule 40.8(1) and provide PN according to rule 567—40.5(455B).

c. IOC monitoring requirements.

(1) Routine IOC monitoring (excluding asbestos, nitrate, and nitrite). CWSs and NTNCs shall monitor to determine compliance with the IOC MCLs, in accordance with this subrule. TNCs shall monitor to determine compliance with the nitrate and nitrite MCLs as required by 41.3(1)*"c"*(5) and 41.3(1)*"c"*(6). All new systems or systems that use a new source of water must demonstrate compliance with the IOC MCLs within a time period specified by the department. A system must also comply with the specified initial sampling frequencies to ensure it can demonstrate MCL compliance. Routine and increased monitoring shall be conducted in accordance with this paragraph. A source of water that is determined by the department to be a new SEP is considered to be a new source for the purposes of this rule.

(2) Department designated sampling schedules. Each PWS shall monitor at the time designated by the department during each compliance period. The monitoring protocol is as follows:

1. GW sampling points. GW systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a source/entry point or SEP). Systems shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

2. SW sampling points. SW systems shall take a minimum of one sample at every SEP after any application of treatment or in the distribution system at a point that is representative of each SEP. For purposes of this paragraph, SW systems include systems with a combination of SW and GW sources. Systems shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

3. Multiple sources. If a PWS draws water from more than one source and the sources are combined before distribution, it must sample at an SEP during periods of normal operating conditions (i.e., when water is representative of all sources being used).

4. Composite sampling. The department may reduce the total number of samples that must be analyzed by compositing. In systems serving less than or equal to 3,300 persons, composite samples from a maximum of five samples are allowed, provided that the detection limit of the analysis method is less than one-fifth of the MCL. Sample compositing must be done in the laboratory. If the concentration in the composite sample is greater than or equal to one-fifth of the MCL of any IOC, a follow-up sample must be taken within 14 days at each sampling point included in the composite. The follow-up samples must be analyzed for the contaminants that exceeded one-fifth of the MCL in the composite sample. If duplicates of the original sample taken from each sampling point used in the composite are available, the system may use the duplicates instead of resampling, provided the holding time of the duplicates is not exceeded. Duplicates must be analyzed and the results reported to the department within 14 days after sample analysis. If the system serves a population greater than 3,300 persons, compositing may only be allowed at sampling points within a single system. For systems serving less than or equal to 3,300 persons, the department may allow compositing among different systems provided the five-sample limit is maintained. Detection limits for each IOC analytical method are in 41.3(1)*"e"*(1).

(3) Asbestos monitoring frequency. Monitoring to determine compliance with the asbestos MCL shall be conducted as follows:

1. Initial sampling frequency. Each CWS and NTNC is required to monitor for asbestos during the first three-year compliance period of each nine-year compliance cycle.

2. Asbestos waiver. If a PWS believes it is not vulnerable to asbestos contamination either in its source water or due to the presence of asbestos-cement pipe, or both, it may apply for a waiver of the asbestos monitoring requirement in this subparagraph. If the department grants the waiver, the system is not required to monitor. The department may grant a waiver based on a consideration of potential asbestos contamination of the water source, the use of asbestos-cement pipe for finished water distribution, and the corrosive nature of the water. An asbestos waiver remains in effect until the completion of the three-year compliance period. Systems not receiving a waiver must monitor in accordance with the initial sampling frequency in this subparagraph.

3. Distribution system vulnerability. A PWS vulnerable to asbestos contamination due solely to the presence of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

4. Source water vulnerability. A PWS vulnerable to asbestos contamination due solely to source water shall monitor in accordance with the department designated sampling schedules in 41.3(1)*"c"*(2).

5. Combined vulnerability. A PWS vulnerable to asbestos contamination due both to its source water supply and the presence of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

6. Asbestos MCL exceedance. A PWS that exceeds the asbestos MCL shall monitor quarterly beginning in the next quarter after the violation occurred.

7. Asbestos below the MCL. The department may decrease the quarterly monitoring requirement to the initial sampling frequency in this subparagraph provided a system is reliably and consistently below the asbestos MCL. In no case can the department make this determination unless a GW system takes a minimum of two quarterly samples and a surface (or combined surface/ground) water system takes a minimum of four quarterly samples.

8. Grandfathered asbestos data. If monitoring data are generally consistent with the requirements of this subparagraph, the department may allow PWSs to use that data to satisfy the monitoring requirement.

(4) Monitoring frequency for other IOCs. Monitoring to determine compliance with the MCLs for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium shall be conducted as follows:

1. IOCs sampling frequency. GW systems shall take one sample at each sampling point once every three years. SW systems (or combined SW/GW systems) shall take one sample annually at each sampling point.

2. IOC sampling waiver. The PWS may apply for a waiver from the IOC sampling frequencies specified in this subparagraph. A PWS shall take a minimum of one sample while a waiver is effective. The term during which the waiver is effective shall not exceed one compliance cycle (i.e., nine years).

3. IOC waiver and grandfathered data. The department may grant a waiver provided SW systems have monitored annually for at least three years and GW systems have conducted a minimum of three rounds of monitoring. Both SW and GW systems shall demonstrate that all previous analytical results were less than the MCL. Systems that use a new water source are not eligible for a waiver until three rounds of monitoring from the new source have been

completed. Systems may be granted a waiver for cyanide monitoring, provided the department determines that the system is not vulnerable due to a lack of any industrial source of cyanide.

4. IOC sampling frequency during a waiver. In determining the appropriate reduced monitoring frequency, the department will consider: reported concentrations from all previous monitoring; the degree of variation in reported concentrations; and other factors which may affect contaminant concentrations, such as changes in GW pumping rates, system configuration, system operating procedures, or stream flow characteristics.

5. Effect of an IOC waiver. A decision to grant a waiver shall be made in writing and include the basis for the determination. The determination may be initiated by the department or upon an application by a PWS. A PWS shall specify the basis for its request. The department may review and, where appropriate, revise its determination of the appropriate monitoring frequency when a system submits new monitoring data or when other data relevant to a system's appropriate monitoring frequency become available.

6. Exceedance of an IOC MCL. PWSs that exceed the IOC MCLs shall monitor quarterly beginning in the next quarter after the violation occurred.

7. IOCs reliably and consistently below the MCL. The department may decrease the quarterly monitoring requirement to the IOC sampling frequencies specified in "1" and "3" of this subparagraph provided it has determined that a PWS is reliably and consistently below the MCL. The department shall not make this determination unless a GW system takes a minimum of two quarterly samples and a SW system takes a minimum of four quarterly samples.

(5) Nitrate monitoring frequency. All PWSs (CWSs, NTNCs, and TNCs) shall monitor to determine compliance with the nitrate MCL.

1. Initial nitrate sampling. All PWSs served by GW systems shall monitor annually.

2. GW repeat nitrate sampling frequency. For GW PWS, the repeat monitoring frequency is:

- Quarterly for at least one year following any one sample in which the concentration is greater than or equal to 5.0 mg/L as N. The department may allow a GW system to reduce its sampling frequency to annually after four consecutive quarterly samples are reliably and consistently less than 5.0 mg/L as N.
- Monthly for at least one year following any one sample in which the concentration is greater than or equal to 10.0 mg/L as N.

3. SW repeat nitrate sampling frequency. The department may allow a PWS SW system to reduce the sampling frequency to:

- Annually if all analytical results from four consecutive quarters are less than 5.0 mg/L as N.
- Quarterly for at least one year following any one sample in which the concentration is greater than or equal to 5.0 mg/L as N. The department may allow a SW system to reduce the sampling frequency to annually after four consecutive quarterly samples are reliably and consistently less than 5.0 mg/L as N.
- Monthly for at least one year following any nitrate MCL exceedance.

4. Scheduling annual nitrate repeat samples. After the initial round of quarterly sampling is completed, each CWS and NTNC monitoring annually shall take subsequent samples during the quarter(s) which previously resulted in the highest analytical result.

(6) Nitrite monitoring frequency. All PWSs shall monitor to determine compliance with the nitrite MCL.

1. Initial nitrite sampling. All PWSs shall take one sample at each sampling point.

2. Nitrite repeat monitoring. After the initial sample, systems where an analytical result for nitrite is less than 0.50 mg/L as N shall monitor at the department-specified frequency.

3. Nitrite increased monitoring. For all PWSs, the repeat monitoring frequency is:

- Quarterly for at least one year following any one sample in which the concentration is greater than or equal to 0.50 mg/L as N. The department may allow a system to reduce the sampling frequency to annually after determining a system is reliably and consistently less than 0.50 mg/L.
- Monthly for at least one year following any nitrite MCL exceedance.

4. Scheduling of annual nitrite repeat samples. Systems monitoring annually shall take each subsequent sample during the quarter(s) which previously resulted in the highest analytical result.

(7) IOC confirmation sampling.

1. IOC confirmation sample deadline (other than nitrate and nitrite). Where the results of an analysis for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium indicate an MCL exceedance, the department may require the collection of one additional sample as soon as possible after the initial sample was taken (but not to exceed two weeks) at the same sampling point.

2. Nitrate and nitrite confirmation sample deadline. Where nitrate or nitrite sampling results indicate an MCL exceedance and the sampling frequency is quarterly or annual, a system shall take a confirmation sample within 24 hours of its receipt of the analytical results. PWSs unable to comply with the 24-hour confirmation sampling requirement must immediately notify the consumers served by the area served by the PWS in accordance with 567—40.5(455B) Tier 1 PN and complete an analysis of a confirmation sample within two weeks of receipt of the analytical results of the first sample. Where the sampling frequency is monthly, a confirmation sample will not be used to determine MCL compliance.

3. Compliance calculations and confirmation samples. If a required confirmation sample collected within the time specified in "1" of this subparagraph is taken for any contaminant,

the results of the initial and confirmation sample shall be averaged. The resulting average shall be used to determine the system's compliance with the IOC MCLs. The department has the discretion to invalidate results of obvious sampling errors.

(8) Designation of increased sampling frequency. The department, at its discretion, may require more frequent monitoring than specified for asbestos, other IOCs, nitrate, and nitrite in 41.3(1)*"c"*(3) through 41.3(1)*"c"*(6), or confirmation samples for positive and negative results. PWSs may apply to conduct more frequent monitoring than the minimum monitoring specified in this subrule. Any increase or decrease in monitoring under this subparagraph will be designated in an operation permit or administrative order. To increase or decrease such frequency, the department shall consider:

1. Reported concentrations from previously required monitoring,
2. The degree of variation in reported concentrations,
3. Blending or treatment processes conducted to comply with an MCL, TT, or AL, and
4. Other factors, including changes in pumping rates in GW supplies, significant changes in a system's configuration, operating procedures, source of water, or streamflow changes.

(9) Grandfathered data. For the initial analysis required in this paragraph (41.3(1)*"c"*), data for surface waters acquired within one year prior to the effective date and data for GWs acquired within three years prior to [the effective date of this paragraph] may be substituted at the department's discretion.

d. Analytical and sampling methodology.

(1) IOC analytical methods. IOC contaminants shall be analyzed using the following methods, or their equivalent as determined by EPA. Criteria for analyzing arsenic, barium, beryllium, cadmium, chromium, copper, lead, nickel, selenium, sodium, and thallium with digestion or directly without digestion, and other analytical test procedures are contained in

Technical Notes on Drinking Water Methods, EPA-600/R-94-173, October 1994, NTIS PB95-104766.

IOC Contaminant Analytical Methods

Contaminant	Methodology[15]	EPA	ASTM[3]	SM	SM Online[26]	Other	MDL in mg/L
Antimony	Atomic absorption; furnace			3113B[4, 27, 33]	3113 B-04, B-10		0.003
	Atomic absorption; platform	200.9[2]					0.0008[12]
	ICP-MS[35]	200.8[2]					0.0004
	Atomic absorption; hydride		D3697-92, 02, 07, 12				0.001
	AVICP-AES[17]	200.5, Rev. 4.2[28]					
Arsenic[16]	ICP-MS	200.8[2]					0.0014
	Atomic absorption; platform	200.9[2]					0.0005[15]
	Atomic absorption; furnace		D2972-97C, 03C, 08C	3113B[4, 27, 33]	3113 B-04, B-10		0.001
	Atomic absorption; hydride		D2972-97B, 03B, 08B	3114B[4, 27, 33]	3114 B-09		0.001
	AVICP-AES[17]	200.5, Rev. 4.2[28]					
Asbestos	Transmission electron microscopy	100.1[9]					0.01 MFL
	Transmission electron microscopy	100.2[10]					
Barium	ICP	200.7[2]		3120B[18, 27, 33]	3120 B-99		0.002
	ICP-MS[35]	200.8[2]					
	Atomic absorption; direct			3111D[4, 27, 33]	3111 D-99		0.1
	Atomic absorption; furnace			3113B[4, 27, 33]	3113 B-04, B-10		0.002
	AVICP-AES[17]	200.5, Rev. 4.2[28]					
Beryllium	ICP[35]	200.7[2]		3120B[18, 27, 33]	3120 B-99		0.0003
	ICP-MS[35]	200.8[2]					0.0003
	Atomic absorption; platform	200.9[2]					0.00002[12]
	Atomic absorption; furnace		D3645-97B, 03B, 08B	3113B[4, 27, 33]	3113 B-04, B-10		0.0002
	AVICP-AES[17]	200.5, Rev. 4.2[28]					
Cadmium	ICP[35]	200.7[2]					0.001
	ICP-MS[35]	200.8[2]					
	Atomic absorption; platform	200.9[2]					
	Atomic absorption; furnace			3113B[4, 27, 33]	3113 B-04, B-10		0.0001
	AVICP-AES[17]	200.5, Rev. 4.2[28]					
Chromium	ICP[35]	200.7[2]		3120B[18, 27, 33]	3120 B-99		0.007
	ICP-MS[35]	200.8[2]					
	Atomic absorption; platform	200.9[2]					
	Atomic absorption; furnace			3113B[4, 27, 33]	3113 B-04, B-10		0.001
	AVICP-AES[17]	200.5, Rev. 4.2[28]					

Cyanide	Manual distillation (followed by 1 of the 4 methods listed below:)		D2036-98A, D2036-06A	4500-CN-C[18, 27, 33]			
	Spectrophotometric; amenable[14]		D2036-98B, D2036-06B	4500-CN-G[18, 27, 33]	4500-CN-G-99		0.02
	Spectrophotometric; manual[13]		D2036-98A, D2036-06A	4500-CN-E[18, 27, 33]	4500-CN-E-99	I-3300-85[5]	0.02
	Spectrophotometric; semi-automated[13]	335.4[6]					0.005
	Selective electrode[13]			4500-CN-F[18, 27, 33]	4500-CN-F-99		0.05
	UV, distillation, spectrophotometric[22]					Kelada 01[20]	0.0005
	Micro distillation, flow injection, spectrophotometric[13]					QuikChem 10-204-00-1-X[21]	0.0006
	Ligand exchange with amperometry[14]		D6888-04			OIA-1677, DW[25]	0.0005
	GC/MS headspace					ME355.01[29]	
Fluoride	IC[36]	300.0[6], 300.12[3]	D4327-97, 03, 11	4110B[18, 27, 33]	4110 B-00		
	Manual distillation; colorimetric; SPADNS			4500F-B,D[18, 27, 33]	4500 F-B, D-97		
	Manual electrode		D1179-93B, 99B, D1179-04B, 10B	4500F-C[18, 27, 33]	4500 F-C-97		
	Automated electrode					380-75WE[11]	
	Automated alizarin			4500F-E[18, 27, 33]	4500 F-E-97	129-71W[11]	
	Capillary ion electrophoresis					D6508, Rev. 2[24]	
	Arsenite-free colorimetric; SPADNS					Hach SPADNS 2 Method 10225[31]	
Magnesium	Atomic absorption; direct		D511-93, 03B, 09B, 14B	3111B[4, 27, 33]	3111 B-99		
	ICP[35]	200.7[1]		3120B[18, 27, 33]	3120 B-99		
	Complexation Titrimetric Methods		D511-93, 03A, 09A, 14B	3500-Mg E[4] 3500-Mg B[19, 27, 33]	3500-Mg B-97		
	IC		D6919-03, 09				
	AVICP-AES[17]	200.5, Rev. 4.2[28]					
Mercury	Manual, cold vapor	245.1[2]	D3223-97, 02, 12	3112B[4, 27, 33]	3112 B-09		0.0002
	Automated, cold vapor	245.2[1]					0.0002
	ICP-MS[35]	200.8[2]					
Nickel	ICP[35]	200.7[2]		3120B[18, 27, 33]	3120 B-99		0.005
	ICP-MS[35]	200.8[2]					0.0005
	Atomic absorption; platform	200.9[2]					0.0006[12]
	Atomic absorption; direct			3111B[4, 27, 33]	3111 B-99		
	Atomic absorption; furnace			3113B[4, 27, 33]	3113 B-04, 10		0.001
	AVICP-AES[35]	200.5, Rev. 4.2[28]					
Nitrate	IC[36]	300.0[6], 300.1[23]	D4327-97, 03, 11	4110B[18, 27, 33]	4110 B-00	B-1011[8]	0.01
	Automated cadmium reduction	353.2[6]	D3867-90A	4500-NO_3-F[18, 27, 33]	4500-NO_3-F-00		0.05
	Ion selective electrode			4500-NO_3-D[18, 27, 33]	4500-NO_3-D-00	601[7]	1
	Manual cadmium reduction		D3867-90B	4500-NO_3-E[18, 27, 33]	4500-NO_3-E-00		0.01

	Capillary ion electrophoresis					D6508, Rev. 2[24]	0.076
	Reduction/colorimetric					Systea Easy (1-Reagent)[30] NECi Nitrate-Reductase[34]	
	Colorimetric; direct					Hach TNTplus™ 835/836 Method 10206[32]	
Nitrite	IC[36]	300.0[6], 300.1[23]	D4327-97, 03, 11	4110B[18, 27, 33]	4110 B-00	B-1011[8]	0.004
	Automated cadmium reduction	353.2[6]	D3867-90A	4500-NO_3-F[18, 27, 33]	4500-NO_3-F-00		0.05
	Manual cadmium reduction		D3867-90B	4500-NO_3-E[18, 27, 33]	4500-NO_3-E-00		0.01
	Spectrophotometric			4500-NO_2-B[18, 27, 33]	4500-NO_2-B-00		0.01
	Capillary ion electrophoresis					D6508, Rev. 2[24]	0.103
	Reduction/colorimetric					Systea Easy (1-Reagent)[30] NECi Nitrate-Reductase[34]	
Selenium	Atomic absorption; hydride		D3859-98, 03A, 08A	3114B[4, 27, 33]	3114 B-09		0.002
	ICP-MS[35]	200.8[2]					
	Atomic absorption; platform	200.9[2]					
	Atomic absorption; furnace		D3859-98, 03B, 08B	3113B[4, 27, 33]	3113 B-04, 10		0.002
	AVICP-AES[17]	200.5, Rev. 4.2[28]					
Sodium	ICP[35]	200.7[2]					
	Atomic absorption; direct			3111B[4, 27, 33]	3111 B-99		
	IC[36]		D6919-03, 09				
	AVICP-AES[17]	200.5, Rev. 4.2[28]					
Thallium	ICP-MS[35]	200.8[2]					
	Atomic absorption; platform	200.9[2]					0.0007[12]

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies may be obtained from the sources listed below. Information regarding the documents can be obtained from the Safe Drinking Water Hotline at 800.426.4791. Documents may be inspected at EPA's Drinking Water Docket or at the Office of Federal Register.

[1]"Methods for Chemical Analysis of Water and Wastes," EPA-600/4-79-020, March 1983. NTIS, PB84-128677.

[2]"Methods for the Determination of Metals in Environmental Samples—Supplement I," EPA-600/R-94-111, May 1994. NTIS, PB95-125472.

[3]ASTM, 1994, 1996, 1999 or 2003, Vols. 11.01 and 11.02; the methods listed are the only versions that may be used.

[4]18th and 19th editions, SM, 1992 and 1995, respectively.

[5]Techniques of Water Resources Investigation of the USGS, Book 5, Chapter A-1, 3rd edition, 1989, Method I-3300-85. Information Services, USGS, Federal Center, Box 25286, Denver, CO 80225-0425.

[6]"Methods for the Determination of Inorganic Substances in Environmental Samples," EPA-600-R-93-100, August 1993. NTIS, PB94-120821.

[7]The procedure shall be done in accordance with the Technical Bulletin 601, "Standard Method of Test for Nitrate in Drinking Water," July 1994, PN221890-001, Analytical Technology, Inc. ATI Orion, 529 Main Street, Boston, MA 02129.

[8]Method B-1011, "Waters Test Method for Determination of Nitrite/Nitrate in Water Using Single Column Ion Chromatography," August 1987. Waters Corporation, Technical Services Division, 34 Maple Street, Milford, MA 01757.

[9]Method 100.1, "Analytical Method for Determination of Asbestos Fibers in Water," EPA-600/4-83-043, EPA, September 1983. NTIS, PB83-260471.

[10]Method 100.2, "Determination of Asbestos Structure Over 10 Microns in Length in Drinking Water," EPA-600/R-94-134, June 1994. NTIS, PB94-201902.

[11]Industrial Method No. 129-71W, "Fluoride in Water and Wastewater," December 1972, and Method No. 380-75WE, "Fluoride in Water and Wastewater," February 1976, Technicon Industrial Systems. Bran & Luebbe, 1025 Busch Parkway, Buffalo Grove, IL 60089.

[12]Lower MDLs are reported using stabilized temperature graphite furnace atomic absorption.

[13]Screening method for total cyanides.

[14]Measures "free" cyanides when distillation, digestion, or ligand exchange is omitted.

[15]Because MDLs reported in EPA Methods 200.7 and 200.9 were determined using a 2X preconcentration step during sample digestion, MDLs determined when samples are analyzed by direct analysis (i.e., no sample digestion) will be higher. For direct analysis of cadmium by Method 200.7, sample preconcentration using pneumatic nebulization may be required to achieve lower detection limits. Preconcentration may also be required for direct analysis of antimony and thallium by Method 200.9, and antimony by Method 3113B, unless multiple in-furnace depositions are made.

[16]If ultrasonic nebulization is used in arsenic determination by Method 200.8, the arsenic must be in the pentavalent state to provide uniform signal response. For direct analysis of arsenic with Method 200.8 using ultrasonic nebulization, samples and standards must contain 1 mg/L of sodium hypochlorite.

[17]AVICP-AES means axially viewed inductively coupled plasma-atomic emission spectrometry.

[18]18th, 19th, and 20th editions, SM, 1992, 1995, and 1998, respectively.

[19]20th edition, SM, 1998.

[20]Kelada 01 Method, "Kelada Automated Test Methods for Total Cyanide, Acid Dissociable Cyanide, and Thiocyanate," Revision 1.2, August 2001, EPA #821-B-01-009 for cyanide, NTIS PB 2001-108275. Note: A 450W UV lamp may be used

in this method instead of the 550W lamp specified if it provides performance within the quality control acceptance criteria of the method in a given instrument. Similarly, modified flow cell configurations and flow conditions may be used in the method, provided that the quality control acceptance criteria are met.

[21]QuikChem Method 10-204-00-1-X, "Digestion and distillation of total cyanide in drinking water and wastewaters using MICRO DIST and determination of cyanide by flow injection analysis," Revision 2.1, November 30, 2000, Lachat Instruments, 6645 W. Mill Road, Milwaukee, WI 53218.

[22]Measures total cyanides when UV-digestor is used, and "free" cyanides when UV-digestor is bypassed.

[23]"Methods for the Determination of Organic and Inorganic Compounds in Drinking Water," Volume 1, EPA 815-R-00-014, August 2000. NTIC, PB2000-106981.

[24]Method D6508, Rev. 2, "Test Method for Determination of Dissolved Inorganic Anions in Aqueous Matrices Using Capillary Ion Electrophoresis and Chromate Electrolyte," Waters Corp., 34 Maple Street, Milford, MA 01757.

[25]Method OIA-1677, DW "Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry," January 2004. EPA-821-R-04-001. ALPKEM, a division of OI Analytical, P.O. Box 9010, College Station, TX 77542-9010.

[26]SM Online. The year that each method was approved is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[27]SM, 21st edition (2005).

[28]EPA Method 200.5, Revision 4.2: "Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry," 2003. EPA/600/R-06/115, www.nemi.gov.

[29]Method ME355.01, Revision 1.0, "Determination of Cyanide in Drinking Water by GC/MS Headspace," May 26, 2009, www.nemi.gov or H & E Testing Laboratory, 221 State Street, Augusta, ME 04333.

[30]Systea Easy (1-Reagent), "Systea Easy (1-Reagent) Nitrate Method," February 4, 2009, www.nemi.gov or Systea Scientific, LLC, 900 Jorie Blvd., Suite 35, Oak Brook, IL 60523.

[31]Hach Company Method, "Hach Company SPADNS 2 (Arsenic-free) Fluoride Method 10225 – Spectrophotometric Measurement of Fluoride in Water and Wastewater," January 2011, www.hach.com.

[32]Hach Company Method, "Hach Company TNTplusTM 835/836 Nitrate Method 10206 – Spectrophotometric Measurement of Nitrate in Water and Wastewater," January 2011, www.hach.com.

[33]SM, 22nd edition (2012).

[34]Nitrate Elimination Company, Inc. (NECi). "Method for Nitrate Reductase Nitrate-Nitrogen Analysis of Drinking Water," February 2016. Superior Enzymes, Inc., 334 Hecla Street, Lake Linden, MI 49945.

[35]IPC means inductively coupled plasma, and ICP-MS means inductively coupled plasma mass spectrometry.

[36]IC means ion chromatography.

(2) IOC sampling methods. Samples for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium under this subparagraph shall be collected using the sample preservation, container, and maximum holding time procedures specified in the table below:

IOC Sampling Methods

Contaminant	Preservative[1]	Container[2]	Time[3]
Antimony	HNO_3	P or G	6 months
Arsenic	HNO_3	P or G	6 months
Asbestos	4 degrees C	P or G	48 hours for filtration[5]
Barium	HNO_3	P or G	6 months
Beryllium	HNO_3	P or G	6 months
Cadmium	HNO_3	P or G	6 months
Chromium	HNO_3	P or G	6 months
Cyanide	4 degrees C, NaOH	P or G	14 days
Fluoride	None	P or G	1 month
Mercury	HNO_3	P or G	28 days
Nickel	HNO_3	P or G	6 months
Nitrate[4]	4 degrees C	P or G	48 hours
Nitrite[4]	4 degrees C	P or G	48 hours
Selenium	HNO_3	P or G	6 months
Thallium	HNO_3	P or G	6 months

[1]When indicated, samples must be acidified at the time of collection to pH < 2 with concentrated acid, or adjusted with sodium hydroxide to pH > 12. Samples collected for metals analysis may be preserved by acidification at the laboratory, using a 1:1 nitric acid solution (50 percent by volume), provided the shipping time and other instructions in Section 8.3 of EPA Methods 200.7, 200.8, and 200.9 are followed. When chilling is indicated, the sample must be shipped and stored at 4 degrees Celsius or less.

[2]P: plastic, hard or soft; G: glass, hard or soft.

[3]All samples should be analyzed as soon after collection as possible. Follow additional (if any) information on preservation, containers, or holding times that is specified in the method.

[4]Nitrate may only be measured separate from nitrite in samples that have not been acidified. Measurement of acidified samples provides a total nitrate (sum of nitrate plus nitrite) concentration.

[5]Instructions for containers, preservation procedures, and holding times as specified in Method 100.2 must be adhered to for all compliance analyses, including those conducted with Method 100.1.

41.3(2) Reserved.

567—41.4(455B) Lead, copper, and corrosivity.

41.4(1) *Lead, copper, and corrosivity regulation by the setting of a TT requirement.* The lead and copper rules establish a TT that includes requirements for corrosion control treatment (CCT), source water treatment, lead service line (LSL) replacement, and public education (PE). These requirements are triggered, in some cases, by lead and copper action levels (ALs) measured in samples collected at consumers' taps.

a. Applicability. Unless otherwise indicated, the provisions of this subrule apply to CWSs and NTNCs (hereinafter referred to as "PWSs" or "systems").

b. Action levels (ALs).

(1) The lead AL is exceeded if the lead concentration in more than 10 percent of tap water samples collected during any monitoring period, in accordance with 41.4(1)*"c,"* is greater than 0.015 mg/L (i.e., if the "90th percentile" lead level is greater than 0.015 mg/L).

(2) The copper AL is exceeded if the copper concentration in more than 10 percent of tap water samples collected during any monitoring period, in accordance with 41.4(1)*"c,"* is greater than 1.3 mg/L (i.e., if the "90th percentile" copper level is greater than 1.3 mg/L).

(3) 90th percentile calculation. The 90th percentile lead and copper levels shall be computed as follows:

1. The results of all lead or copper samples taken during a monitoring period shall be placed in ascending order from lowest concentration to highest concentration. Each sample shall be assigned a number, ascending by single integers beginning with the number 1 for the sample with the lowest concentration. The number assigned to the sample with the highest concentration shall be equal to the total number of samples taken.

2. The number of samples taken during the monitoring period shall be multiplied by 0.9.

3. The contaminant concentration in the numbered sample yielded by this calculation is the 90th percentile contaminant level.

4. For systems serving fewer than 100 people that collect five samples per monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentrations.

5. For a PWS allowed by the department to collect fewer than five samples, in accordance with 41.4(1)*"c"*(3), the sample result with the highest concentration is considered the 90th percentile value.

c. Lead and copper tap water monitoring requirements.

(1) Sample site selection.

1. General. PWSs shall complete a materials evaluation of their distribution systems by the date indicated in 41.4(1)*"c"*(4) in order to identify a pool of sampling sites that meets the requirements of this subrule, and which is sufficiently large to ensure that the system can collect the number of lead and copper tap samples required in 41.4(1)*"c"*(3). All sites from which first-draw samples are collected shall be selected from this pool of targeted sampling sites. Sampling sites may not include faucets that have POU or POE treatment devices designed to remove inorganic contaminants.

2. Information sources. A PWS shall use the information on lead, copper, and galvanized steel collected under 41.4(1)*"f"* when conducting a materials evaluation. When an evaluation of the information is insufficient to locate the requisite number of lead and copper sampling sites meeting the targeting criteria in this subparagraph, the PWS shall review additional information to indicate locations that may be particularly susceptible to high lead or copper concentrations. The additional information includes all building department plumbing codes, permits, and records that indicate the plumbing materials installed within all structures connected to the distribution system; all distribution system inspections and records that

indicate the material composition of the service connections that connect a structure to the distribution system; and all existing water quality information, including the results of all prior analyses of the system or individual structures connected to the system. System shall seek to collect such additional information where possible in the course of normal operations.

3. Tier 1 CWS sampling sites. The Tier 1 sampling sites selected for a CWS's sampling pool shall consist of single-family structures containing copper pipes with lead solder installed after 1982 or containing lead pipes; or served by an LSL. When multiple-family residences comprise at least 20 percent of the structures served by a water system, the system may include these types of structures in its sampling pool.

4. Tier 2 CWS sampling sites. Any CWS with insufficient Tier 1 sampling sites shall complete its sampling pool with Tier 2 sampling sites, consisting of buildings, including multiple-family residences containing copper pipes with lead solder installed after 1982 or containing lead pipes; or served by an LSL.

5. Tier 3 CWS sampling sites. Any CWS with insufficient Tier 1 and Tier 2 sampling sites shall complete its sampling pool with Tier 3 sampling sites, consisting of single-family structures containing copper pipes with lead solder installed before 1983. A CWS with insufficient Tier 1, Tier 2, and Tier 3 sampling sites shall complete its sampling pool with representative sites throughout the distribution system. A representative site is defined as a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

6. Tier 1 NTNC sampling sites. The Tier 1 sampling sites selected for a NTNC shall consist of buildings containing copper pipes with lead solder installed after 1982 or containing lead pipes; or served by an LSL.

7. Other NTNC sampling sites. An NTNC with insufficient Tier 1 NTNC sites shall complete its sampling pool with sites containing copper pipes with lead solder installed before

1983. If additional sites are needed to complete the sampling pool, the NTNC shall use representative sites throughout the distribution system. A representative site is defined as a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

8. LSL sampling sites. Any PWS whose distribution system contains LSLs shall draw 50 percent of the samples collected during each monitoring period from sites containing lead pipes or copper pipes with lead solder, and 50 percent of the samples from sites served by an LSL. A system that cannot identify a sufficient number of sampling sites served by an LSL shall collect first-draw samples from all of the sites identified as being served by such lines.

(2) Sample collection methods.

1. Tap samples for lead and copper collected in accordance with this subparagraph shall be first-draw samples, except for LSL samples collected under 567—subrule 43.7(4) and 41.4(1)*"c"*(2)"5."

2. First-draw tap samples for lead and copper shall be one liter in volume and have stood motionless in the plumbing system of each sampling site for at least six hours. First-draw samples from residential housing shall be collected from the cold-water kitchen tap or bathroom sink tap. First-draw samples from a nonresidential building shall be collected at an interior tap from which water is typically drawn for consumption. First-draw samples may be collected by the system, or it may allow residents to collect first-draw samples after instructing the residents of the sampling procedures specified in this paragraph. To avoid problems of residents handling nitric acid, acidification of first-draw samples may be done up to 14 days after the sample is collected. After acidification, the sample must stand in the original container for the time specified in the approved EPA method before the sample can be analyzed. If a system allows residents to perform sampling, the system may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

3. LSL samples collected to determine if the service line is directly contributing lead (as described in 567—subrule 43.7(4)) shall be one liter in volume, have stood motionless in the LSL for at least six hours, and be collected at the tap after flushing the volume of water between the tap and the LSL. The volume of water shall be calculated based on the interior diameter and length of the pipe between the tap and the LSL; tapping directly into the LSL; or if the sampling site is a building constructed as a single-family residence, allowing the water to run until there is a significant change in temperature, indicative of water that has been standing in the LSL.

4. A PWS shall collect each first-draw tap sample from the same sampling site from which it collected a previous sample. If, for any reason, a system cannot gain entry to a sampling site in order to collect a follow-up tap sample, it may collect the follow-up tap sample from another sampling site in its sampling pool as long as the new site meets the same targeting criteria, and is within reasonable proximity of the original site.

5. An NTNC system, or a CWS system meeting the criteria of 567—subparagraph 40.6(2)*"d"*(2) that does not have enough taps that can supply first-draw samples, may apply to the department in writing to substitute non-first-draw samples. Such systems must collect as many first-draw samples from appropriate taps as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites. The department may waive the requirement for prior approval of non-first-draw sample sites selected by the system through written notification to the system. Non-first-draw samples collected in lieu of first-draw samples in accordance with this subparagraph shall be one liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption.

(3) Number of samples. PWS shall collect at least one sample during each monitoring period specified in 41.4(1)*"c"*(4) from the number of sites specified below in the "standard

monitoring" column. A system conducting reduced monitoring under 41.4(1)*"c"*(4) shall collect at least one sample from the number of sites specified below in the "reduced monitoring" column during each monitoring period. Reduced monitoring sites shall be representative of the sites required for standard monitoring. A PWS with fewer than five drinking water taps used for human consumption that meet the sample site criteria of 41.4(1)*"c"*(1) and that can be used to reach the required number of sample sites specified in this subparagraph must collect at least one sample from each tap and then must collect additional samples from those taps on different days during the monitoring period to meet the required number of sites. Alternatively, the department may allow these systems to collect a number of samples less than the number of sites specified in 41.4(1)*"c"*(1), provided that 100 percent of all taps that can be used for human consumption are sampled. This reduction of the minimum number of samples must be approved in writing by the department, based upon on-site verification or a request from the system. The department may specify sampling locations when a system is conducting reduced monitoring.

Required Number of Lead/Copper Samples

System Size (Number of People Served)	Standard Monitoring (Number of Sites)	Reduced Monitoring (Number of Sites)
greater than 100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
less than or equal to 100	5	5

(4) Monitoring periods.

1. Initial tap sampling. The first six-month monitoring period for small, medium-size and large systems shall begin on the following dates:

System Size (Number of People Served)	First Six-month Monitoring Period Begins on:
greater than 50,000 (large system)	January 1, 1992
3,301 to 50,000 (medium system)	July 1, 1992
less than or equal to 3,300 (small system)	July 1, 1993

All large systems shall monitor during two consecutive six-month periods. All small and medium-size systems shall monitor during each six-month monitoring period until the system exceeds the lead or copper AL and is, therefore, required to implement the CCT requirements under 567—paragraph 43.7(1)*"a,"* in which case it shall continue monitoring in accordance with this subparagraph, or the system meets the lead and copper ALs during two consecutive six-month monitoring periods, in which case it may reduce monitoring in accordance with this subparagraph.

2. Monitoring after installation of CCT and source water treatment. Large systems that install optimal corrosion control treatment (OCCT) pursuant to 567—subparagraph 43.7(1)*"d"*(4) shall monitor during two consecutive six-month monitoring periods by the date specified in 567—subparagraph 43.7(1)*"d"*(5). Small or medium-size systems that install OCCT pursuant to 567—subparagraph 43.7(1)*"e"*(5) shall monitor during two consecutive six-month monitoring periods, as specified in 567—subparagraph 43.7(1)*"e"*(6). Systems that install source water treatment shall monitor during two consecutive six-month monitoring periods by the date specified in 567—subparagraph 43.7(3)*"a"*(4).

3. Monitoring after the department specifies WQP values for optimal corrosion control (OCC). After the department specifies the values for WQP under 567—paragraph 43.7(2)*"f,"* the system shall monitor during each subsequent six-month monitoring period, with the first monitoring period to begin on the date the department specifies the OCC values under 567—paragraph 43.7(2)*"f."*

4. Reduced monitoring: a small or medium-size PWS that meets the lead and copper ALs during each of two consecutive six-month monitoring periods may reduce the number of lead and copper samples according to 41.4(1)*"c"*(3) and reduce the sampling frequency to once per year. A small or medium-size system collecting fewer than five samples as specified in 41.4(1)*"c"*(3) that meets the lead and copper ALs during each of two consecutive six-month

monitoring periods may reduce the sampling frequency to once per year. This reduced sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period. A system shall not ever reduce the number of samples required below the minimum of one sample per available tap.

5. Reduced monitoring: any PWS that meets the lead AL and maintains the range of values for the WQPs reflecting OCCT specified in 567—paragraph 43.7(2)*"f"* during each of two consecutive six-month monitoring periods may reduce the monitoring frequency to once per year and reduce the number of lead and copper samples according to 41.4(1)*"c"*(3), upon written department approval. This monitoring shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period. The department shall review monitoring, treatment, and other relevant information submitted by the system in accordance with 567—subrule 40.8(2) and shall notify a system in writing when it determines that a system is eligible to commence reduced monitoring. The department will review and, where appropriate, revise its determination when a system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

6. Reduced monitoring: a small or medium-size PWS that meets the lead and copper ALs during three consecutive years of monitoring may reduce the monitoring frequency for lead and copper from annually to once every three years. Any system that meets the lead AL and maintains the range of values for the WQP reflecting OCCT specified in 567—paragraph 43.7(2)*"f"* during three consecutive years of monitoring may reduce the monitoring frequency from annually to once every three years if it receives written department approval. Samples collected once every three years shall be collected no later than every third calendar year. The department shall review monitoring, treatment, and other relevant information submitted by a system in accordance with 567—subrule 40.8(2) and shall notify a system in

writing when it determines that a system is eligible to commence reduced monitoring. The department will review and, where appropriate, revise its determination when a system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

7. A PWS that reduces the number and frequency of sampling shall collect samples from sites included in the pool of targeted sampling sites identified in 41.4(1)*"c"*(1). Systems sampling annually or less frequently shall conduct lead and copper tap sampling during June through September unless the department, at its discretion, has approved a different sampling period. If approved, the sampling period shall be no longer than four consecutive months and must represent a time of normal operation where the highest levels of lead are most likely to occur. The department shall designate a sampling period representing normal operation for an NTNC system that does not operate during June through September, and for which the period of normal operation where the highest levels of lead are most likely to occur is not known. Sampling shall begin during the approved or designated sampling period in the calendar year immediately following the end of the second consecutive six-month monitoring period for systems initiating annual monitoring and during the three-year period following the end of the third consecutive calendar year of annual monitoring for systems initiating triennial monitoring.

8. Systems monitoring annually or triennially that have been collecting samples during June through September and that receive department approval to alter their sample collection period must collect their next round of samples during a time period that ends no later than 21 months (for annual monitoring) or 45 months (for triennial monitoring) after the previous round of sampling. Subsequent rounds of sampling must be collected annually or triennially, as required by this paragraph.

9. Small systems that have been granted waivers pursuant to 41.4(1)*"c"*(7), that have been collecting samples during June through September, and that receive department approval to alter their sample collection period as previously stated must collect their next round of samples before the end of the nine-year period.

10. Any PWS that demonstrates for two consecutive six-month monitoring periods that the 90th percentile tap water level computed under 41.4(1)*"b"*(3) is less than or equal to 0.005 mg/L for lead and is less than or equal to 0.65 mg/L for copper may reduce the number of samples in accordance with 41.4(1)*"c"*(3) and reduce the sampling frequency to once every three calendar years, if approved by the department.

11. A small or medium-size PWS subject to reduced monitoring that exceeds the lead or copper AL shall resume sampling according to 41.4(1)*"c"*(4)"3" and collect the number of samples specified for standard monitoring in 41.4(1)*"c"*(3). Any such system shall also conduct WQP monitoring in accordance with 41.4(1)*"d"*(2), 41.4(1)*"d"*(3), or 41.4(1)*"d"*(4), as appropriate, during the monitoring period in which it exceeded the AL. Any such system may resume annual lead and copper tap monitoring at the reduced number of sites specified in 41.4(1)*"c"*(3) after completing two subsequent consecutive six-month rounds of monitoring meeting the criteria of 41.4(1)*"c"*(4)"4" and may resume triennial lead and copper monitoring at the reduced number of sites after demonstrating through subsequent rounds of monitoring that it meets the criteria of either 41.4(1)*"c"*(4)"6" or "10" and upon written department approval.

12. Any water system subject to reduced monitoring frequency that fails to meet the lead AL during any four-month monitoring period or that fails to operate at or above the minimum value or within the range of values for the OWQP specified in 567—paragraph 43.7(2)*"f"* for more than nine days in any six-month period specified in 41.4(1)*"d"*(4) shall resume tap water sampling according to 41.4(1)*"c"*(4)"3," collect the number of samples specified for standard

monitoring in 41.4(1)*"c"*(3), and resume monitoring for WQP within the distribution system in accordance with 41.4(1)*"d"*(4). This standard tap water sampling shall begin no later than the six-month period beginning January 1 of the calendar year following the lead AL exceedance or WQP excursion. Systems may resume reduced monitoring for lead and copper at the tap and for WQPs within the distribution system under the following conditions:

- A system may resume annual lead and copper monitoring at the tap at the reduced number of sites specified in 41.4(1)*"c"*(3) after completing two subsequent six-month rounds of monitoring meeting the criteria of 41.4(1)*"c"*(4)"5" and upon written department approval. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.

- A system may resume triennial lead and copper monitoring at the tap at the reduced number of sites after demonstrating, through subsequent rounds of monitoring, that it meets the criteria of either 41.4(1)*"c"*(4)"6" or"10" and upon written department approval.

- A system may reduce the number of WQP tap water samples required in 41.4(1)*"d"*(5)"1" and the sampling frequency required in 41.4(1)*"d"*(5)"2." Such a system may not resume triennial monitoring for WQPs at the tap until it demonstrates that it has requalified for triennial monitoring, pursuant to 41.4(1)*"d"*(5)"2."

13. Any PWS subject to a reduced monitoring frequency under 41.4(1)*"c"*(4)"4" through "12" must notify the department of any upcoming long-term change in treatment or addition of a new source in accordance with 567—subparagraph 40.8(2)*"a"*(3). The department must review and approve the addition of a new source or long-term change in water treatment before it is implemented. The department may require a system to resume sampling pursuant to 41.4(1)*"c"*(4)"3" and collect the number of samples specified for standard monitoring under 41.4(1)*"c"*(3), or take other appropriate steps such as increased WQP monitoring or reevaluation of CCT.

(5) Additional monitoring. The results of any monitoring conducted in addition to the minimum requirements of this paragraph shall be considered by a system and the department in making any determinations under this subrule.

(6) Invalidation of lead or copper tap water samples. A sample invalidated under this paragraph does not count toward determining the lead or copper 90th percentile levels under 41.4(1)*"b"*(3) or toward meeting the minimum monitoring requirements of 41.4(1)*"c"*(3).

1. The department may invalidate a lead or copper tap water sample if one or more of the following conditions are met:

- The laboratory establishes that improper sample analysis caused erroneous results;
- The department determines the sample was taken from a site that did not meet the site selection criteria of 567—41.4(455B);
- The sample container was damaged in transit to the laboratory;
- There is a substantial reason to believe that the sample was subject to tampering;
- The sample is not representative of water that would be consumed from the tap; or
- The department determined that a major disruption of the water flow occurred in the system or building plumbing prior to sample collection, which resulted in lead or copper levels that were not representative of the system.

2. A system must report the results of all samples to the department and all supporting documentation for samples it believes should be invalidated.

3. A sample invalidation decision under 41.4(1)*"c"*(6)"1" must be documented in writing and include the reason(s) for invalidation. The department may not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than that of the original sample.

4. Systems must collect replacement samples for any samples invalidated under this subparagraph if, after the sample invalidation(s), a system has too few samples to meet the

minimum requirements of 41.4(1)*"c"*(3). Replacement samples must be taken as soon as possible, but no later than 20 days after the invalidation date, or by the end of the applicable monitoring period, whichever occurs later. Replacement samples taken after the end of the applicable monitoring period shall not also be used to meet the monitoring requirements of a subsequent monitoring period. Replacement samples shall be taken at the same locations as the invalidated samples or, if that is not possible, at locations other than those already used for sampling during the monitoring period.

(7) Monitoring waivers for small systems. Any small system meeting the criteria of this subparagraph may apply to the department to reduce the lead and copper monitoring frequency under this subrule to once every nine years if it meets all of the materials criteria and monitoring criteria specified in this subparagraph.

1. Materials criteria. A system must demonstrate that its distribution system, service lines, and all plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing materials and copper-containing materials, as defined below:

- Lead. A PWS must provide certification and supporting documentation to the department that it is free of all lead-containing materials. The system must not contain any plastic pipes that contain lead plasticizers or plastic service lines that contain lead plasticizers. The system must be free of LSLs, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures unless such fittings and fixtures meet the specifications of any standard established pursuant to 42 U.S.C. 300-g-6(e).
- Copper. A PWS must provide certification and supporting documentation to the department that the system contains no copper pipes or copper service lines.

2. Monitoring criteria. A system must have completed at least one six-month round of standard tap water monitoring for lead and copper at approved sites and from the number of

sites required by 41.4(1)*"c"*(3) and demonstrate that the 90th percentile levels do not exceed 0.005 mg/L for lead and 0.65 mg/L for copper for any and all rounds of monitoring conducted since the system became free of all lead- and copper-containing materials.

3. Waiver determination. The department shall notify a system of its waiver determination in writing, including the basis of its decision and any condition of the waiver. The department may require as a waiver condition that a system conduct specific activities, such as limited monitoring or periodic customer outreach to remind them to avoid installation of materials that would void the waiver. A system must continue monitoring for lead and copper at the tap as required by 41.4(1)*"c"*(4)"1" through "4," as appropriate, until it receives written department approval for a waiver.

4. Monitoring frequency for systems with waivers.

- A system with a waiver must conduct tap water monitoring for lead and copper in accordance with 41.4(1)*"c"*(4)"4" at the reduced number of sampling sites identified in 41.4(1)*"c"*(3) at least once every nine years and provide the materials certification specified in 41.4(1)*"c"*(7)"1" for both lead and copper to the department along with the monitoring results. Samples collected every nine years shall be collected no later than every ninth calendar year.

- A system with a waiver must notify the department of any upcoming long-term change in treatment or addition of a new source, pursuant to 567—subparagraph 40.8(2)*"a"*(3). The department must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the system. The department has the authority to add or modify waiver conditions if it deems such modifications are necessary.

- If a system with a waiver becomes aware that it is no longer free of lead-containing or copper-containing materials, it shall notify the department in writing no later than 60 days after becoming aware of such a change.

5. Continued waiver eligibility. If a system continues to satisfy the requirements of 41.4(1)*"c"*(7)"4," the waiver will be renewed automatically unless either of the conditions below occur. A system whose waiver has been revoked may reapply for a waiver at such time as it again meets the appropriate materials and monitoring criteria in "1" and "2" of this subparagraph.

- A system no longer satisfies the materials criteria of 41.4(1)*"c"*(7)"1" or has a 90th percentile lead level greater than 0.005 mg/L or a 90th percentile copper level greater than 0.65 mg/L.
- The department notifies the system in writing that the waiver has been revoked, including the basis of its decision.

6. Requirements following waiver revocation. A system whose waiver has been revoked by the department is subject to the following CCT and lead and copper tap water monitoring requirements:

- If a system exceeds the lead or copper AL, it must implement CCT in accordance with the deadlines specified in 567—paragraph 43.7(1)*"e"* and any other applicable parts of 567—41.4(455B).
- If a system meets both the lead and copper ALs, it must monitor for lead and copper at the tap no less frequently than once every three years using the reduced number of sample sites specified in 41.4(1)*"c"*(3).

d. Water quality parameter (WQP) monitoring requirements. All large PWSs (and all small and medium-size PWSs that exceed the lead or copper AL) shall monitor WQPs in addition to lead and copper in accordance with this subrule. The requirements of this subrule are summarized in the table at the end of 41.4(1)*"d"*(6). The WQPs must be reported in accordance with the monthly operation report (MOR) requirements in 567—subrule 40.8(3).

(1) General.

1. Sample collection methods. Tap samples shall be representative of water quality throughout the distribution system and account for the number of persons served, the different sources of water, the different treatment methods employed by the system, and seasonal variability. Tap sampling under this subrule is not required to be conducted at taps targeted for lead and copper sampling under 41.4(1)*"c"*(1)"1." Systems may conduct tap sampling for WQPs at sites used for coliform sampling. Samples collected at the SEP(s) shall be from locations representative of each source after treatment. If a system draws water from more than one source and the sources are combined before distribution, it must sample at an SEP during periods of normal operating conditions.

2. Number of samples.

- Systems shall collect two tap samples for applicable WQPs during each monitoring period specified in 41.4(1)*"d"*(2) through 41.4(1)*"d"*(5) from the following number of sites.

Required Number of Samples: WQPs

System Size (Number of People Served)	Number of Sites for WQPs
greater than 100,000	25
10,001 to 100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
less than or equal to 100	1

- Except as provided in 41.4(1)*"d"*(3)"3," systems shall collect two samples for each applicable WQP at each SEP during each six-month monitoring period specified in 41.4(1)*"d"*(2). During each monitoring period specified in 41.4(1)*"d"*(3) through 41.4(1)*"d"*(5), systems shall collect one sample for each applicable WQP at each SEP.

(2) Initial sampling.

1. During each six-month monitoring period specified in 41.4(1)*"c"*(4)"1":

- Large PWS shall measure the applicable WQP specified below at taps and at each SEP.

- Small and medium-size systems shall measure the applicable WQPs at taps and at each SEP, during which the system exceeds the lead or copper AL.

2. Tap water and SEP monitoring shall include: pH; alkalinity; orthophosphate, when an inhibitor containing a phosphate compound is used; silica, when an inhibitor containing a silicate compound is used; calcium; conductivity; and water temperature.

(3) Monitoring after installation of corrosion control. Large systems that install OCCT pursuant to 567—subparagraph 43.7(1)*"d"*(4) shall measure the WQPs at the locations and frequencies specified below during each six-month monitoring period specified in 41.4(1)*"c"*(4)"2." Small or medium-size systems that install OCCT shall conduct such monitoring during each six-month monitoring period specified in 41.4(1)*"c"*(4)"2" in which the system exceeds the lead or copper AL.

1. Tap water monitoring shall include two samples for: pH; alkalinity; orthophosphate, when an inhibitor containing a phosphate compound is used; silica, when an inhibitor containing a silicate compound is used; and calcium, when calcium carbonate stabilization is used as part of corrosion control.

2. Except as provided in 41.4(1)*"d"*(3)"3," monitoring at each SEP shall include one sample every two weeks (biweekly) for: pH; a reading of the dosage rate of the chemical used to adjust alkalinity, and the alkalinity concentration when alkalinity is adjusted as part of OCC; and a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate or silica (whichever is applicable) when a corrosion inhibitor is used as part of OCC.

3. Any GW system can limit SEP sampling to those entry points that are representative of water quality and treatment conditions throughout the system. If water from untreated GW sources mixes with water from treated GW sources, a system must monitor for WQPs both at representative SEPs receiving treatment and representative SEPs receiving no treatment. Prior

to the start of any monitoring under this paragraph, the system shall provide the department with written information identifying the selected SEPs and documentation sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system, including information on seasonal variability.

(4) Monitoring after the department specifies WQPs for OCC. After the department specifies the values for applicable WQP reflecting OCCT under 567—paragraph 43.7(2)*"f,"* all large systems shall measure the applicable WQPs according to 41.4(1)*"d"*(3) and determine compliance with 567—paragraph 43.7(2)*"g"* every six months, with the first six-month period to begin on either January 1 or July 1, whichever comes first. Any small or medium-size system shall conduct such monitoring during each monitoring period specified in 41.4(1)*"c"*(4)"3" in which the system exceeds the lead or copper AL. For any such small and medium-size system subject to a reduced monitoring frequency pursuant to 41.4(1)*"c"*(4)"4" through "12" at the time of the AL exceedance, the start of the applicable six-month monitoring period under this paragraph shall coincide with the end of the applicable monitoring period under 41.4(1)*"c"*(4)"4" through "12." Compliance with department-designated optimal WQP values shall be determined as specified in 567—paragraph 43.7(2)*"g."*

(5) Reduced monitoring.

1. PWSs that maintain the range of values for the WQP reflecting OCCT during each of two consecutive six-month monitoring periods under 41.4(1)*"c"*(4) shall continue monitoring at the SEP(s) as specified in 567—paragraph 43.7(2)*"f."* Such systems may collect two tap samples for applicable WQPs from the following reduced number of sites during each six-month monitoring period.

Reduced WQP Monitoring

System Size (Number of People Served)	Reduced Number of Sites for WQP
greater than 100,000	10

10,001 to 100,000	7
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
less than or equal to 100	1

2. A PWS that maintains the range of values for the WQPs reflecting OCCT specified in 567—paragraph 43.7(2)*"f"* during three consecutive years of monitoring may reduce the sample collection frequency for the number of tap samples for the applicable WQPs specified in 41.4(1)*"d"*(5) from every six months to annually. This sampling shall begin during the calendar year immediately following the end of the monitoring period in which the third consecutive year of six-month monitoring occurs. Any system that maintains the range of values for the WQP reflecting OCCT specified in 567—paragraph 43.7(2)*"f"* during three consecutive years of annual monitoring may reduce the sample collection frequency for number of tap samples for applicable WQPs specified in 41.4(1)*"d"*(5) from annually to every three years. This sampling shall begin no later than the third calendar year following the end of the monitoring period in which the third consecutive year of monitoring occurs.

A system may reduce the sample collection frequency for tap samples for applicable WQPs specified in 41.4(1)*"d"*(5)"1" to every three years if it demonstrates during two consecutive monitoring periods that its tap water lead level at the 90th percentile is less than or equal to 0.005 mg/L, that its tap water copper level at the 90th percentile is less than or equal to 0.65 mg/L, and that it has maintained the range of values for the WQPs reflecting OCCT specified in 567—paragraph 43.7(2)*"f."* Monitoring conducted every three years shall be done no later than every third calendar year.

3. A PWS that conducts sampling annually shall collect these samples evenly throughout the year so as to reflect seasonal variability.

4. Any PWS subject to the reduced monitoring frequency that fails to operate at or above the minimum value or within the range of values for the WQPs specified in 567—paragraph

43.7(2)*"f"* for more than nine days in any six-month period specified in 567—paragraph 43.7(2)*"g"* shall resume distribution system tap sampling in accordance with 41.4(1)*"d"*(3). Such a system may resume annual monitoring for WQPs at the tap at the reduced number of sites specified in 41.4(1)*"d"*(5)"1" after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of that paragraph or may resume triennial monitoring for WQPs at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria in 41.4(1)*"d"*(5)"2."

(6) Additional monitoring. The results of any monitoring conducted in addition to the minimum requirements of this subrule shall be considered in making any determinations under this subrule or 567—subrule 43.7(2).

Summary of Monitoring Requirements for WQPs[1]

Monitoring Period	Location	WQPs[2]	Frequency
Initial Monitoring	Taps and SEP(s)	pH, alkalinity, orthophosphate or silica[3], calcium, conductivity, temperature	Every 6 months
After Installation of Corrosion Control	Taps	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Every 6 months
	SEP(s)[6]	pH, alkalinity, if alkalinity is adjusted as part of corrosion control then include the chemical additive dosage rate and concentration, inhibitor dosage rate and inhibitor residual[5]	At least every 2 weeks
After Department Specifies WQP Values for OCC	Taps	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Every 6 months
	SEP(s)[6]	pH, alkalinity, if alkalinity is adjusted as part of corrosion control then include the chemical additive dosage rate and concentration, inhibitor dosage rate and inhibitor residual[5]	At least every 2 weeks
Reduced Monitoring	Taps	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Every 6 months, annually[7], or every 3 years[8], at a reduced number of sites
	SEP(s)[6]	pH, alkalinity, if alkalinity is adjusted as part of corrosion control then include the chemical additive dosage rate and concentration, inhibitor dosage rate and inhibitor residual[5]	At least every 2 weeks

[1]Table is for illustrative purposes; consult the text of this subrule for precise regulatory requirements.

[2]Small and medium-size systems must monitor for WQPs only during monitoring periods in which the system exceeds the lead or copper AL.

[3]Orthophosphate must be measured only when an inhibitor containing a phosphate compound is used. Silica must be measured only when an inhibitor containing a silicate compound is used.

[4]Calcium must be measured only when calcium carbonate stabilization is used as part of corrosion control.

[5]Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured only when an inhibitor is used.

[6]GW systems may limit monitoring to representative locations throughout the systems.

[7]Systems may reduce monitoring frequency for WQPs at the tap from every six months to annually if they have maintained the range of values for WQPs reflecting OCC during three consecutive years of monitoring.

[8]Systems may further reduce the monitoring frequency for WQPs at the tap from annually to once every three years if they have maintained the range of values for WQPs reflecting OCC during three consecutive years of annual monitoring. Systems may accelerate to triennial monitoring for WQPs at the tap if they have maintained 90th percentile lead levels less than or equal to 0.005 mg/L, 90th percentile copper levels less than or equal to 0.65mg/L, and the range of WQPs designated by the department under 567—paragraph 43.7(2)*"f"* as representing OCC during two consecutive six-month monitoring periods.

e. Lead and copper source water monitoring requirements.

(1) Sample location, collection methods, and number of samples.

1. A PWS that fails to meet the lead or copper AL on the basis of tap samples collected in accordance with 41.4(1)*"c"* shall collect lead and copper source water samples in accordance with the following requirements:

- GW systems shall take a minimum of one sample at every entry point to the distribution system (hereafter called source/entry point or SEP) representative of each well after treatment. The system shall take one sample at the same SEP unless conditions make another sampling location more representative of each source or treatment plant.
- SW systems and any system with a combination of SW and GW shall take a minimum of one sample at SEP after any application of treatment or in the distribution system at a point representative of each source after treatment. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

- If a system draws water from more than one source and the sources are combined before distribution, the system must sample at an SEP during periods of normal operating conditions, when water is representative of all sources being used.

2. Where the results of sampling indicate an exceedance of maximum permissible source water levels established under 567—subparagraph 43.7(3)*"b"*(4), the department may require that one additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two weeks) at the same sampling point. If a confirmation sample is taken for lead or copper, then the results of the initial and confirmation samples shall be averaged in determining compliance with the maximum permissible levels. Lead and copper analytical results below the detection limit shall be considered to be zero. Analytical results above the detection limit but below the practical quantification level (PQL) shall either be considered as the measured value or be considered one-half the PQL.

(2) Monitoring after system exceeds tap water AL. Any system that exceeds the lead or copper AL at the tap shall collect one source water sample from each SEP no later than six months after the end of the monitoring period during which the lead or copper AL was exceeded. For monitoring periods that are annual or less frequent, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs or, if the department has established an alternate monitoring period, the last day of that period.

(3) Monitoring after installation of source water treatment. Any system that installs source water treatment pursuant to 567—subparagraph 43.7(3)*"a"*(3) shall collect an additional source water sample from each SEP during two consecutive six-month monitoring periods by the deadline specified.

(4) Monitoring frequency after the department specifies maximum permissible source water levels or determines that source water treatment is not needed.

1. A PWS shall monitor at the frequency specified below in cases where the department specifies maximum permissible source water levels under 567—subparagraph 43.7(3)*"b"*(4) or determines that the system is not required to install source water treatment under 567—subparagraph 43.7(3)*"b"*(2). A PWS using only GW shall collect samples once during the three-year compliance period in effect when the department makes this determination. Such systems shall collect samples once during each subsequent compliance period. Triennial samples shall be collected every third calendar year. A PWS using SW (or a combination of SW and GW) shall collect samples once during each year, the first annual monitoring period to begin during the year in which the department determination is made under this subparagraph.

2. A PWS using only GW is not required to conduct lead or copper source water sampling if it meets the AL for the specific contaminant in tap water samples during the entire source water sampling.

(5) Reduced monitoring frequency.

1. A system using only GW may reduce the lead and copper monitoring frequency in source water to once during each nine-year compliance cycle provided that the samples are collected no later than every ninth calendar year and the system meets one of the following criteria:

- The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead or copper concentrations specified in 567—subparagraph 43.7(3)*"b"*(4) during at least three consecutive compliance periods under 41.4(1)*"e"*(4)"1"; or
- The department has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive compliance periods in which

sampling was conducted under 41.4(1)*"e"*(4)"1," the concentrations in the source water were less than or equal to 0.005 mg/L for lead and less than or equal to 0.65 mg/L for copper.

2. A PWS using SW (or a combination of SW and GW) may reduce the monitoring frequency in 41.4(1)*"e"*(4)"1" to once during each nine-year compliance cycle provided that the samples are collected no later than every ninth calendar year and the system meets one of the following criteria:

- The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified in 567—subparagraph 43.7(3)*"b"*(4) for at least three consecutive years; or
- The department has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive years, the concentrations in source water were less than or equal to 0.005 mg/L for lead and less than or equal to 0.65 mg/L for copper.

3. A PWS that uses a new source of water is not eligible for reduced monitoring for lead or copper until concentrations in samples collected from the new source during three consecutive monitoring periods are below the maximum permissible lead and copper concentrations specified.

f. Corrosivity monitoring protocol—special monitoring for corrosivity characteristics. Suppliers of water for CWSs shall collect samples from a representative SEP to determine the corrosivity characteristics of the water. This determination shall only include one round of sampling, except in cases where the department concludes additional monitoring is necessary due to variability of the raw water sources. Sampling requirements and approved analytical methods are as follows:

(1) SW systems. Systems utilizing a SW source either in whole or in part shall collect two samples per plant to determine the corrosivity characteristics. One of these samples shall be collected during the midwinter months and the other during midsummer.

(2) GW systems. Systems utilizing GW sources shall collect one sample per plant or source, except systems with multiple plants that do not alter the corrosivity characteristics identified in 41.4(1)*"f"*(3) or systems served by multiple wells drawing raw water from a single aquifer may, with departmental approval, be considered one treatment plant or source when determining the required number of samples.

(3) Corrosivity characteristics analytical parameters. Determination of corrosivity characteristics of water shall include measurements of pH, calcium hardness, alkalinity, temperature, total dissolved solids (TDS or total filterable residue), and calculation of the Langelier Index. In addition, sulfate and chloride monitoring may be required by the department. At the department's discretion, the Aggressiveness Index test may be substituted for the Langelier Index test.

(4) Corrosivity indices methodology. The following methods must be used to calculate the corrosivity indices:

1. Aggressiveness Index—"ANSI/AWWA C401-93: AWWA Standard for the Selection of Asbestos Cement Pressure Pipe, 4″–16″ for Water Distribution Systems."

2. Langelier Index—SM 14th edition, Method 203, pp. 61-63.

(5) Distribution system construction materials. CWS and NTNCs shall identify whether the any of following construction materials are present in their distribution system and report to the department:

1. Lead from piping, solder, caulking, interior lining of distribution mains, alloys, and home plumbing.

2. Copper from piping and alloys, service lines, and home plumbing.

3. Galvanized piping, service lines, and home plumbing.

4. Ferrous piping materials such as cast iron and steel.

5. Asbestos cement pipe.

6. Vinyl lined asbestos cement pipe.

7. Coal tar lined pipes and tanks.

8. Pipe with asbestos cement lining.

g. Lead, copper, and WQP analytical methods.

(1) Analytical methods. Analyses for alkalinity, calcium, conductivity, orthophosphate, pH, silica, and temperature may be performed by a Grade I, II, III, or IV certified operator meeting the requirements of 567—Chapter 81, any person under the supervision of such an operator, or a laboratory certified in accordance with 567—Chapter 83. Lead and copper analyses under this subrule shall only be conducted by certified laboratories, pursuant to 567—Chapter 83. The following methods must be used:

Lead, Copper, and WQP Analytical Methods

Contaminant	Methodology[9]	Reference (Method Number)				
		EPA	ASTM[3]	SM	SM Online[16]	USGS[5] or Other
Alkalinity	Titrimetric		D1067-92B, 02B, 06B, 11B	2320 B[11, 15, 18]	2320 B-97	
	Electrometric titration					I-1030-85
Calcium	EDTA titrimetric		D511-93A, 03A, 09A, 14A	3500-Ca D[4] 3500-Ca B[12, 15, 18]	3500-Ca B-97	
	Atomic absorption; direct aspiration		D511-93B, 03B, 09B, 14B	3111 B[4, 15, 18]	3111 B-99	
	ICP	200.7[2]		3120 B[11, 15, 18]	3120 B-99	
	Ion chromatography		D6919-03, 09			
	AVICP-AES	200.5, Rev. 4.2[17]				
Chloride	Ion chromatography	300.0[8], 300.1[13]	D4327-97, 03	4110 B[11, 15]	4550 B-00	
	Potentiometric titration			4500-Cl^- D[11, 15]	4500-Cl^- D-97	
	Argentometric titration		D512-89B (reapproved 1999), D512-04B	4500-Cl^- B[11, 15]	4500-Cl^- B-97	
	Capillary ion electrophoresis					D6508, Rev. 2[14]
Conductivity	Conductance		D1125-95A (reapproved 1999), 14A	2510 B[11, 15, 18]	2510 B-97	
Copper[6]	Atomic absorption; furnace technique		D1688-95C, 02C, 07C, 12C	3113 B[4, 15, 18]	3113 B-99, 04, 10	
	Atomic absorption; direct aspiration		D1688-95A, 02A, 07A, 12A	3111 B[4, 15, 18]	3111 B-99	
	ICP	200.7[2]		3120 B[11, 15, 18]	3120 B-99	

	ICP-MS	200.8[2]				
	AVICP-AES	200.5, Rev. 4.2[17]				
	Atomic absorption; platform furnace	200.9[2]				
	Colorimetric					Hach Method 8026[19], Hach Method 10272[20]
Lead[6]	Atomic absorption; furnace technique		D3559-96D, 03D, 08D	3113 B[4, 15, 18]	3113 B-99, 04, 10	
	ICP-MS	200.8[2]				
	AVICP-AES	200.5, Rev. 4.2[17]				
	Atomic absorption; platform furnace technique	200.9[2]				
	Differential pulse anodic stripping voltammetry					Method 1001[10]
pH	Electrometric	150.1[1], 150.2[1]	D1293-95, 99, 12	4500-H^+ B[11, 15, 18]	4500-H^+ B-00	
Orthophosphate (Unfiltered, no digestion or hydrolysis)	Colorimetric, automated, ascorbic acid	365.1[8]		4500-P F[11, 15, 18]	4500-P F-99	Thermo Fisher Discrete Analyzer[21]
	Colorimetric, ascorbic acid, single reagent		D515-88A	4500-P E[11, 15, 18]	4500-P E-99	
	Colorimetric, phosphomolybdate;					I-1602-85
	Automated-segmented flow					I-2601-90[8]
	Automated discrete					I-2598-85
	Ion chromatography	300.0[7], 300.1[13]	D4327-97, 03, 11	4110 B[11, 15, 18]	4110 B-00	
	Capillary ion electrophoresis					D6508, Rev. 2[14]
Silica	Colorimetric, molybdate blue					I-1700-85
	Automated-segmented flow					I-2700-85
	Colorimetric		D859-95, 00, 05, 10			
	Molybdosilicate			4500-Si D[4] 4500-SiO_2 C[12, 15, 18]	4500-SiO_2 C-97	
	Heteropoly blue			4500-Si E[15] 4500-SiO_2 D[12, 15, 18]	4500-SiO_2 D-97	
	Automated method for molybdate-reactive silica			4500-Si F 4500-SiO_2 E[12, 15, 18]	4500-SiO_2 E-97	
	ICP[6]	200.7[2]		3120 B[11, 15, 18]	3120 B-99	
	AVICP-AES	200.5, Rev. 4.2[17]				
Sulfate	Ion chromatography	300.0[7], 300.1[13]	D4327-97, 03	4110[11, 15, 18]	4110 B-00	
	Automated methylthymol blue	375.2[7]		4500-SO_4 F[11, 15]	4500-SO_4^{-2} F-97	
	Gravimetric			4500-SO_4 C[11, 15] 4500-SO_4 D[11, 15]	4500-SO_4^{-2} C-97 4500-SO_4^{-2} D-97	
	Turbidimetric		D516-90, 02, 07	4500-SO_4 E[11, 15]	4500-SO_4^{-2} E-97	
	Capillary ion electrophoresis					D6508, Rev. 2[14]
Temperature	Thermometric			2550 B[11, 15, 18]	2550-00, 10	
Total Filterable Residue (TDS)	Gravimetric			2540 C[11, 15]	2540 C-97	

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies may be obtained from the sources listed below. Information regarding the documents can be obtained from the Safe

Drinking Water Hotline at 800.426.4791. Documents may be inspected at EPA's Drinking Water Docket or at the Office of Federal Register.

[1]"Methods for Chemical Analysis of Water and Wastes," EPA-600/4-79-020, March 1983. NTIS as PB84-128677.

[2]"Methods for the Determination of Metals in Environmental Samples," EPA-600/4-91-010, June 1991. NTIS as PB91-231498.

[3]ASTM, 1994, 1996, 1999, or 2003, Vols. 11.01 and 11.02; the methods listed are the only versions that may be used. The previous versions of D1688-95A and D1688-95C (copper), D3559-95D (lead), D1293-95 (pH), D1125-91A (conductivity), and D859-94 (silica) are also approved. These previous versions, D1688-90A, C, D3559-90D, D1293-84, D1125-91A and D859-88, respectively, are located in ASTM, 1994.

[4]SM, 18th and 19th editions (1992 and 1995, respectively). Either edition may be used.

[5]Techniques of Water Resources Investigation of the USGS, Book 5, Chapter A-1, 3rd ed., 1989. Information Services, USGS, Federal Center, Box 25286, Denver, CO 80225-0425.

[6]Samples may not be filtered. Samples that contain less than 1 NTU and are properly preserved (concentrated nitric acid to pH < 2) may be analyzed directly (without digestion) for total metals; otherwise, digestion is required. When digestion is required, the total recoverable technique as defined in the method must be used.

[7]"Methods for the Determination of Inorganic Substances in Environmental Samples," EPA/600/R-93/100, August 1993. NTIS as PB94-120821.

[8]"Methods of Analysis by the USGS National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments, Open File Report 93-125." Information Services, USGS, Federal Center, Box 25286, Denver, CO 80225-0425.

[9]Because MDLs reported in EPA Methods 200.7 and 200.9 were determined using a 2X preconcentration step during sample digestion, MDLs determined when samples are analyzed by direct analysis (i.e., no sample digestion) will be higher. Preconcentration may be required for direct analysis of lead by Methods 200.9, 3113B, and 3559-90D unless multiple in-furnace depositions are made.

[10]Method 1001; Palintest Water Analysis Technologies, www.palintest.com or www.hach.com.

[11]SM, 18th, 19th, and 20th editions (1992, 1995, and 1998, respectively). Any edition may be used, except that the versions of 3111B and 3113B in the 20th edition may not be used.

[12]SM, 20th edition (1998).

[13]"Methods for the Determination of Organic and Inorganic Compounds in Drinking Water," Vol. 1, EPA 815-R-00-014, August 2000. NTIS, PB2000-106981.

[14]Method D6508, Rev. 2, "Test Method for Determination of Dissolved Inorganic Anions in Aqueous Matrices Using Capillary Ion Electrophoresis and Chromate Electrolyte," Waters Corp., 34 Maple Street, Milford, MA 01757.

[15]SM, 21st edition (2005).

[16]SM Online. The year in which each method was approved is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[17]EPA Method 200.5, Revision 4.2: "Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry," 2003. EPA/600/R-06/115, www.nemi.gov.

[18]SM, 22nd edition (2012).

[19]Hach Company. "Hach Method 8026 – Spectrophotometric Measurement of Copper in Finished Drinking Water," December 2015, Revision 1.2, www.hach.com.

[20]Hach Company. "Hach Method 10272 – Spectrophotometric Measurement of Copper in Finished Drinking Water," December 2015, Revision 1.2, www.hach.com.

[21]Thermo Fisher. "Thermo Fisher Scientific Drinking Water Orthophosphate Method for Thermo Scientific Gallery Discrete Analyzer," February 2016. Revision 5. Thermo Fisher Scientific, Ratastie 2 01620 Vantaa, Finland.

(2) Lead and copper analyses under this subrule shall only be conducted by certified laboratories in accordance with 567—Chapter 83.

(3) All lead and copper levels measured between the practical quantitation limit (PQL) and MDL must be either reported as measured or reported as one-half the PQL specified for lead and copper in 567—paragraph 83.6(7)*"a"*(5)"2." All levels below the lead and copper MDLs must be reported as zero.

41.4(2) *Lead, copper, and corrosivity regulation by the setting of an MCL.* Reserved.

567—41.5(455B) Organic chemicals.

41.5(1) *MCLs and other requirements for organic chemicals.* MCLs, analytical methods, and monitoring requirements for two classes of organic chemical contaminants apply to CWSs and NTNCs as specified herein. The two referenced organic chemical classes are

volatile organic chemicals (VOCs) and synthetic organic chemicals (SOCs). BAT for control of these organic contaminants is referenced in 567—paragraph 43.3(10)*"a."*

a. Compliance. Compliance with the VOC and SOC MCL is calculated pursuant to 41.5(1)*"b"*(2).

b. MCLs and analytical methodology for organic compounds. The VOC and SOC MCLs are listed in the following table. VOC and SOC analyses shall be conducted using the methods in the following table and its footnotes or their equivalent as approved by EPA. For analysis of a compliance sample, a certified laboratory must be able to achieve at least the MDL for the specific VOC or SOC shown in the following table.

(1) Table.

Organic Chemical (VOC and SOC) Contaminants, Codes, MCLs, Analytical Methods, and Detection Limits

Contaminant	EPA Contaminant Code	MCL (mg/L)	Methodology[1]	Detection Limit (mg/L)
Volatile Organic Chemicals (VOCs):				
Benzene	2990	0.005	502.2, 524.2, 524.3, 524.4[7]	0.0005
Carbon tetrachloride	2982	0.005	502.2, 524.2, 524.3, 524.4[7], 551.1	0.0005
Chlorobenzene (mono)	2989	0.1	502.2, 524.2, 524.3, 524.4[7]	0.0005
1,2-Dichlorobenzene (ortho)	2968	0.6	502.2, 524.2, 524.3, 524.4[7]	0.0005
1,4-Dichlorobenzene (para)	2969	0.075	502.2, 524.2, 524.3, 524.4[7]	0.0005
1,2-Dichloroethane	2980	0.005	502.2, 524.2, 524.3, 524.4[7]	0.0005
1,1-Dichloroethylene	2977	0.007	502.2, 524.2, 524.3, 524.4[7]	0.0005
cis-1,2-Dichloroethylene	2380	0.07	502.2, 524.2, 524.3, 524.4[7]	0.0005
trans-1,2-Dichloroethylene	2979	0.1	502.2, 524.2, 524.3, 524.4[7]	0.0005
Dichloromethane	2964	0.005	502.2, 524.2, 524.3, 524.4[7]	0.0005
1,2-Dichloropropane	2983	0.005	502.2, 524.2, 524.3, 524.4[7]	0.0005
Ethylbenzene	2992	0.7	502.2, 524.2, 524.3, 524.4[7]	0.0005
Styrene	2996	0.1	502.2, 524.2, 524.3, 524.4[7]	0.0005
Tetrachloroethylene	2987	0.005	502.2, 524.2, 524.3, 524.4[7], 551.1	0.0005
Toluene	2991	1	502.2, 524.2, 524.3, 524.4[7]	0.0005
1,1,1-Trichloroethane	2981	0.2	502.2, 524.2, 524.3, 524.4[7], 551.1	0.0005
Trichloroethylene	2984	0.005	502.2, 524.2, 524.3, 524.4[7], 551.1	0.0005
1,2,4-Trichlorobenzene	2378	0.07	502.2, 524.2, 524.3, 524.4[7]	0.0005
1,1,2-Trichloroethane	2985	0.005	502.2, 524.2, 524.3, 524.4[7], 551.1	0.0005
Vinyl chloride	2976	0.002	502.2, 524.2, 524.3, 524.4[7]	0.0005
Xylenes (total)	2955	10	502.2, 524.2, 524.3, 524.4[7]	0.0005
Synthetic Organic Chemicals (SOCs):				
Alachlor[3]	2051	0.002	505, 507, 508.1, 525.2, 525.3, 551.1	0.0002
Aldicarb	2047	0.003	531.1, 6610	0.0005
Aldicarb sulfone	2044	0.002	531.1, 6610	0.0008
Aldicarb sulfoxide	2043	0.004	531.1, 6610	0.0005
Atrazine[3]	2050	0.003	505, 507, 508.1, 523, 525.2, 525.3, 536, 551.1, Syngenta AG-625[5]	0.0001

Benzo(a)pyrene	2306	0.0002	525.2, 525.3, 550, 550.1	0.00002
Carbofuran	2046	0.04	531.1, 531.2, 6610, 6610B, 6610 B-04[2]	0.0009
Chlordane[3]	2959	0.002	505, 508, 508.1, 525.2, 525.3	0.0002
2,4-D[6] (as acids, salts, and esters)	2105	0.07	515.1, 515.2, 515.3, 515.4, 555, D5317-93, 98 (Reapproved 2003), 6610B, 6640-B, 6640 B-01, 6640 B-06	0.0001
Dalapon	2031	0.2	515.1, 515.3, 515.4, 552.1, 552.2, 552.3, 557, 6640, 6610B, 6640-B, 6640 B-01, 6640 B-06	0.001
1,2-Dibromo-3-chloropropane (DBCP)	2931	0.0002	504.1, 524.3, 551.1	0.00002
Di(2-ethylhexyl)adipate	2035	0.4	506, 525.2, 525.3	0.0006
Di(2-ethylhexyl)phthalate	2039	0.006	506, 525.2, 525.3	0.0006
Dinoseb[6]	2041	0.007	515.1, 515.2, 515.3, 515.4, 555, 6610B, 6640-B, 6640 B-01, 6640 B-06	0.0002
Diquat	2032	0.02	549.2	0.0004
Endothall	2033	0.1	548.1	0.009
Endrin[3]	2005	0.002	505, 508, 508.1, 525.2, 525.3, 551.1	0.00001
Ethylene dibromide (EDB)	2946	0.00005	504.1, 524.3, 551.1	0.00001
Glyphosate	2034	0.7	547, 6651, 6651B, 6651 B-00, 6640 B-05	0.006
Heptachlor[3]	2065	0.0004	505, 508, 508.1, 525.2, 525.3, 551.1	0.00004
Heptachlor epoxide[3]	2067	0.0002	505, 508, 508.1, 525.2, 525.3, 551.1	0.00002
Hexachlorobenzene[3]	2274	0.001	505, 508, 508.1, 525.2, 525.3, 551.1	0.0001
Hexachlorocyclopentadiene[3]	2042	0.05	505, 508, 508.1, 525.2, 525.3, 551.1	0.0001
Lindane (gamma BHC)[3]	2010	0.0002	505, 508, 508.1, 525.2, 525.3, 551.1	0.00002
Methoxychlor[3]	2015	0.04	505, 508, 508.1, 525.2, 525.3, 551.1	0.0001
Oxamyl	2036	0.2	531.1, 531.2, 6610, 6610B, 6610 B-04[2]	0.002
Pentachlorophenol	2326	0.001	515.1, 515.2, 515.3, 515.4, 525.2, 525.3, 555, D5317-93, 98 (Reapproved 2003), 6610B, 6640-B, 6640 B-01, 6640 B-06	0.00004
Picloram[3, 6]	2040	0.5	515.1, 515.2, 515.3, 515.4, 555, D5317-93, 98 (Reapproved 2003), 6610B, 6640-B, 6640 B-01, 6640 B-06	0.0001
PCBs[4] (as decachlorobiphenyl) (as Arochlors)[3]	2383	0.0005	508A 505, 508, 508.1, 525.2, 525.3	0.0001
Simazine[3]	2037	0.004	505, 507, 508.1, 523, 525.2, 525.3, 536, 551.1	0.00007
2,3,7,8-TCDD (dioxin)	2063	$3x10^{-8}$	1613	$5x10^{-9}$
2,4,5-TP[6] (Silvex)	2110	0.05	515.1, 515.2, 515.3, 515.4, 555, D5317-93, 98 (Reapproved 2003), 6610B, 6640-B, 6640 B-01, 6640 B-06	0.0002
Toxaphene[3]	2020	0.003	505, 508, 508.1, 525.2, 525.3	0.001

[1]Analyses for the contaminants in this table shall be conducted using the following EPA methods or their equivalent as approved by EPA. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies may be inspected at EPA's Drinking Water Docket or at NARA.

NTIS methods:

Methods for the Determination of Organic Compounds in Drinking Water, EPA-600/4-88-039, December 1988, Revised July 1991 (NTIS PB91-231480): Methods 508A and 515.1.

Methods for the Determination of Organic Compounds in Drinking Water—Supplement I, EPA-600/4-90-020, July 1990 (NTIS PB91-146027): Methods 547, 550, 550.1.

Methods for the Determination of Organic Compounds in Drinking Water—Supplement II, EPA-600/R-92-129, August 1992 (NTIS PB92-207703): Methods 548.1, 552.1, 555.

Methods for the Determination of Organic Compounds in Drinking Water—Supplement III, EPA-600/R-95-131, August 1995 (NTIS PB95-261616): Methods 502.2, 504.1, 505, 506, 507, 508, 508.1, 515.2, 524.2, 525.2, 531.1, 551.1, 552.2.

EPA Method 523, "Determination of Triazine Pesticides and Their Degradates in Drinking Water by Gas Chromatography/Mass Spectrometry (GC/MS)," 2011. EPA-815-R-11-002, www.nepis.epa.gov.

EPA Method 524.3, Version 1.0. "Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry," June 2009. EPA 815-B-09-009, www.nemi.gov.

EPA Method 525.3, "Determination of Semivolatile Organic Chemicals in Drinking Water by Solid Phase Extraction and Capillary Column Gas Chromatograph/Mass Spectrometry (GC/MS)," 2012. EPA/600/R-12-010, www.nepis.epa.gov.

EPA Method 536, "Determination of Triazine Pesticides and Their Degradates in Drinking Water by Liquid Chromatography Electrospray Ionization Tandem Mass Spectrometry (LC/ESI-MS/MS)," 2007. EPA/815-B-07-002, www.nepis.epa.gov.

EPA Method 557, "Determination of Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry (IC-ESI-MS/MS)," September 2009. EPA 815-B-09-012, www.nemi.gov.

Method 1613 "Tetra-through Octa-Chlorinated Dioxins and Furans by Isotope-Dilution HRGC/HRMS," EPA-821-B-94-005, October 1994 (NTIS PB95-104774).

APHA documents:

SM, supplement to the 18th edition, 1994, 19th edition, 1995, 20th edition, 1998, 21st edition, 2005, or 22nd edition, 2012 (any of these editions may be used), APHA: Method 6610 and (carbofuran and oxamyl only) 6610B and 6610 B-04; Method 6640B (21st and 22nd editions only) and SM online 6640 B-01 for 2,4-D, 2,4,5-TP Silvex, dalapon, dinoseb, pentachlorophenol, and picloram; Method 6651B (21st and 22nd editions only) and SM online 6670-B-00 for glyphosate.

SM, 18th edition, 1992, 19th edition, 1995, or 20th edition, 1998, (any of these editions may be used), APHA: Method 6651.

ASTM, 1999, Vol. 11.02 (or any edition published after 1993), ASTM: D5317-93, 98 (Reapproved 2003).

Methods 515.3 and 549.2, EPA NERL, 26 W. Martin Luther King Drive, Cincinnati, OH 45268.

Method 515.4, "Determination of Chlorinated Acids in Drinking Water by Liquid-Liquid Microextraction, Derivatization and Fast Gas Chromatography with Electron Capture Detection," Revision 1.0, April 2000, EPA 815/B-00/001 and EPA Method 552.3, "Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-liquid Microextraction,

Derivatization, and Gas Chromatography with Electron Capture Detection," Revision 1.0, July 2003, EPA 815-B-03-002, www.epa.gov/safewater/methods/sourcalt.html.

Method 531.2, "Measurement of n-Methylcarbamoyloximes and n-Methylcarbamates in Water by Direct Aqueous Injection HPLC with Postcolumn Derivatization," Revision 1.0, September 2001, EPA 815/B-01/002, www.epa.gov/safewater/methods/sourcalt.html.

Syngenta AG-625 Method, "Atrazine in Drinking Water by Immunoassay," February 2001, Syngenta Crop Protection, Inc., 410 Swing Road, P.O. Box 18300, Greensboro, NC 27419.

Other required analytical test procedures germane to the conduct of these analyses are contained in Technical Notes on Drinking Water Methods, EPA-600/R-94-173, October 1994 (NTIS PB95-104766).

[2]SM Online. The year that each method was approved is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[3]The detectors specified in Method 505, 507, 508, or 508.1 may be substituted for the purpose of achieving lower MDLs with either an electron capture or nitrogen-phosphorus detector, provided all regulatory requirements and quality control criteria are met.

[4]PCBs are qualitatively identified as Aroclors and measured for compliance purposes as decachlorobiphenyl. Users of Method 505 may have more difficulty in achieving the required detection limits than users of Method 508. 508.1, or 525.2.

[5]This method may not be used for atrazine analysis in any system where chlorine dioxide is used in the drinking water treatment. In samples from all other systems, any atrazine result generated by Method AG-625 that is greater than one-half the MCL must be confirmed using another approved atrazine method and should use additional volume of the original sample collected for compliance monitoring. In instances where a result from Method AG-625 triggers such confirmatory testing, the confirmatory result is to be used to determine compliance.

[6]Accurate determination of the chlorinated esters requires hydrolysis of the sample as described in EPA Methods 515.1, 515.2, 515.3, 515.4, and 555, and ASTM Method D5317-93, 98 (Reapproved 2003).

[7]EPA Method 524.4, Version 1.0. "Measurement of Purgeable Organic Compounds in Water by Gas Chromatography/Mass Spectrometry Using Nitrogen Purge Gas," May 2013, EPA 815-R-13-002.

(2) Organic chemical compliance calculations. Compliance with this paragraph shall be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL in this paragraph, the system is in violation of the MCL. If a system fails to collect the required number of samples, compliance will be based on the total

number of samples collected. If a sample result is less than the detection limit, zero will be used when calculating the running annual average (RAA). If a system is in violation of an MCL, the water supplier is required to give notice to the department in accordance with 567—subrule 40.8(1) and to provide PN as required by 567—40.5(455B).

1. Monitoring more than once per year for VOC or SOC contaminants. For systems that monitor more than once per year, MCL compliance is determined by an RAA of all samples collected at each sampling point.

2. Monitoring annually or less frequently for VOC contaminants. Systems that monitor annually or less frequently and whose VOC sample result exceeds the MCL must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling. However, if any sample result will cause the RAA to exceed the MCL at any sampling point, a system is immediately out of compliance with the MCL.

3. Monitoring annually or less frequently for SOC contaminants. Systems that monitor annually or less frequently and whose SOC sample result exceeds the regulatory detection limit specified in 41.5(1)*"b"*(1) must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling. However, if any sample result will cause the RAA to exceed the MCL at any sampling point, a system is immediately out of compliance with the MCL.

(3) TTs for acrylamide and epichlorohydrin. Each PWS must certify annually in writing to the department (using third-party or manufacturer's certification) that when acrylamide and epichlorohydrin are used in drinking water systems, the combination (or product) of dose and monomer level does not exceed the following levels:

Acrylamide = 0.05 percent dosed at 1 ppm (or equivalent)

Epichlorohydrin = 0.01 percent dosed at 20 ppm (or equivalent)

Certifications can rely on information provided by manufacturers or third parties, as approved by the department.

c. VOC and SOC monitoring requirements. Each PWS shall monitor at the time designated within each compliance period. All new systems or systems that use a new source of water must demonstrate compliance with the MCLs within the department-specified time period. The system must also comply with the specified initial sampling frequencies to ensure it can demonstrate MCL compliance. A water source that is determined by the department to be a new SEP is considered to be a new source for the purposes of this paragraph. Routine and increased monitoring shall be conducted in accordance with this in this paragraph.

(1) Routine VOC monitoring requirements. CWSs and NTNCs shall monitor the VOCs listed in 41.5(1)*"b"*(1) to determine MCL compliance.

(2) VOC monitoring protocol.

1. GW monitoring. GW systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a source/entry point or SEP). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system.

2. SW monitoring. SW systems (and combined SW/GW systems) shall take a minimum of one sample at each SEP after treatment. Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system.

3. Multiple sources. If a system draws water from more than one source and the sources are combined before distribution, it must sample at an SEP during periods of normal operating conditions. If a representative sample of all water sources cannot be obtained, as determined

by the department, separate SEPs with the appropriate monitoring requirements will be assigned by the department.

4. Initial VOC monitoring frequency. Each CWS and NTNC shall take four consecutive quarterly samples for each VOC during each compliance period, beginning in the initial compliance period. If the initial VOC monitoring has been completed by December 31, 1992, and a system did not detect any VOC, then each GW and SW system shall take one sample annually beginning with the initial compliance period.

5. Reduced VOC monitoring for GW systems. After a minimum of three years of annual sampling, the department may allow GW systems with no previous detection of any VOC to take one sample during each compliance period.

6. VOC monitoring waivers. Each CWS and NTNC GW system that does not detect a VOC may apply to the department for a waiver from 41.5(1)*"c"*(2)"4" and "5" after completing the initial monitoring. A waiver shall be effective for no more than six years (two compliance periods). The department may also issue waivers to small systems for the initial round of monitoring for 1,2,4-trichlorobenzene. Detection is defined as greater than or equal to 0.0005 mg/L.

7. Bases of a VOC monitoring waiver. The department may grant a waiver if it finds that there is no knowledge of previous use (including transport, storage, or disposal) of the contaminant within the watershed or the system's zone of influence. If previous use of the contaminant is unknown or it has been used previously, the following factors shall be used to determine whether a waiver is granted.

- Previous analytical results.
- The system's proximity to a potential point or nonpoint source of contamination. Point sources include spills and leaks of chemicals at or near: a water treatment facility or at

manufacturing, distribution, or storage facilities, from hazardous and municipal waste landfills, or from other waste handling or treatment facilities.

- The environmental persistence and transport of the contaminants.
- The number of persons served by the PWS and the proximity of a smaller system to a larger system, and
- How well the water source is protected against contamination. GW systems must consider factors such as depth of the well, the type of soil, and wellhead protection. SW systems must consider watershed protection.

8. VOC waivers for GW systems. As a condition of the monitoring waiver, a GW system must take one sample at each sampling point during the time the waiver is effective and update its vulnerability assessment, considering the factors in 41.5(1)*"c"*(2)"7." Based on this vulnerability assessment, the department must reconfirm that the system is nonvulnerable. If the department does not reconfirm within three years of the initial vulnerability determination, the waiver is invalidated and the system is required to sample annually as specified in 41.5(1)*"c"*(2)"4."

9. VOC waivers for SW systems. Each CWS and NTNC that does not detect a VOC may apply to the department for a waiver from 41.5(1)*"c"*(2)"4" after completing the initial monitoring. Systems meeting this criterion must be determined by the department to be nonvulnerable based on a vulnerability assessment during each compliance period. Each system receiving a waiver shall sample at the department-specified frequency (if any).

10. Increased VOC monitoring—quarterly. If a VOC is detected at a level exceeding 0.0005 mg/L in any sample, the system must monitor quarterly at each sampling point which resulted in a detection. The department may decrease the quarterly monitoring specified in 41.5(1)*"c"*(2)"4" provided it has determined that the system is reliably and consistently below the MCL. The department shall not make this determination unless a GW system takes a

minimum of two quarterly samples and a SW system takes a minimum of four quarterly samples.

11. Increased VOC monitoring—annual. If the department determines that a system is reliably and consistently below the MCL, the system may be allowed to monitor annually. Systems that monitor annually must monitor during the quarter(s) that previously yielded the highest analytical result. Systems that have three consecutive annual samples with no detection of a contaminant may apply for a waiver as specified in 41.5(1)*"c"*(2)"6."

12. Increased VOC monitoring—vinyl chloride. GW systems that have detected one or more of the following two-carbon organic compounds: trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1-trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, or 1,1-dichloroethylene shall monitor quarterly for vinyl chloride. A vinyl chloride sample shall be taken at each sampling point at which one or more of the two-carbon organic compounds was detected. If the results of the first analysis do not detect vinyl chloride, the department may reduce the quarterly vinyl chloride monitoring frequency to one sample during each compliance period. SW systems are required to monitor for vinyl chloride as specified by the department.

13. VOCs reliably and consistently below the MCL. Systems that violate the MCL requirements of 41.5(1)*"b"*(1) must monitor quarterly. After a minimum of four consecutive quarterly samples that show the system is in compliance, and a department determination that the system is reliably and consistently below the MCL, the system may monitor at the frequency and times specified in 41.5(1)*"c"*(2)"10," third unnumbered paragraph (following department approval).

(3) Routine and repeat SOC monitoring requirements. Analysis of the SOCs contaminants listed in 41.5(1)*"b"*(1) to determine MCL compliance shall be conducted as follows:

1. SOC GW monitoring protocols. GW systems shall take a minimum of one sample at every SEP. Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

2. SOC SW monitoring protocols. SW systems shall take a minimum of one sample at each SEP after treatment. Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant. For purposes of this paragraph, SW systems include systems with a combination of surface and ground sources.

3. Multiple sources. If a system draws water from more than one source and the sources are combined before distribution, it must sample at an SEP during periods of normal operating conditions. If a representative sample of all water sources cannot be obtained, as determined by the department, separate SEPs with the appropriate monitoring requirements will be assigned by the department.

4. SOC monitoring frequency. CWSs and NTNCs shall take four consecutive quarterly samples for each SOC during each compliance period. Systems serving more than 3,300 persons that do not detect an SOC in the initial compliance period may reduce the sampling frequency to a minimum of two quarterly samples in one year during each repeat compliance period. Systems serving less than or equal to 3,300 persons that do not detect an SOC in the initial compliance period may reduce the sampling frequency to a minimum of one sample during each repeat compliance period.

5. SOC monitoring waivers. Each CWS and NTNC may apply to the department for a waiver from the requirements of 41.5(1)*"c"*(3)"4." A system must reapply for a waiver for each compliance period.

6. Bases of an SOC monitoring waiver. The department may grant a waiver if it finds that there is no knowledge of previous use (including transport, storage, or disposal) of the

contaminant within the watershed or zone of influence of the system. If previous use of the contaminant is unknown or it has been used previously, the following factors shall be used to determine whether a waiver is granted.

- Previous analytical results.
- The system proximity to a potential point or nonpoint source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, from hazardous and municipal waste landfills, or from other waste handling or treatment facilities. Nonpoint sources include the use of pesticides to control insect and weed pests on agricultural areas, forest lands, homes, and gardens, and other land application uses.
- The environmental persistence and transport of a pesticide or PCBs.
- How well the water source is protected against contamination due to such factors as depth of the well, the type of soil, and the well casing integrity.
- Elevated nitrate levels at the water source, and
- Use of PCBs in equipment used in the production, storage, or distribution of water.

7. Increased SOC monitoring. If an SOC is detected in any sample, then:

- Each system must monitor quarterly at each sampling point which resulted in a detection.
- The department may decrease the quarterly SOC monitoring if the system is reliably and consistently below the MCL. The department shall not make this determination unless a GW system takes a minimum of two quarterly samples and a SW system takes a minimum of four quarterly samples.
- After the department determines the system is reliably and consistently below the MCL, the system may monitor annually. Systems that monitor annually must monitor during the quarter that previously yielded the highest analytical result.

- Systems that have three consecutive annual samples with no detection of a contaminant may apply for a waiver as specified in 41.5(1)*"c"*(3)"6."
- If monitoring results in detection of one or more of certain related contaminants (aldicarb, aldicarb sulfone, aldicarb sulfoxide, heptachlor, and heptachlor epoxide), subsequent monitoring shall analyze for all related contaminants.

8. MCL violation and reliably/consistently below the MCL. Systems that violate the requirements of 41.5(1)*"b"* must monitor quarterly. After a minimum of four quarterly samples show the system is in compliance and the department determines the system is reliably and consistently below the MCL, the system shall monitor at the frequency specified in 41.5(1)*"c"*(3)"7."

(4) SOC and VOC confirmation samples. The department may require a confirmation sample for positive or negative results. If a confirmation sample is required, the result must be averaged with the first sampling result and the average must be used for the compliance determination as specified by 41.5(1)*"b"*(2). The department has discretion to disregard results of obvious sampling errors from this calculation.

(5) Grandfathered VOC and SOC data. The department may allow the use of monitoring data collected after January 1, 1988, for VOCs and January 1, 1990, for SOCs required under SDWA Section 1445 for initial monitoring compliance. If the data are generally consistent with the other requirements in this subparagraph, the department may use such data to satisfy the initial monitoring requirement for the initial compliance period beginning January 1, 1993. Systems that use grandfathered samples for VOCs and did not detect any contaminants listed in 41.5(1)*"b"*(1) shall begin monitoring annually in accordance with 41.5(1)*"c"*(2) beginning January 1, 1993.

(6) Increased VOC and SOC monitoring. The department may increase the required monitoring frequency, where necessary, to detect system variations (e.g., fluctuations in

concentration due to seasonal use, changes in water source, changes to treatment facilities, or normal operation thereof).

(7) VOC and SOC vulnerability assessment criteria. Vulnerability for each PWS shall be determined by the department based upon an assessment of the following factors.

1. Previous monitoring results. A system will be classified vulnerable if any sample was analyzed to contain one or more VOCs, SOCs, or acrylamide and epichlorohydrin, except for trihalomethanes or other demonstrated DBPs.

2. Proximity of SW supplies to commercial or industrial use, disposal, or storage of VOCs or SOCs. SW supplies that withdraw water directly from reservoirs are considered vulnerable if the drainage basin upgradient and within two miles of the shoreline at the maximum water level contains major transportation facilities or any of the contaminant sources in this subparagraph. SW supplies that withdraw water directly from flowing water courses are considered vulnerable if the drainage basin upgradient and within two miles of the water intake structure contains major transportation facilities or any of the contaminant sources in this subparagraph. Major transportation facilities include but are not limited to primary highways or railroads.

3. Proximity of wells to commercial or industrial use, disposal, or storage of VOCs or SOCs. Wells that are not separated from sources of contamination by at least the following distances will be considered vulnerable.

VOC and SOC Well Separation Distances

Sources of Contamination	Shallow Wells	Deep Wells
Sanitary and industrial point discharges	400 ft	400 ft
Mechanical waste treatment plants	400 ft	200 ft
Lagoons	1,000 ft	400 ft
Chemical and mineral storage (aboveground)	200 ft	100 ft
Chemical and mineral storage including underground storage tanks on or below ground	400 ft	200 ft
Solid waste disposal site	1,000 ft	1,000 ft

4. A system is deemed to be vulnerable for a period of three years after any positive measurement of one or more VOCs or SOCs, except for trihalomethanes or other demonstrated DBPs.

(8) PCB analytical methodology. PCBs analysis shall be conducted using the methods in 41.5(1)*"b"*(1) and as follows:

1. Each system that monitors for PCBs shall analyze each sample using Method 505, 508, 508.1, or 525.2. Users of Method 505 may have more difficulty in achieving the required Aroclor detection limits than users of Method 508, 508.1, or 525.2.

2. If PCBs (as one of seven Aroclors) are detected in any sample analyzed using Method 505 or 508, the system shall reanalyze the sample using Method 508A to quantitate PCBs as decachlorobiphenyl.

PCB Aroclor Detection Limits

Aroclor	Detection Limit (mg/L)
1016	0.00008
1221	0.02
1232	0.0005
1242	0.0003
1248	0.0001
1254	0.0001
1260	0.0002

3. Compliance with the PCB MCL shall be determined based upon the quantitative results of analyses using Method 508A.

41.5(2) *Organic chemicals occurring as (nontrihalomethane) DBPs.* Reserved.

567—41.6(455B) Disinfection byproducts (DBPs) MCLs and monitoring requirements.

41.6(1) *Stage 1 DBP requirements.*

a. Applicability.

(1) This rule establishes criteria under which CWSs and NTNCs that add a chemical disinfectant to the water in any part of the drinking water treatment process or which provide water that contains a chemical disinfectant must modify their practices to meet the MCLs in

this rule and the maximum residual disinfectant levels (MRDL) and TT requirements for DBP precursors in 567—43.6(455B).

(2) Compliance dates for this rule are based upon the source water type and the population served. Systems are required to comply with this rule as follows, unless otherwise noted. The department may assign an earlier monitoring period as part of the operation permit, but MCL compliance is not required until the dates stated below.

1. CWSs and NTNCs which use SW or IGW in whole or in part and which serve 10,000 or more persons must comply with this rule beginning January 1, 2002.

2. All other CWSs and NTNCs covered by 41.6(1)*"a"*(1) must comply with this rule by January 1, 2004.

(3) Consecutive systems that provide water containing a disinfectant or oxidant are required to comply with this rule.

(4) Systems with water sources that are used independently from each other, are not from the same source as determined by the department, or do not go through identical treatment processes are required to monitor for the applicable disinfectants or oxidants and DBP during operation of each source. Systems must comply with this rule during the use of each water source.

b. DBP MCLs.

(1) The MCLs for DBPs are as follows:

DBP	MCL (mg/L)
Bromate	0.010
Chlorite	1.0
Haloacetic acids (HAA5)	0.060
Total trihalomethanes (TTHM)	0.080

(2) Beginning on the date in the following table, a system must comply with the TTHM and HAA5 MCL as a locational RAA at each monitoring location.

System Size (number of people served)	Date system must comply with MCL at each sampling location*
Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system	
System serving at least 100,000 people	April 1, 2012

System serving 50,000-99,999 people	October 1, 2012
System serving 10,000-49,999 people	October 1, 2013
System serving fewer than 10,000 people	October 1, 2013 for all GW systems and for SW/IGW systems that did not collect *Cryptosporidium* source water samples October 1, 2014 for SW/IGW systems that collected *Cryptosporidium* source water samples
Other systems that are part of a combined distribution system	
Consecutive or wholesale system	At the same time as the system with the earliest compliance date in the combined distribution system

*The department may grant up to an additional 24 months for compliance with the MCLs and OELs if the system requires capital improvements to comply with an MCL.

c. DBP monitoring requirements.

(1) General.

1. Systems must take all samples during normal operating conditions.

2. Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required, with department approval.

3. Failure to monitor in accordance with the monitoring plan required under 41.6(1)*"c"*(1)"6" is a monitoring violation.

4. Failure to monitor is a violation for the entire period covered by the annual average where compliance is based on an RAA of monthly or quarterly samples or averages, and the system's failure to monitor makes it impossible to determine MCL compliance.

5. Systems may use only data collected under the provisions of this rule or 567—43.6(455B) to qualify for reduced monitoring.

6. Each system required to monitor under the provisions of this rule or 567—43.6(455B) must develop and implement a monitoring plan. The system must maintain the plan and make it available for inspection by the department and the general public no later than 30 days following the applicable compliance dates in 41.6(1)*"a"*(3). All systems using SW or IGW and serving more than 3,300 people must submit a copy of the monitoring plan to the department by the applicable date in 41.6(1)*"a"*(3)"1." The department may also require the

plan to be submitted by any other system. After review, the department may require changes in any plan elements. The plan must include the following elements:

- Specific locations and schedules for collecting samples for any parameters included in this rule.
- How the system will calculate compliance with MCLs, MRDLs, and TTs.

7. The department may require a monthly monitoring frequency for DBPs, which would be specified in the operation permit.

(2) Bromate. CWSs and NTNCS using ozone for disinfection or oxidation must monitor for bromate.

1. Routine monitoring. Systems must take at least one sample per month for each treatment plant in the system using ozone, collected at each SEP while the ozonation system is operating under normal conditions.

2. Reduced monitoring. A system may reduce monitoring from monthly to quarterly if its RAA bromate concentration is less than or equal to 0.0025 mg/L based on monthly bromate measurements for the most recent four quarters. If a system previously qualified for reduced bromate monitoring and is on quarterly sampling frequency, it may remain on reduced monitoring as long as the RAA of the bromate samples is less than or equal to 0.0025 mg/L. If the RAA of quarterly bromate samples exceeds 0.0025 mg/L, the system must resume routine bromate monitoring. Only three analytical methods may be used for bromate samples under reduced monitoring: EPA Method 317.0 Revision 2.0, Method 326.0, or Method 321.8.

(3) Chlorite. CWS and NTNC using chlorine dioxide, for disinfection or oxidation, must monitor for chlorite. If the system does not use chlorine dioxide on a daily basis, it must conduct the required daily monitoring each day chlorine dioxide is used, and any required

monthly monitoring during those months in which chlorine dioxide is used during any portion of the month.

1. Routine daily monitoring. Systems must monitor daily at the SEP. For any daily sample that exceeds the chlorite MCL, the system must take additional samples in the distribution system the following day at the locations required by 41.6(1)*"c"*(3)"3," which are in addition to the sample required at the SEP. These daily SEP samples may be analyzed by system personnel, in accordance with 41.6(1)*"d."*

2. Routine monthly monitoring. Systems must take a three-sample set each month in the distribution system. The system must take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time (MRT) in the distribution system. Any additional routine sampling must be conducted in the same manner as the three-sample sets. The system may use the results of additional monitoring conducted in accordance with 41.6(1)*"c"*(3)"3" to meet the monitoring requirement in this subparagraph. These monthly samples must be analyzed by a certified laboratory using an approved ion chromatography method, in accordance with 41.6(1)*"d."*

3. Additional monitoring. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the SEP the system is required to take three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting MRT in the distribution system). These additional samples must be analyzed by a certified laboratory using an approved ion chromatography method, in accordance with 41.6(1)*"d."*

4. Reduced monitoring.

- Daily chlorite monitoring at the SEP required by 41.6(1)*"c"*(3)"1" may not be reduced.

● The department may allow the monitoring for systems with monthly chlorite monitoring in the distribution system to be reduce to 1 three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under 41.6(1)*"c"*(3)"2" has exceeded the chlorite MCL and the system has not been required to conduct additional monitoring under 41.6(1)*"c"*(3)"3." The system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system under 41.6(1)*"c"*(3)"2" exceeds the chlorite MCL, or the system is required to conduct additional monitoring under 41.6(1)*"c"*(3)"3," at which time it must revert to routine monitoring.

(4) Total trihalomethanes (TTHM) and haloacetic acids (HAA5).

1. Routine monitoring. Systems must monitor at the frequency indicated in the following table. Both the TTHM and HAA5 samples must be collected as paired samples during the same time period in order for each parameter to have the same annual average period for result comparison. A paired sample is one that is collected at the same location and time and is analyzed for both TTHM and HAA5 parameters.

Routine Monitoring Frequency for TTHM and HAA5

Type of System (source water type and population served)	Minimum Monitoring Frequency	Sample Location in the Distribution System
SW/IGW[3] system serving ≥10,000 persons	4 water samples per quarter per treatment plant	At least 25 percent of all samples collected each quarter at locations representing MRT. Remaining samples taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, accounting for number of persons served, different sources of water, and different treatment methods.[1]
SW/IGW[3] system serving 500-9,999 persons	1 water sample per quarter per treatment plant	Locations representing MRT.[1]
SW/IGW[3] system serving <500 persons	1 sample per year per treatment plant during month of warmest water temperature	Locations representing MRT.[1] If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the MRT in the distribution system, until system meets reduced monitoring criteria in 41.6(1)*"c"*(4)"2," second bulleted paragraph.
System using only non-IGW GW using chemical disinfectant and serving ≥10,000 persons	1 water sample per quarter per treatment plant[2]	Locations representing MRT.[1]

System using only non-IGW GW using chemical disinfectant and serving <10,000 persons	1 sample per year per treatment plant during month of warmest water temperature	Locations representing MRT.[1] If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the MRT time in the distribution system, until system meets reduced monitoring criteria in 41.6(1)*"c"*(4)"2," second bulleted paragraph.

[1]If a system chooses to sample more frequently than the minimum required, at least 25 percent of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the MRT of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system.

[2]Multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the minimum number of samples required, with department approval.

[3]SW/IGW indicates those systems that use either SW or IGW, in whole or in part.

2. Reduced monitoring. The department may allow systems a reduced monitoring frequency, except as otherwise provided, in accordance with the following table. Source water total organic carbon (TOC) levels must be determined in accordance with 567—subparagraph 43.6(2)*"c"*(1).

Reduced Monitoring Frequency for TTHM and HAA5

If you are a ...	And you have monitored at least one year and you have ...	You may reduce monitoring to this level
SW/IGW[1] system serving ≥10,000 persons with a source water annual average TOC level, before any treatment, of ≤4.0 mg/L.	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L	1 sample per treatment plant per quarter at distribution system location reflecting MRT.
SW/IGW[1] system serving 500 - 9,999 persons with a source water annual average TOC level, before any treatment, of ≤4.0 mg/L.	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L	1 sample per treatment plant per year at distribution system location reflecting MRT during month of warmest water temperature.
SW/IGW[1] system serving <500 persons	SW/IGW[1] systems serving <500 persons may not reduce monitoring to less than 1 sample per treatment plant per year.	
System using only non-IGW GW using chemical disinfectant and serving ≥10,000 persons	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L	1 sample per treatment plant per year at distribution system location reflecting MRT during month of warmest water temperature.
System using only non-IGW GW using chemical disinfectant and serving <10,000 persons	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L for two consecutive years; Or, TTHM annual average ≤0.020 mg/L and HAA5 annual average ≤0.015 mg/L for one year.	1 sample per treatment plant per 3-year monitoring cycle at distribution system location reflecting MRT during month of warmest water temperature, with the 3-year cycle beginning on January 1 following quarter in which system qualifies for reduced monitoring.

[1]SW/IGW indicates those systems that use either SW or IGW, in whole or in part.

- Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for systems monitoring quarterly) or the

result of the sample (for systems monitoring no more frequently than annually) is less than or equal to 0.060 mg/L for TTHMs and less than or equal to 0.045 mg/L for HAA5. Systems that do not meet these levels must resume monitoring at the frequency identified in 41.6(1)*"c"*(4)"1" in the quarter immediately following the quarter in which the system exceeds 0.060 mg/L for TTHMs and 0.045 mg/L for HAA5. For systems using only GW not under the direct influence of SW and serving fewer than 10,000 persons, if either the TTHM annual average is >0.080 mg/L or the HAA5 annual average is >0.060 mg/L, the system must go to increased monitoring identified in 41.6(1)*"c"*(4)"1" in the quarter immediately following the monitoring period in which the system exceeds 0.080 mg/L for TTHMs or 0.060 mg/L for HAA5.

- The department may allow systems on increased monitoring to return to routine monitoring if, after one year of monitoring, TTHM annual average is less than or equal to 0.060 mg/L and HAA5 annual average is less than or equal to 0.045 mg/L.
- The department may return a system to routine monitoring at its discretion.

d. DBP Analytical requirements.

(1) Systems must use only the analytical method(s) specified in this paragraph, or equivalent methods as determined by EPA, to demonstrate compliance with this rule.

(2) Systems must measure DBPs using the methods in the following table, as modified by the footnotes:

Approved Methods for DBP Compliance Monitoring

Contaminant and Methodology	EPA Method[1]	SM[2]	ASTM Method[3]
TTHM			
P&T/GC/EICD & PID	502.2[4]		
P&T/GC/MS	524.2, 524.3, 524.4		
LLE/GC/ECD	551.1		
HAA5			
LLE (diazomethane)/GC/ECD		6251 B[5], 6251 B-07[12]	
SPE (acidic methanol)/GC/ECD	552.1[5]		
LLE (acidic methanol)/GC/ECD	552.2, 552.3		
IC electrospray ionization tandem MS (IC-ESI-MS/MS)	557[10]		
Bromate			

IC	300.1		D 6581-00
IC & postcolumn reaction[9]	317.0 Rev. 2.0[6], 326.0[6]		
IC/ICP-MS[9]	321.8[6, 7]		
Two-dimensional IC	302.0[11]		
IC electrospray ionization tandem MS (IC-ESI-MS/MS)	557[10]		
Chemically suppressed IC			D 6581-08 A
Electrolytically suppressed IC			D 6581-08 B
Chlorite[8]			
Amperometric titration		4500-ClO_2 E[8]	
Amperometric sensor			ChlordioX Plus[8, 13]
Spectophotometry	327.0 Rev. 1.1[8]		
IC	300.0, 300.1, 317.0 Rev. 2, 326.0		
Chemically suppressed IC			D 6581-08 A
Electrolytically suppressed IC			D 6581-08 B

ECD = electron capture detector
EICD = electrolytic conductivity detector
GC = gas chromatography
IC = ion chromatography
LLE = liquid/liquid extraction
MS = mass spectrometer
P&T = purge and trap
PID = photoionization detector
SPE = solid phase extractor

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register on February 16, 1999, in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies may be obtained from the sources listed below. Information regarding the documents is available from the Safe Drinking Water Hotline at 800.426.4791. Documents may be inspected at EPA's Drinking Water Docket or at the Office of Federal Register.

[1]EPA: The following methods are available from the NTIS:

Methods 300.0 and 321.8: Methods for the Determination of Organic and Inorganic Compounds in Drinking Water, Volume 1, August 2000, EPA 815-R-00-014. NTIS, PB2000-106981.

Method 300.1: "Determination of Inorganic Anions in Drinking Water by Ion Chromatography, Revision 1.0," EPA-600/R-98/118, 1997. NTIS, PB98-169196.

Method 317.0: "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Analysis, Revision 2.0," July 2001, EPA 815-B-01-001.

Method 326.0: "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography Incorporating the Addition of a Suppressor Acidified Postcolumn Reagent for Trace Bromate Analysis, Revision 1.0," June 2002, EPA 815-R-03-007.

Method 327.0: "Determination of Chlorine Dioxide and Chlorite Ion in Drinking Water Using Lissamine Green B and Horseradish Peroxidase with Detection by Visible Spectrophotometry, Revision 1.1," May 2005, EPA 815-R-05-008.

Methods 502.2, 524.2, 551.1, and 552.2: Methods for the Determination of Organic Compounds in Drinking Water—Supplement III, EPA-600/R-95-131, August 1995. NTIS PB95-261616.

Method 524.3: "Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry, Version 1.0," June 2009. EPA 815-B-09-009, www.nemi.gov.

Method 524.4: "Measurement of Purgeable Organic Compounds in Water by Gas Chromatography/Mass Spectrometry Using Nitrogen Purge Gas, Version 1.0," May 2013. EPA 815-R-13-002, www.nepis.epa.gov.

Method 552.1: Methods for the Determination of Organic Compounds in Drinking Water—Supplement II, EPA-600/R-92-129, August 1992. NTIS PB92-207703.

Method 552.3: "Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-liquid Microextraction, Derivatization, and Gas Chromatography with Electron Capture Detection, Revision 1.0," July 2003, EPA-815-B-03-002.

[2]4500-ClO_2 E and 6251B: SM, 19th (1995), 20th (1998), 21st (2005), and 22nd (2012) editions.

[3]Method D 6581-00: ASTM Volume 11.01, 2001 (or any year containing the cited version).

[4]If TTHMs are the only analytes being measured in the sample, then a PID is not required.

[5]The samples must be extracted within 14 days of sample collection.

[6]IC and postcolumn reaction or IC/ICP-MS must be used for bromate analysis to demonstrate eligibility for reduced monitoring.

[7]Samples must be preserved at sample collection with 50 mg ethylenediamine (EDA)/L of sample and must be analyzed within 28 days.

[8]Amperometric titration or spectrophotometry may be used for routine daily chlorite monitoring at the SEP, as prescribed in 41.6(1)*"c"*(3)"1." IC must be used for routine monthly chlorite monitoring and additional chlorite monitoring in the distribution system, as prescribed in 41.6(1)*"c"*(3)"2" and "3."

[9]These are the only methods approved for reduced bromate monitoring under 41.6(1)*"c"*(2)"2."

[10]EPA Method 557, "Determination of Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry (IC-ESI-MS/MS)," August 2009. EPA 815-B-09-012, www.nemi.gov.

[11]EPA Method 302.0, "Determination of Bromate in Drinking Water Using Two-Dimensional Ion Chromatography with Suppressed Conductivity Detection," September 2009. EPA 815-B-014, www.nemi.gov.

[12]SM Online. The year in which each method was approved is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[13]ChlordioX Plus. "Chlorine Dioxide and Chlorite in Drinking Water by Amperometry Using Disposable Sensors," November 2013. Palintest Water Analysis Technologies, www.palintest.com.

(3) DBP analyses under this rule shall only be conducted by laboratories certified in accordance with 567—Chapter 83, except as specified under 41.6(1)*"d"*(4). The performance evaluation sample acceptance limits and minimum reporting levels are in 40 CFR §141.131(b)(2)(iii).

(4) Daily chlorite samples at the SEP must be measured by a Grade II, III or IV operator meeting the requirements of 567—Chapter 81, any person under the supervision of such an operator, or a laboratory certified in accordance with 567—Chapter 83.

e. DBP compliance requirements.

(1) General.

1. When compliance is based on an RAA of monthly or quarterly samples or averages and the system fails to monitor for TTHM, HAA5, or bromate, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

2. Unless invalidated by the department, all samples taken and analyzed under the provisions of this rule must be included in determining compliance, even if that number is greater than the minimum required.

3. If, during the first year of monitoring under 41.6(1)*"c,"* any individual quarter's average will cause the RAA of that system to exceed the MCL, the system is out of compliance at the end of that quarter.

4. Any system that violates the bromate, chlorite, or TTHM and HAA5 MCLs specified in this paragraph must provide PN pursuant to rule 567—40.5(455B) and report to the department pursuant to 567—paragraph 40.8(3)*"d."*

(2) Bromate. Compliance must be based on an RAA, computed quarterly, of monthly samples (or, for months in which the system takes more than one sample, the average of all samples taken during the month) collected by the system as prescribed by 41.6(1)*"c"*(2). If

the average of samples covering any consecutive four-quarter period exceeds the MCL, a system is in violation of the MCL. If a PWS fails to complete 12 consecutive months' monitoring, MCL compliance for the last four-quarter compliance period must be based on an average of the available data.

(3) Chlorite. Compliance must be based on an arithmetic average of each three-sample set taken in the distribution system as prescribed by 41.6(1)*"c"*(3)"1" and "2." If the arithmetic average of any three-sample set exceeds the MCL, a system is in violation of the MCL.

(4) TTHM and HAA5.

1. For systems monitoring quarterly, compliance with MCLs in 41.6(1)*"b"* must be based on an RAA, computed quarterly, of quarterly averages of all samples collected by the system as prescribed by 41.6(1)*"c"*(4).

2. For systems monitoring less frequently than quarterly, systems demonstrate MCL compliance if the average of samples taken that year under 41.6(1)*"c"*(4) does not exceed the MCLs in 41.6(1)*"b."* If the average of these samples exceeds the MCL, the system must increase monitoring to once per quarter per treatment plant and is not in violation of the MCL until it has completed one year of quarterly monitoring, unless the result of fewer than four quarters of monitoring will cause the RAA to exceed the MCL, in which case the system is in violation at the end of that quarter. Systems required to increase to quarterly monitoring must calculate compliance by including the sample that triggered the increased monitoring plus the following three quarters of monitoring.

3. If the RAA of quarterly averages covering any consecutive four-quarter period exceeds the MCL

4. If a PWS fails to complete four consecutive quarters of monitoring, MCL compliance for the last four-quarter compliance period must be based on an average of the available data.

f. DBP reporting requirements. Systems required to sample quarterly or more frequently must report to the department within ten days after the end of each quarter in which samples were collected, notwithstanding the PN provisions of rule 567—40.5(455B). Systems required to sample less frequently than quarterly must report to the department within ten days after the end of each monitoring period in which samples were collected. The specific reporting requirements for DBPs are in 567—subparagraph 40.8(3)*"d"*(2).

41.6(2) *Stage 2 initial distribution system evaluation.* The requirements for the Stage 2 initial distribution system evaluation (IDSE) in 40 CFR 141.600-60,5 as adopted on January 4, 2006, are adopted by reference. This regulation establishes monitoring and requirements for identifying compliance monitoring locations that are used to determine MCL compliance for TTHM and HAA5. All CWS required to comply with 41.6(1) and all NTNC serving at least 10,000 people required to comply with 41.6(1) are required to comply with this subrule. The requirements in this subrule constitute national primary drinking water regulations. Only the analytical methods specified in 41.6(1)*"d"* may be used to demonstrate compliance with this subrule.

41.6(3) *Stage 2 DBP requirements.* The requirements of this subrule constitute national primary drinking water regulations. This subrule establishes monitoring and requirements for achieving MCL compliance based on locational running annual averages (LRAA) for TTHM and HAA5.

a. Applicability. All CWS and NTNC systems that use a primary or residual disinfectant other than UV light or deliver water that has been treated with a primary or residual disinfectant other than UV light must comply with this subrule.

(1) Schedule. Systems must comply with the dates in the appropriate schedule. For the purposes of this subrule, the combined distribution system (CDS) only includes active connections; emergency connections are excluded. Any CWS or NTNC that purchases or sells

water on a routine basis through an active connection to another CWS or NTNC is part of a CDS. All systems included in a CDS must adhere to the schedule of the system that serves the largest population in that CDS. The system must comply with the requirements on the schedule for systems that are not a part of a CDS and for systems that serve the largest population in the CDS. The schedule for the other systems that are a part of a CDS, either wholesale or consecutive, is the same schedule as that of the system with the earliest compliance date in the CDS.

Schedule	System Population	Date by Which System Must Begin Stage 2 Compliance Monitoring
1	At least 100,000	April 1, 2012
2	50,000-99,999	October 1, 2012
3	10,000-49,999	October 1, 2013
4	Fewer than 10,000	October 1, 2013, for all GW systems and any SW/IGW systems that did not conduct *Cryptosporidium* sampling under 567—paragraph 43.11(3)*"b"*(2)"4" October 1, 2014, for SW/IGW systems that conducted *Cryptosporidium* sampling under 567—paragraph 43.11(3)*"b"*(2)"4"

(2) Initiation of compliance monitoring under Stage 2. Systems shall switch from Stage 1 compliance monitoring (41.6(1)) to Stage 2 monitoring as follows:

1. Systems required to monitor quarterly must start monitoring in the first full calendar quarter that includes the compliance date in the preceding table.

2. Systems that conducted IDSE monitoring and have an approved report and that are required to monitor at a frequency less than quarterly must start monitoring in the calendar month recommended in the approved IDSE report.

3. Systems that were not required to prepare an IDSE report under 41.6(2) must update their Stage 1 monitoring plan to meet the Stage 2 requirements and submit it for department approval six months prior to the compliance date in the preceding table.

(3) Timing of initial determination of compliance under Stage 2.

1. Systems required to monitor quarterly must make compliance calculations at the end of the fourth calendar quarter that follows the compliance date or earlier if the LRAA calculated based on fewer than four quarters of data would cause an MCL exceedance regardless of the

results of subsequent sampling. Compliance determination must continue at the end of each subsequent quarter.

2. Systems required to monitor at a frequency that is less than quarterly must make compliance calculations beginning with the first compliance sample taken after the compliance date.

(4) Monitoring and compliance.

1. Systems required to monitor quarterly must calculate LRAAs for TTHM and HAA5 using the monitoring results collected under this subrule and determine that each LRAA does not exceed the MCL. If the system does not complete the four consecutive quarters of monitoring, it must calculate MCL compliance based on the average of the available data from the most recent four quarters. If the system collects more than one sample per quarter at a monitoring location, all samples taken in the quarter at that location must be averaged to determine a quarterly average to be used for the LRAA calculation. If a system fails to monitor, it is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA.

2. Systems required to monitor yearly or triennially must determine that each sample collected is less than the MCL. If any sample exceeds the MCL, the system must comply with 41.6(3)*"e."* If no sample exceeds the MCL, the sample result for each monitoring location is considered to be the LRAA for that monitoring location. If a system fails to monitor, it is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA.

3. The department may grant up to an additional 24 months for compliance with MCLs and operational evaluation levels if the system is required to make capital improvements in order to comply with an MCL.

(5) Any CWS or NTNC that begins using water to which a disinfectant has been added, other than ultraviolet light, after the initial compliance dates for IDSE or Stage 2 compliance monitoring must comply with this subrule.

b. Monitoring plan. All systems must develop and implement a DBP monitoring plan that shall be kept on file at the system for review by the department and the public. The monitoring plan must contain the monitoring locations, monitoring dates, and compliance calculation procedures.

(1) If the system has an approved IDSE-standard monitoring plan (IDSE-SMP), that report contains all of the plan elements and meets this requirement.

(2) If the system does not have an approved IDSE-SMP and does not have sufficient monitoring locations from its initial DBP sampling plan, it must identify additional locations by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified. The system must provide the rationale for identifying locations as having high levels of TTHM or HAA5.

(3) If the system does not have an approved IDSE-SMP and has more monitoring locations from its initial Stage 1 DBP sampling plan than the number of locations required under the Stage 2 compliance monitoring, it must identify which locations it will use for compliance monitoring by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified.

(4) All plans must be reviewed by the system every three years and updated as system conditions change.

1. A system may revise its monitoring plan to reflect changes in treatment, distribution system operations, and layout (including new service areas), to reflect other factors that may affect TTHM or HAA5 formation, or for department-approved reasons.

2. A system must consult with the department regarding the need for plan changes and the appropriateness of changes. A system must replace existing compliance monitoring locations that have the lowest LRAA with new locations that reflect the current distribution system locations with expected high TTHM or HAA5 levels.

3. The department may require modifications in a system's monitoring plan.

(5) Systems are also required to maintain the disinfectant and MRDL elements of the Stage 1 monitoring plan pursuant to 41.6(1)*"c"*(1)"6" and 567—paragraph 43.6(1)*"c"*(1)"5."

(6) All systems are required to have a valid DBP monitoring plan prior to the start of compliance monitoring in 41.6(3)*"a"*(1).

c. Routine monitoring. Systems are required to start monitoring at the locations specified in the approved DBP monitoring plan and on the schedule specified in 41.6(3)*"a"*(1). Each system must monitor the DBPs at the minimum number of locations identified in the table below.

Routine Monitoring for DBPs

Source water type	Population size category	Monitoring frequency	Total number of distribution system monitoring location sites per monitoring period
SW/IGW	<500	per year	2
	500-3,300	per quarter	2
	3,301-9,999	per quarter	2
	10,000-49,999	per quarter	4
	50,000-249,999	per quarter	8
	250,000-999,999	per quarter	12
GW	<500	per year	2
	500-9,999	per year	2
	10,000-99,999	per quarter	4
	100,000-499,999	per quarter	6

(1) All systems must monitor during the month of highest DBP concentrations.

(2) Systems on a quarterly monitoring frequency must collect samples for TTHM and HAA5 every 90 days at each monitoring location, except that SW/IGW systems serving 500 to 3,300 people may collect at one location as provided in 41.6(3)*"c"*(3). Each sample collected at each location must be analyzed for both TTHM and HAA5 components.

(3) Systems on an annual monitoring frequency and SW/IGW systems serving 500 to 3,300 people are required to collect TTHM and HAA5 samples at the locations with the highest TTHM and HAA5 concentrations, respectively. Each sample must be analyzed for both TTHM and HAA5 components. Sample collection is required from only one location if the highest TTHM concentration and the highest HAA5 concentration occur at the same location.

(4) Analytical methods. Systems must use an approved method in 41.6(1)*"d"*(2) for TTHM and HAA5 analyses pursuant to this subrule. DBP analyses must be conducted by laboratories certified in accordance with 567—Chapter 83.

d. Reduced monitoring. A system may reduce monitoring to the level specified in the Reduced Monitoring for DBPs table below anytime the LRAA is less than or equal to half the MCL for TTHM and HAA5 at all monitoring locations (i.e., less than or equal to 0.040 mg/L for TTHM and 0.030 mg/L for HAA5). Only data collected under this rule may be used to qualify for reduced monitoring.

Reduced Monitoring for DBPs

Source water type	Population size category	Monitoring frequency[1]	Distribution system monitoring location sites per monitoring period[2]
SW/IGW	<500	per year	Monitoring may not be reduced
	500-3,300	per year	1 sample per year at same location if the highest TTHM and HAA5 measurements occurred at the same location and in the same quarter, analyzed for both TTHM and HAA5
	3,301-9,999	per year	2 samples: 1 at location and during quarter with the highest TTHM single measurement; 1 at location and during quarter with the highest HAA5 single measurement
	10,000-49,999	per quarter	2 samples: 1 at highest TTHM LRAA location; 1 at highest HAA5 LRAA location
	50,000-249,999	per quarter	4 samples: 1 sample each at highest two TTHM LRAA locations; 1 sample each at highest two HAA5 LRAA locations

	250,000-999,999	per quarter	6 samples: 1 sample each at highest 3 TTHM LRAA locations; 1 sample each at highest 3 HAA5 LRAA locations
GW	<500	every third year	1 sample at same location if the highest TTHM and HAA5 measurements occurred at the same location and in the same quarter, analyzed for both TTHM and HAA5
	500-9,999	per year	1 sample per year at same location if the highest TTHM and HAA5 measurements occurred at the same location and in the same quarter, analyzed for both TTHM and HAA5
	10,000-99,999	per year	2 samples: 1 at location and during quarter with the highest TTHM single measurement; 1 at location and during quarter with the highest HAA5 single measurement
	100,000-499,999	per quarter	2 samples: 1 at the highest TTHM LRAA location; 1 at the highest HAA5 LRAA location

[1]Systems on a quarterly monitoring frequency must collect the sample(s) every 90 days.

[2]Each sample must be analyzed for all TTHM and HAA5 components.

(1) Additional source water TOC requirement for SW/IGW systems. For SW/IGW systems, the source water RAA TOC level, before any treatment, must be less than or equal to 4.0 mg/L at each treatment plant treating SW or IGW, based on the monitoring conducted under 567—paragraph 43.6(2)*"b,"* in order to qualify for reduced monitoring.

(2) Continued reduced monitoring frequency. Systems may remain on a reduced monitoring frequency as long as they meet the following criteria. For SW/IGW systems, the source water annual average TOC level requirement in 41.6(3)*"d"*(1) must continue to be met.

1. A system with a quarterly reduced monitoring frequency may remain on reduced monitoring as long as the TTHM LRAA is less than or equal to 0.040 mg/L and the HAA5 LRAA is less than or equal to 0.030 mg/L at each monitoring location.

2. A system with an annual or triennial monitoring frequency may remain on reduced monitoring as long as each TTHM sample is less than or equal to 0.060 mg/L and each HAA5 sample is less than or equal to 0.045 mg/L.

(3) Return to routine monitoring frequency. Systems that cannot meet the requirements for reduced monitoring must resume routine monitoring according to 41.6(3)*"c"* or begin increased monitoring according to 41.6(3)*"e."*

1. A system with a quarterly reduced monitoring frequency must resume routine monitoring if the LRAA from any location exceeds either 0.040 mg/L for TTHM or 0.030 mg/L for HAA5.

2. A system with an annual or triennial monitoring frequency must resume routine monitoring if the annual sample at any location exceeds either 0.060 mg/L for TTHM or 0.045 mg/L for HAA5.

3. Any SW/IGW system must resume routine monitoring if the RAA source water TOC level, prior to any treatment, is more than 4.0 mg/L.

4. In addition, the department may require any system to resume routine monitoring at the department's discretion.

(4) Remaining on reduced monitoring from Stage 1 to Stage 2 transition. A system may remain on reduced monitoring after the dates in 41.6(3)*"a"*(1) if all of the following three criteria are met. If the three criteria are not met, the system must return to routine monitoring.

1. Under the IDSE, the system qualified for a 40/30 certification or received a very small system waiver;

2. The system meets the reduced monitoring criteria of this paragraph; and

3. The system has not changed or added locations for DBP monitoring from those used under the Stage 1 requirements in 41.6(1).

e. Increased monitoring.

(1) Systems that are monitoring annually or triennially must increase their monitoring frequency to quarterly if the following conditions are met.

1. Single result exceeds the TTHM or HAA5 MCL. A system that is monitoring annually or triennially must increase monitoring to quarterly at all locations if a single TTHM sample is greater than 0.080 mg/L or a single HAA5 sample is greater than 0.060 mg/L. Quarterly samples must be analyzed for both TTHM and HAA5 components.

2. Systems with a TTHM or HAA5 MCL violation. A system that is monitoring annually or triennially that is in violation of the TTHM or HAA5 MCL, based upon the LRAA, must increase monitoring to quarterly at all locations. Quarterly samples must be analyzed for both TTHM and HAA5 components. Calculate the LRAA using either four consecutive quarters of monitoring or using fewer quarters of monitoring if the MCL would be exceeded regardless of the monitoring results of subsequent quarters.

(2) Systems on a quarterly monitoring frequency during Stage 1 to Stage 2 transition. A system that was on increased monitoring under Stage 1 must remain on increased monitoring until it qualifies for a return to routine monitoring under 41.6(3)*"e"*(3). The system must conduct the increased monitoring at the monitoring locations in the monitoring plan developed under 41.6(3)*"b,"* beginning on the date identified in 41.6(3)*"a"*(1).

(3) Return to routine monitoring frequency. A system may return to routine monitoring once it has conducted increased monitoring for at least four consecutive quarters and the LRAA for every monitoring location is less than or equal to 0.060 mg/L for TTHM and less than or equal to 0.045 mg/L for HAA5. A system may not have any monitoring violations during the most recent four consecutive quarters.

f. Operational evaluation level (OEL).

(1) TTHM OEL. The TTHM OEL is determined by the sum of the two previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by four to determine an average. If that average exceeds 0.080 mg/L, a system has exceeded the TTHM OEL.

(2) HAA5 OEL. The HAA5 OEL is determined by the sum of the two previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by four to determine an average. If that average exceeds 0.060 mg/L, a system has exceeded the HAA5 OEL.

(3) OEL compliance. A system must calculate the OEL at any monitoring location that has a single analytical result in excess of the TTHM or HAA5 MCL in the analytical data used to

calculate the current 12-month LRAA. A system must determine compliance with the OEL every quarter.

(4) OEL exceedance requirements. A system must conduct an operational evaluation and submit a written evaluation report to the department within 90 days after the system is notified of the analytical result that caused it to exceed the OEL. The report must be made available to the public upon request. The report must include an evaluation of system treatment and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in source water or source water quality, and treatment changes or problems that may contribute to DBP formation, and what steps could be considered to minimize future exceedances.

1. A system may request that the department limit the scope of the evaluation if it is able to identify the cause of the OEL exceedance. The 90-day report submission deadline cannot be extended.

2. A system must have written department approval to limit the scope of the evaluation. The approval must be kept with the completed report.

g. Reporting and recordkeeping. All systems required to comply with this rule must meet the reporting requirements of 567—paragraph 40.8(3)*"d,"* and retain monitoring plans and analytical results as required by 567—subrule 40.9(8).

567—41.7(455B) Groundwater (GW) rule: sanitary survey, microbial source water monitoring, TT.

41.7(1) *General requirements.*

a. Scope. The requirements of this rule constitute national primary drinking water regulations.

b. Applicability. This rule applies to all PWSs that use GW, except for PWSs that combine all of their GW with SW or with IGW prior to treatment under 567—43.5(455B). For the

purposes of this rule, “GW system” is defined as any PWS meeting this applicability statement, including consecutive systems receiving finished GW. For the purposes of this rule, “4-log virus treatment” means treatment that includes inactivation, removal, or a department-approved combination of inactivation and removal before or at the first customer of 4-log (99.99 percent) of viruses.

c. General. Systems subject to this rule must comply with the following:

(1) Sanitary survey requirements for all GW systems are described in 41.7(2).

(2) Microbial source water monitoring requirements for GW systems that do not treat all of their GW to at least 99.99 percent (4-log) virus treatment, as described in 41.7(3).

(3) TT requirements that apply to GW systems either with fecally contaminated source waters, as determined by monitoring conducted under 41.7(3), or with significant department-identified deficiencies. A GW system with fecally contaminated source water or with significant deficiencies subject to the TT requirements of this rule must implement one or more of the following corrective action options:

1. Correct all significant deficiencies;
2. Provide an alternate source of water;
3. Eliminate the source of contamination; or
4. Provide treatment that reliably achieves at least 4-log virus treatment before or at the first customer.

(4) GW systems that provide at least 4-log virus treatment must conduct compliance monitoring to demonstrate treatment effectiveness, as described in 41.7(4).

(5) If requested, GW systems must provide information that will enable the department to perform a hydrogeologic sensitivity assessment. For the purposes of this rule, “hydrogeologic sensitivity assessment” is a determination of whether GW systems obtain water from hydrogeologically sensitive settings.

(6) Analyses under this rule shall only be conducted by laboratories certified in accordance with 567—Chapter 83.

41.7(2) *Sanitary surveys for GW systems.* For the purposes of this rule, a "sanitary survey" conducted in accordance with 567—subrule 43.1(7), includes, but is not limited to, an on-site review of the water sources (identifying sources of contamination using source water assessments or other relevant information), facilities, equipment, operation, maintenance, and monitoring compliance of a PWS.

41.7(3) *GW source microbial monitoring and analytical methods.* A GW system that has a department-approved 4-log virus treatment process and is fulfilling the requirements of 41.7(4)*"b"* is not required to conduct the triggered source water monitoring under 41.7(3)*"a."*

a. Triggered source water monitoring requirements.

(1) General. A GW system must conduct triggered source water monitoring if it:

1. Does not provide at least 4-log virus treatment for each GW source; and

2. Is notified that a sample collected under 41.2(1)*"e"* and *"f"* is total coliform-positive, and the sample is not invalidated under 41.2(1)*"d."*

(2) Sampling. A GW system must collect at least one GW source sample from each GW source in use at the time the total coliform-positive sample was collected under 41.2(1)*"e"* and *"f"* that could have reasonably contributed to the positive sample. The source sample must be collected within 24 hours of the system's receipt of the total coliform-positive sample.

1. The department may extend the 24-hour time limit on a case-by-case basis if the system cannot collect the GW source sample within 24 hours due to circumstances beyond its control. The department must specify how much time the system has to collect the sample.

2. A GW system serving 1,000 or fewer people may use a repeat sample collected from a GW source to meet both the requirements of 41.2(1)*"g"* and this paragraph if:

- The department approves the use of *E. coli* as the fecal indicator,
- The system only has one GW source required to be sampled,
- The system has no treatment, and
- Should the source water sample be *E. coli*-positive, the system would incur an acute coliform bacteria MCL violation, and would need to comply with Tier 1 PN requirements and the additional sample monitoring in 41.7(3)*"a"*(3).

(3) Additional sampling. Unless the department requires corrective action for a valid triggered source water sample that tested positive for the fecal indicator, the system must collect five additional source water samples from that same source within 24 hours of receipt of a fecal indicator-positive sample result.

(4) Consecutive and wholesale systems. In addition to the other requirements in this paragraph:

1. A consecutive GW system that has a total coliform-positive sample collected under 41.2(1)*"f"* must notify the wholesale system(s) within 24 hours of receipt of the total coliform-positive sample, and

2. A wholesale GW system that does not provide 4-log virus treatment must comply with the following:

- A wholesale GW system that receives notice from a consecutive system it serves that a sample collected under 41.2(1)*"f"* is total coliform-positive must, within 24 hours of receipt, collect triggered sample(s) from its GW source(s) under 41.7(3)*"a"*(2) and analyze the sample(s) for a fecal indicator.
- If the triggered source sample(s) is fecal indicator-positive, the wholesale GW system must, within 24 hours of receipt of the result, notify all consecutive systems served by that GW source of the fecal indicator-positive result and collect the required additional five source water samples in accordance with 41.7(3)*"a."*

(5) Exceptions. A GW system is not required to comply with the triggered source water monitoring requirements of this paragraph if either of the following conditions exists:

1. The department determines in writing that the total coliform-positive sample collected under 41.2(1)*"e"* and *"f"* was caused by a distribution system deficiency; or

2. The total coliform-positive sample collected under 41.2(1)*"e"* and *"g"* is collected at a location that meets department criteria for distribution system conditions that will cause total coliform-positive samples.

b. Assessment source water monitoring. If directed by the department, GW systems must conduct assessment source water monitoring that meets department-determined requirements. GW systems conducting assessment source water monitoring may use a triggered source water sample collected under 41.7(3)*"a"*(2) to meet the requirements of this paragraph. Department-determined assessment source water monitoring requirements may include:

(1) Collection of:

1. A total of 12 GW source samples representing each month the system provides GW to the public;

2. Samples from each well, unless the system obtains written department approval to conduct monitoring at one or more wells within the GW system that are representative of multiple wells used by that system and that draw water from the same hydrogeologic setting;

3. A standard sample volume of at least 100 mL for fecal indicator analysis, regardless of technical indicator or analytical method used;

4. GW source samples at a location before any treatment of the GW source, unless the department approves a sampling location after treatment; and

5. GW source samples at the well itself, unless the system's configuration does not allow for sampling at the well itself and the department approves an alternate sampling location representative of the water quality of that well; or

(2) Analysis of all GW source samples using one of the analytical methods listed in 41.7(3)*"c"* for the presence of *E. coli*, enterococci, or coliphage.

c. Analytical methods.

(1) GW systems subject to the source water monitoring requirements of this rule must collect a standard sample volume of at least 100 mL for fecal indicator analysis regardless of the fecal indicator or analytical method used.

(2) GW systems must analyze all GW source samples collected under this rule using one of the analytical methods in the following table for the presence of *E. coli*, enterococci, or coliphage.

Analytical Methods for Source Water Monitoring

Fecal Indicator[1]	Methodology	Method Citation
E. coli	Colilert[3]	9223B[2, 12, 13], 9223 B-97, B-04[18]
	Colisure[3]	9223B[2, 12, 13], 9223 B-97, B-04[18]
	Membrane filter method with MI agar	EPA Method 1604[4]
	Colilert-18	9223B[2, 12, 13], 9223B-97, B-0418
	m-ColiBlue24 Test[5]	
	E*Colite Test[6]	
	EC-MUG[7]	9221F[2, 13], 9221 F-06[18]
	NA-MUG[7]	9222G[2]
	Readycult	Readycult[14]
	Colitag	Modified Colitag[15]
	Chromocult	Chromocult[16]
	Tecta EC/TC	Tecta EC/TC[19]
Enterococci	Multiple-tube technique	9230B[2], 9230 B-04[18]
	Membrane filter technique	9230C[2], EPA Method 1600[8]
	Enterolert[9]	
Coliphage	Two-step enrichment presence-absence procedure	EPA Method 1601[10], FastPhage[17]
	Single agar layer procedure	EPA Method 1602[11]

Analyses must be conducted in accordance with the documents listed below. The Director of the Federal Register approves the incorporation by reference of the documents listed in footnotes 2 through 11 in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies may be obtained from the sources listed below or inspected at EPA's Drinking Water Docket or at NARA.

[1]The time from sample collection to initiation of analysis may not exceed 30 hours. GW systems are encouraged but not required to hold samples below 10 degrees Celsius during transit.

[2]Methods are described in SM, 20th edition (1998).

[3]Medium is available through IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, ME 04092.

[4]EPA Method 1604: Total Coliforms and Escherichia coli in Water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium); September 2002, EPA 821-R-02-024, www.nemi.gov.

[5]A description of the m-ColiBlue24 Test, "Total Coliforms and *E. coli* Membrane Filtration Method with m-ColiBlue24 Broth," Method No. 10029, Revision 2, August 17, 1999, Hach Company, 100 Dayton Avenue, Ames, IA 50010.

[6]A description of the E*Colite Test, "Charm E*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Drinking Water," January 9, 1998, Charm Sciences, Inc., 659 Andover Street, Lawrence, MA 01843-1032.

[7]EC-MUG (Method 9221F) or NA-MUG (Method 9222G) can be used for *E. coli* testing step as described in 41.2(1)"f"(6) or (7) after use of SM 9221B, 9221D, 9222B, or 9222C.

[8]EPA Method 1600: Enterococci in Water by Membrane Filtration Using Membrane-Enterococcus Indoxyl-β-D-Glucoside Agar (MEI), EPA 821-R-02-022 (September 2002), is an approved variation of SM 9230C, www.nemi.gov. The holding time and temperature for GW samples is specified in footnote 1 above, rather than as specified in Section 8 of EPA Method 1600.

[9]Medium is available through IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, ME 04092. Preparation and use of the medium is set forth in the article "Evaluation of Enterolert for Enumeration of Enterococci in Recreational Waters" by Budnick, G.E., Howard, R.T., and Mayo, D.R., 1996, Applied and Environmental Microbiology, 62:3881-3884.

[10]EPA Method 1601: Male-Specific (F+) and Somatic Coliphage in Water by Two-Step Enrichment Procedure; April 2001, EPA 821-R-01-030, www.nemi.gov.

[11]EPA Method 1602: Male-Specific (F+) and Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure; April 2001, EPA 821-R-01-029, www.nemi.gov.

[12]SM, 21st edition (2005).

[13]SM, 22nd edition (2012).

[14]Readycult Method, "Readycult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Finished Waters," January 2007, Version 1.1. EMD Millipore, 290 Concord Road, Billerica, MA 01821.

[15]Modified Colitag Method, "Modified Colitag Test Method for the Simultaneous Detection of *E. coli* and Other Total Coliforms in Water (ATP D05-0035)," August 28, 2009, www.nemi.gov or CPI International, 5580 Skylane Blvd., Santa Rosa, CA 95403.

[16]Chromocult Method, "Chromocult Coliform Agar Presence/Absence Membrane Filter Test Method for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Finished Waters," November 2000, Version 1.0. EMD Millipore, 290 Concord Road, Billerica, MA 01821.

[17]Charm Sciences, Inc., "FastPhage Test Procedure. Presence/Absence for Coliphage in Ground Water with Same Day Positive Prediction," Version 009, November 2012, www.charmsciences.com.

[18]SM Online. The year in which each method was approved is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[19]Tecta EC/TC. "Presence/Absence Method for Simultaneous Detection of Total Coliforms and *Escherichia coli* in Drinking Water," April 2014. Veolia Water Solutions and Technologies, Suite 4697, Biosciences Complex, 116 Barrie Street, Kingston, Ontario, Canada K7L 3N6.

d. Invalidation of a fecal indicator-positive GW source sample.

(1) GW systems may obtain invalidation from the department of a fecal indicator-positive GW source sample collected under 41.7(3)*"a"* only under these conditions:

1. The system provides the department with written notice from the laboratory that improper sample analysis occurred; or

2. The department determines in writing that there is substantial evidence that a fecal indicator-positive GW source sample is not related to source water quality.

(2) If the department invalidates a fecal indicator-positive GW source sample, the system must collect another source water sample under 41.7(3)*"a"* within 24 hours of department notification of the invalidation decision. The sample must be analyzed for the same fecal indicator using the analytical methods in 41.7(3)*"c."* The department may extend the 24-hour time limit on a case-by-case basis if the system cannot collect the source water sample within 24 hours due to circumstances beyond its control. For an extension, the department must specify how much time the system has to collect the sample.

e. Sampling location.

(1) Any GW source sample required under 41.7(3)*"a"* must be collected at a location prior to any treatment of the GW source, unless the department approves a sampling location after treatment.

(2) If the system's configuration does not allow for sampling at the well itself, the system may collect a sample at a department-approved location to meet the requirements of 41.7(3)*"a"* if the sample is representative of the water quality of that well.

f. New sources. As directed by the department, a GW system that places a new GW source into service must conduct assessment source water monitoring, including the sampling and analysis in 41.7(3)*"b"*(3) to 41.7(3)*"b"*(6). If directed, the system must begin monitoring before the GW source is used to provide water to the public.

g. PN. A system with a GW source sample collected under 41.7(3)*"a"* or *"b"* that is fecal indicator-positive and that is not invalidated under 41.7(3)*"d,"* including consecutive systems served by the GW source, must conduct Tier 1 PN under 567—subrule 40.5(2).

h. Monitoring violations. Failure to meet the requirements of 41.7(3)*"a"* through *"f"* is a monitoring violation that requires the system to provide Tier 3 PN under 567—subrule 40.5(4).

41.7(4) *GW system TT requirements.*

a. GW systems with significant deficiencies or source water fecal contamination.

(1) The TT requirements of this subrule must be met by GW systems when a significant deficiency is identified or when a GW source sample collected under 41.7(3)*"a"*(3) is fecal indicator-positive.

(2) If directed by the department, a GW system with a GW source sample collected under 41.7(3)*"a"*(2), 41.7(3)*"a"*(4), or 41.7(3)*"b"* that is fecal indicator-positive must comply with the TT requirements of this subrule.

(3) When a significant deficiency is identified at a SW or IGW system that also uses a GW source not under the influence of SW, the system must comply with provisions of this paragraph, except in cases where the department determines that the significant deficiency is in a portion of the distribution system that is served solely by the SW or IGW source.

(4) Unless the department directs the GW system to implement a specific corrective action, the system must consult with the department regarding the appropriate corrective action within 30 days of either receiving a written department notice of a significant deficiency, written notice from a laboratory that a GW source sample collected under 41.7(3)*"a"*(3) is fecal indicator-positive, or direction from the department that a fecal indicator-positive sample collected under 41.7(3)*"a"*(2), 41.7(3)*"a"*(4), or 41.7(3)*"b"* requires corrective action. For the purposes of this subrule, significant deficiencies include, but are not limited to, defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the department determines to be causing, or have potential for causing, the introduction of contamination into the water delivered to consumers.

(5) Within 120 days, or earlier if directed by the department, of either receiving written department notification of a significant deficiency, written notice from a laboratory that a GW source sample collected under 41.7(3)*"a"*(3) is fecal indicator-positive, or direction from the department that a fecal indicator-positive sample collected under 41.7(3)*"a"*(2), 41.7(3)*"a"*(4), or 41.7(3)*"b"* requires corrective action, the GW system must either:

1. Have completed corrective action in accordance with applicable department plan review processes or other department guidance or direction, if any, including department-specified interim measures; or

2. Be in compliance with a department-approved corrective action plan and schedule, subject to the following conditions:

- Any subsequent modifications to a department-approved corrective action plan and schedule must also be approved by the department; and
- If the department specifies interim measures for public health protection, pending department approval of the corrective action plan and schedule, or pending completion of the corrective action plan, the system must comply with these interim measures in addition to any department-specified schedule.

(6) Corrective action alternatives. GW systems meeting the conditions of 41.7(4)*"a"*(1) or (2) must implement one or more of the following corrective action alternatives:

1. Correct all significant deficiencies;
2. Provide an alternate source of water;
3. Eliminate the source of contamination; or
4. Provide treatment that reliably achieves at least 4-log virus treatment for the GW source.

(7) Special PN of significant deficiencies or source water fecal contamination.

1. In addition to the Tier 1 PN requirements of 567—subrule 40.5(2), a community GW system that receives department notice of a significant deficiency or notification of a fecal indicator-positive GW source sample that is not invalidated under this rule must inform the public served by the water system of the fecal indicator-positive source sample or of any uncorrected significant deficiency, in accordance with 567—paragraph 40.7(9)*"e."* The system must continue to inform the public annually until the significant deficiency is corrected or until the department determines that the fecal contamination in the GW source is corrected, in accordance with 41.7(3)*"a"*(5).

2. In addition to the Tier 1 PN requirements of 567—subrule 40.5(2), a noncommunity GW system that receives department notice of a significant deficiency must inform the public served by the system, in a department-approved manner, of any significant deficiency that is not corrected within 12 months of department notification or earlier if directed by the

department. The system must continue to inform the public annually until the significant deficiency is corrected. The information must include:

- The nature of the significant deficiency and the date it was identified by the department;
- The department-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed; and
- For systems with a large proportion of non-English speaking consumers, as determined by the department, information in the applicable language(s) regarding the importance of the notice, or a telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

3. If directed by the department, an NCWS with significant deficiencies that have been corrected must inform its customers of the significant deficiencies, how the deficiencies were corrected, and the dates of correction under 41.7(4)*"a"*(7)"2."

b. Compliance monitoring.

(1) Existing GW sources. A GW system that provides at least 4-log virus treatment must submit a request to the department to avoid the source water monitoring requirements of 41.7(3). The request must include engineering, operational, or other information that the department may need to evaluate the submission. The department must approve the request in writing before the system can avoid the GW source monitoring requirements. The system's operation permit will include the mandatory operational requirements for the approved 4-log virus treatment. If the system subsequently discontinues 4-log virus treatment or no longer wishes to be exempt, the system must conduct GW source monitoring as required under 41.7(3).

(2) New GW sources. A GW system that places a GW source in service that is not required to meet the source water monitoring requirements of this subrule because it provides at least 4-log virus treatment for the GW source must comply with the following requirements:

1. The system must notify the department in writing that it provides at least 4-log virus treatment for the GW source. The department notification must include engineering, operational, or other information that the department requests to evaluate the submission. The contact time values for virus inactivation using free chlorine, chlorine dioxide, and ozone are in 567—Chapter 43, Appendix C. No CT table is provided for chloramines and total chlorine as the CT values would be prohibitively high for GW systems.

2. The system must conduct compliance monitoring under 41.7(4)*"b"*(3) within 30 days of placing the source in service.

3. The system must conduct GW source monitoring under 41.7(3) if it subsequently discontinues 4-log virus treatment for the GW source.

(3) Monitoring requirements. A GW system subject to 41.7(4)*"a,"*41.7(4)*"b"*(1), and 41.7(4)*"b"*(2) must monitor the effectiveness and reliability of treatment for that GW source before or at the first customer as follows:

1. Chemical disinfection. A GW system must monitor the residual disinfectant concentration, using analytical methods specified in 567—subparagraph 43.5(4)*"a"*(4), at a department-approved location and must record the lowest residual disinfectant concentration each day that water from the GW source is served to the public. A GW system must maintain the department-determined minimum residual disinfectant concentration every day the GW system serves water from the GW source to the public.

- A GW system serving more than 3,300 people must monitor continuously. If there is a failure in the continuous monitoring equipment, the system must conduct grab sampling every

four hours until the continuous monitoring equipment is returned to service. The system must resume continuous residual disinfectant monitoring within 14 days.

- A GW system serving 3,300 or fewer people must take a daily grab sample during the hour of peak flow or at another department-specified time. If any daily grab sample measurement falls below the department-determined minimum residual disinfectant concentration, the system must take follow-up samples every four hours until the residual disinfectant concentration is restored to the department-determined minimum level. Alternatively, a GW system that serves 3,300 or fewer people may monitor continuously and meet the requirements of 41.7(4)*"b"*(3)"1," first bulleted paragraph.

2. Membrane filtration. A GW system using membrane filtration to meet the requirements of this paragraph to provide at least 4-log virus treatment must monitor and operate the membrane filtration process in accordance with all department-specified monitoring and compliance requirements. A GW system that uses membrane filtration is in compliance with the requirement to achieve at least 4-log virus removal when:

- The membrane has an absolute molecular weight cut-off (MWCO), or an alternate parameter that describes the exclusion characteristics of the membrane, that can reliably achieve at least 4-log virus removal;
- The membrane process is operated in accordance with department-specified compliance requirements; and
- The integrity of the membrane is intact.

3. Alternative treatment. A GW system using a department-approved alternative treatment to meet the requirements of 41.7(4)*"b"* by providing at least 4-log virus treatment must:

- Monitor the alternative treatment in accordance with all department-specified monitoring requirements; and

- Operate the alternative treatment in accordance with all compliance requirements that the department determines to be necessary to achieve at least 4-log virus treatment.

c. Discontinuing treatment. A GW system may discontinue 4-log virus treatment for a GW source if the department determines in writing that 4-log virus treatment is no longer necessary for that GW source. A system that discontinues 4-log virus treatment is subject to 41.7(3).

d. Monitoring violation. Failure to meet the monitoring requirements of 41.7(4)*"b"* is a monitoring violation and requires the GW system to provide Tier 3 PN under 567—subrule 40.5(4).

41.7(5) *GW system TT violations.* A GW system must give Tier 2 PN under 567—subrule 40.5(3) for the TT violations specified in this subrule.

a. Significant deficiency. A GW system with a significant deficiency is in violation of the TT requirement if, within 120 days (or earlier if directed by the department) of receiving written department notice of the significant deficiency, the system:

(1) Does not complete corrective action in accordance with any applicable department plan review processes or other department direction, including department-specified interim measures; or

(2) Is not in compliance with a department-approved corrective action plan and schedule.

b. Fecal indicator-positive source sample. Unless the department invalidates a fecal indicator-positive GW source sample under 41.7(3)*"d"*(1), a GW system is in violation of the TT requirement if, within 120 days (or earlier if directed by the department) of meeting the conditions of 41.7(4)*"a"*(1) or 41.7(4)*"a"*(2), the system:

(1) Does not complete corrective action in accordance with any applicable department plan review processes or other department direction, including department-specified interim measures; or

(2) Is not in compliance with a department-approved corrective action plan and schedule.

c. Failure to maintain 4-log treatment. A GW system subject to 41.7(4)*"b"*(3) that fails to maintain at least 4-log virus treatment for a GW source is in violation of the TT requirement if the failure is not corrected within four hours of the determination that the system is not maintaining at least 4-log virus treatment before or at the first customer.

41.7(6) *GW system reporting and recordkeeping.*

a. Reporting. In addition to meeting the requirements of 567—subrule 40.8(1), GW systems must provide the following information to the department:

(1) A GW system conducting compliance monitoring under 41.7(4)*"b"* must provide notification any time it fails to meet any of the requirements for 4-log virus treatment including, but not limited to, minimum residual disinfectant concentration, membrane operating criteria or membrane integrity, and alternative treatment operating criteria, if operation in accordance with the criteria or requirements is not restored within four hours. Notification must be provided as soon as possible but in no case later than the end of the next business day.

(2) Notification of action completion, within 30 days of completing any corrective action under 41.7(4)*"a."*

(3) If a GW system subject to 41.7(3)*"a"* does not conduct source water monitoring under 41.7(3)*"a"*(5)"2," the system must provide documentation within 30 days of the total coliform-positive sample that it met the department's criteria.

b. Recordkeeping. In addition to the requirements in 567—40.9(455B), GW systems must maintain the following information for the specified time period:

(1) Documentation of corrective actions must be kept for not less than ten years.

(2) Documentation of PN required under 41.7(4)*"a"*(7) must be kept for not less than three years.

(3) Records of decisions under 41.7(3)*"a"*(5)"2" and records of fecal indicator-positive GW source sample invalidation under 41.7(3)*"d"*(1) must be kept for not less than five years.

(4) For consecutive systems, documentation of notification to the wholesale system(s) of total coliform-positive samples that are not invalidated under 41.2(1)*"d"* must be kept for not less than five years.

(5) Systems, including wholesale systems, required to perform compliance monitoring under 41.7(4)*"b"*(1), must maintain the following records:

1. The department-specified minimum disinfectant residual must be kept for not less than ten years.

2. Both the lowest daily residual disinfectant concentration and the date and duration of any failure to maintain the department-prescribed minimum residual disinfectant concentration for more than four hours must be kept for not less than five years.

3. Department-specified compliance requirements for membrane filtration, department-specified parameters for department-approved alternative treatment, and the date and duration of any failure to meet the membrane operating, membrane integrity, or alternative treatment operating requirements for more than four hours must be kept for not less than five years.

567—41.8(455B) Radionuclides.

41.8(1) *Radionuclides.*

a. Applicability.

(1) This rule applies to all CWSs and specifies radionuclide MCLs, analytical methodology requirements, and monitoring requirements. Radionuclide reporting requirements are listed in 567—subrule 40.8(1), PN requirements are in 567—40.5(455B), and BAT is in 567—subparagraph 43.3(10)*"b"*(3). All CWSs must comply with the requirements and MCLs for gross alpha particle activity, radium-226, radium-228, uranium, beta particle activity, and photon emitter radioactivity. Only those CWSs designated by the

department to be vulnerable to man-made radioactivity contamination are required to monitor for beta particle activity and photon emitter radioactivity. To determine whether a system is vulnerable to man-made nuclear radioactivity, the department will evaluate proximity to a nuclear facility, source water, historical analytical data, ongoing surveillance data from the nuclear facility, and any other factor considered to be relevant.

(2) Compliance dates. CWS must comply with the MCLs in 41.8(1)*"b"*(1). Compliance shall be determined in accordance with 41.8(1)*"c"* through *"f."* Compliance with the radionuclides reporting requirements is required. All CWSs must conduct initial monitoring to determine compliance with 41.8(1)*"b"*(1) by December 31, 2007.

b. MCLs for radionuclides.

(1) Gross alpha particle activity, radium-226, radium-228, and uranium MCLs are specified in the following table:

Contaminant	MCL
Gross alpha particle activity, including Radium-226 but excluding radon and uranium	15 pCi/L
Combined Radium-226 and Radium-228	5 pCi/L[1]
Uranium	30 µg/L

[1]Determine the combined radium-226 and radium-228 by the adding the results of analysis for radium-226 and radium-228.

(2) Beta particle activity and photon radioactivity MCLs.

1. The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in drinking water must not produce an annual dose equivalent to the total body or any internal organ greater than 4 mrem/year.

2. Except for the radionuclides listed below, the concentration of man-made radionuclides causing 4 mrem total body or organ dose equivalents must be calculated on the basis of 2 liter per day drinking water intake, using the 168-hour data lists in "Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure," National Bureau of Standards Handbook 69 as amended August

1963, U.S. Department of Commerce. If two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed 4 mrem/year.

Average Annual Concentrations Assumed to Produce a

Total Body or Organ Dose of 4 mrem/year

Radionuclide	Critical Organ	Concentration
Strontium-90	Bone marrow	8 pCi/L
Tritium	Total body	20,000 pCi/L

c. Detection limits and compliance determinations. Compliance with the radionuclide MCLs will be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL, the system is in violation of the MCL. If a system is in violation of an MCL, the supplier of the water is required to give notice to the department in accordance with 567—subrule 40.8(1) and to provide PN as required by rule 567—40.5(455B).

(1) Detection limits. When monitoring gross alpha particle activity, radium-226, radium-228, uranium, and beta particle and photon radioactivity concentration in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit shall be that concentration which can be counted with a precision of plus or minus 100 percent at the confidence level (1.960 sigma, where sigma is the standard deviation of the net counting rate of the sample).

1. To determine compliance with the specified radionuclide MCLs, the detection limit shall not exceed the following concentrations:

Detection Limits for Gross Alpha Particle Activity,

Radium-226, Radium-228, and Uranium

Contaminant	Detection Limit
Gross alpha particle activity	3 pCi/L
Radium-226	1 pCi/L
Radium-228	1 pCi/L
Uranium	1 µg/L

2. To determine compliance with the specified radionuclide MCLs, the detection limits shall not exceed the following concentrations:

Detection Limits for Man-Made Beta Particle and Photon Emitters

Contaminant	Detection Limit
Gross beta	4 pCi/L
Cesium-134	10 pCi/L
Iodine-131	1 pCi/L
Strontium-89	10 pCi/L
Strontium-90	2 pCi/L
Tritium	1,000 pCi/L
Other radionuclides	1/10 of the applicable limit

(2) Compliance determination.

1. For systems monitoring more than once per year, MCL compliance is determined by a running annual average (RAA) at each sampling point. If the average of any sampling point is greater than the MCL, the system is immediately in violation of the MCL. If any sample result causes the RAA to exceed the MCL at any sample point, the system is immediately in violation of the MCL.

2. Systems monitoring annually or less frequently whose sample result exceeds the MCL must revert to quarterly sampling for that contaminant during the next quarter. Systems are required to conduct quarterly monitoring only at the SEP at which the sample was collected and for the specific contaminant that triggered the increased monitoring frequency. Systems triggered into increased monitoring will not be considered in violation of the MCL until they have completed one year of quarterly sampling. If any sample result causes the RAA to exceed the MCL at any sample point, the system is immediately in violation of the MCL.

3. Systems must include all samples taken and analyzed under the provisions of this rule in determining compliance, even if that number is greater than the minimum required by the department.

4. If a system does not collect all required samples when compliance is based on an RAA of quarterly samples, compliance will be based on the running average of the samples collected.

5. If a sample result is less than the detection limit, use a value of zero to calculate the annual average.

6. The department may invalidate results of obvious sampling or analytical errors.

7. To judge compliance with the radionuclide MCLs, averages of data shall be used and shall be rounded to the same number of significant figures as the MCL for the contaminant in question.

(3) The department will determine compliance or initiate enforcement action based upon analytical results or other information compiled by department staff or the department's designee.

(4) The department may assign additional requirements deemed necessary to protect public health, including PN requirements.

d. Radionuclide analytical methodology. Analysis for radionuclides shall be conducted to determine compliance with the radionuclide MCLs in accordance with the methods in the following table, or equivalent methods determined in accordance with rule 567—41.10(455B).

(1) Radionuclide Analytical Methodology Table.

Radionuclide Analytical Methodology

Contaminant	Methodology	Reference (method or page number)								
		EPA[1]	EPA[2]	EPA[3]	EPA[4]	SM[5]	ASTM[6]	USGS[7]	DOE[8]	Other
Naturally occurring:										
Gross alpha[11] & beta	Evaporation	900.0	p. 1	00-01	p. 1	302, 7110B, 7110 B-00		R-1120-76		
Gross alpha[11]	Co-precipitation			00-02		7110C, 7110 C-00				
Radium-226	Radon emanation	903.1	p. 16	Ra-04	p. 19	305, 7500-Ra C, 7500Ra C-01	D 3454-97, 05	R-1141-76	Ra-04	NY[9]
	Radiochemical	903.0	p. 13	Ra-03		304,	D 2460-97, 07	R-1140-76		GA[14]

						7500-Ra B, 7500-Ra B-01				
Radium-228	Radiochemical	904.0	p. 24	Ra-05	p. 19	7500-Ra D, 7500-Ra D-01		R-1142-76		NY[9] NJ[10] GA[14]
Uranium[12]	Radiochemical	908.0				7500-U B, 7500-U B-00				
	Fluorometric	908.1				7500-U C (17th ed.)	D 2907-97	R-1180-76 R-1181-76	U-04	
	ICP-MS	200.8 [13]				3125	D 5673-03, 05, 10			
	Alpha spectrometry			00-07	p. 33	7500-U C, 7500-U C-00	D 3972-97, 02, 09	R-1182-76	U-02	
	Laser phosphorimetry						D 5174-97, 02, 07			
	Alpha liquid scintillation spectrometry						D 6239-09			
Man-made:										
Radioactive Cesium	Radiochemical	901.0	p. 4			7500-Cs B, 7500-Cs B-00	D 2459-72	R-1111-76		
	Gamma ray spectrometry	901.1			p. 92	7120, 7120-97	D 3649-91, 98a, 06	R-1110-76	4.5.2.3	
Radioactive Iodine	Radiochemical	902.0	p. 6 p. 9			7500-I B, 7500-I B-00, 7500-I C, 7500-I C-00, 7500-I D, 7500-I D-00	D 3649-91, 98a, 06			
	Gamma ray spectrometry	901.1			p. 92	7120, 7120-97	D 4785-93, 00a, 08		4.5.2.3	
Radioactive Strontium 89, 90	Radiochemical	905.0	p. 29	Sr-04	p. 65	303, 7500-Sr B, 7500-Sr B-01		R-1160-76	Sr-01 Sr-02	
Tritium	Liquid scintillation	906.0	p. 34	H-02	p. 87	306, 7500-^{3}H B, 7500-^{3}H B-00	D 4107-91, 98 (Reapproved 2002), 08	R-1171-76		
Gamma emitters	Gamma ray spectrometry	901.1 902.0 901.0			p. 92	7120, 7500-Cs B, 7500-Cs B-00, 7500-I B, 7500-I B-00	D 3649-91, 98a, 06 D 4785-93, 00a, 08	R-1110-76	Ga-01-R	

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of documents 1 through 10 was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies may be obtained from the sources listed below. Information regarding the documents can be obtained from the Safe Drinking Water Hotline at 800.426.4791. Documents may be inspected at EPA's Drinking Water Docket or at the Office of Federal Register.

[1]"Prescribed Procedures for Measurement of Radioactivity in Drinking Water," EPA 600/4-80-032, August 1980. NTIS, PB 80-224744.

[2]"Interim Radiochemical Methodology for Drinking Water," EPA 600/4-75-008(revised), March 1976. NTIS, ibid. PB 253258.

[3]"Radiochemistry Procedures Manual," EPA 520/5-84-006, December 1987. NTIS, ibid. PB 84-215581.

[4]"Radiochemical Analytical Procedures for Analysis of Environmental Samples," March 1979. NTIS, ibid. EMSL LV 053917.

[5]SM, 13th, 17th, 18th, 19th, 20th, 21st, and 22nd editions, 1971, 1989, 1992, 1995, 1998, 2005, and 2012. Methods 302, 303, 304, 305, and 306 are in the 13th edition. Methods 7110B, 7500-Ra B, 7500-Ra C, 7500-Ra D, 7500-U B, 7500-Cs B, 7500-I B, 7500-I C, 7500-I D, 7500-Sr B, 7500-3H B are in the 17th, 18th, 19th, 20th, 21st, and 22nd editions. Method 7110C and Method 7500-U C Alpha spectrometry are in the 18th, 19th, 20th, 21st, and 22nd editions. Method 7500-U C Fluorimetric Uranium is in the 17th and 21st editions. Method 7120 is in the 19th, 20th, 21st, and 22nd editions. Method 3125 is in the 20th edition. Methods 7110 B-00, 7110 C-00, 7500-Ra B-01, 7500-Ra C-01, 7500-Ra D-01, 7500-U B-00, 7500-U C-00, 7500-I B-00, 7500-I C-00, 7500-I D-00, 7120-97, 7500-Sr B-01, and 7500-3H B-00. The year that each method was approved is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[6]ASTM, Volumes 11.01 and 11.02, 2002. Any year containing the cited version of the method may be used.

[7]"Methods for Determination of Radioactive Substances in Water and Fluvial Sediments," Chapter A5 in Book 5 of Techniques of Water-Resources Investigations of the USGS, 1977. USGS Information Services, Box 25286, Federal Center, Denver, CO 80225-0425.

[8]"EML Procedures Manual," 28th (1997) or 27th (1990) edition, Volumes 1 and 2; either edition may be used. In the 27th edition, Method Ra-04 is listed as Ra-05, and Method Ga-01-R is listed as Sect. 4.5.2.3. Environmental Measurements Laboratory, U.S. Department of Energy, 376 Hudson Street, New York, NY 10014-3621.

[9]"Determination of Ra-226 and Ra-228 (Ra-02)," January 1980, revised June 1982. Radiological Sciences Institute Center for Laboratories and Research, New York State Department of Health, Empire State Plaza, Albany, NY 12201.

[10]"Determination of Radium-228 in Drinking Water," August 1980. State of New Jersey, Department of Environmental Protection, Division of Environmental Quality, Bureau of Radiation and Inorganic Analytical Services, 9 Ewing Street, Trenton, NJ 08625.

[11]Natural uranium and thorium-230 are approved as gross alpha calibration standards for gross alpha with co-precipitation and evaporation methods; americium-241 is approved with co-precipitation methods.

[12]If uranium (U) is determined by mass, a 0.67 pCi/μg of uranium conversion factor must be used. This conversion factor is based on the 1:1 activity ratio of U-234 to U-238 that is characteristic of naturally occurring uranium.

[13]"Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma-Mass Spectrometry," Revision 5.4, published in "Methods for the Determination of Metals in Environmental Samples – Supplement 1," EPA 600-R-94-111, May 1994. NTIS, PB 95-125472.

[14]"The Determination of Radium-226 and Radium-228 in Drinking Water by Gamma-Ray Spectrometry Using HPGW or Ge(Li) Detectors," Revision 1.2, December 2004. Environmental Resources Center, Georgia Institute of Technology, 620 Cherry Street, Atlanta, GA 30332-0335.

(2) Method references for other radionuclides. When the identification and measurement of radionuclides other than those listed in 41.8(1)*"b"* are required, the following references shall be used, except in cases where alternative methods have been approved in accordance with 567—41.12(455B).

1. "Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions," H. L. Krieger and S. Gold, EPA-R4-73-014, EPA, Cincinnati, Ohio 45268 (May 1973).

2. "HASL Procedure Manual," edited by John H. Harley. HASL 300, ERDA Health and Safety Laboratory, New York, NY (1973).

e. Monitoring requirements for gross alpha, radium-226, radium-228, and uranium.

(1) General.

1. Monitoring frequency and confirmation samples. The department may require more frequent monitoring than specified in this paragraph and may require confirmation samples at its discretion. The results of the initial and confirmation samples will be averaged for use in compliance determinations.

2. Monitoring period. Each PWS shall monitor during the time period specified in the operation permit.

(2) Applicability and sampling locations.

1. Existing systems and sources. All existing CWSs must sample at every SEP representative of all sources being used under normal operating conditions. Systems must take each sample at the same SEP sampling point, unless conditions make another alternate sampling point more representative of each source, or the department has designated a distribution system location, in accordance with this paragraph. The department must approve any alternate sampling point for radionuclides.

2. New systems and sources. All new CWSs or CWSs that use a new source of water must begin initial monitoring for the new system or source within the first calendar quarter after initiating use of the system or source. More frequent monitoring must be conducted by a CWS when required by the department, in the event of possible contamination, or when changes in the distribution system or treatment processes occur which may increase the concentration of radioactivity in finished water.

(3) Initial monitoring. Systems must conduct initial monitoring for gross alpha particle activity, radium-226, radium-228, and uranium as follows. If the average of the initial monitoring results for an SEP is above the MCL, a system must collect and analyze quarterly samples at that SEP until it has results from four consecutive quarters that are at or below the MCL unless it enters into another schedule as part of a formal compliance agreement with the department.

1. Systems without historical monitoring data. Systems without historical monitoring data must collect four consecutive quarterly samples at all SEP sampling points before December 31, 2007. The department may waive the final two quarters of initial monitoring from an SEP if the results of the samples from the previous two quarters are below the detection limit.

2. Systems with historical monitoring data and one SEP. Systems with only one SEP may use historical monitoring data collected between January 1, 2000, and December 31, 2003, from either the representative point in the distribution system or the SEP to satisfy the initial monitoring requirement.

3. Systems with historical SEP monitoring data and multiple SEPs. Systems with multiple SEPs that also have appropriate historical monitoring data for each SEP may use the monitoring data collected between January 1, 2000, and December 31, 2003, to satisfy the initial monitoring requirement.

4. Systems with historical distribution system monitoring data and multiple SEPs. Systems with appropriate historical data for a representative point in the distribution system and multiple SEPs may use the monitoring data collected between January 1, 2000, and December 31, 2003, provided that the department determines that the historical data satisfactorily demonstrates that each SEP is expected to be in compliance based upon the historical data and reasonable assumptions about the variability of contaminant levels between SEPs. The department must make a written finding indicating how the data conforms to these requirements in order for the data to satisfy the initial monitoring requirements.

(4) Reduced monitoring. The department may allow a CWS to reduce the future monitoring frequency from once every three years to once every six or nine years at each SEP, based on the following criteria. The samples collected during the reduced monitoring period must be used to determine the monitoring frequency for subsequent monitoring periods. If a system has a monitoring result that exceeds an MCL while on reduced monitoring, the system must collect and analyze quarterly samples at that SEP until it has results from four consecutive quarters that are below the MCL unless it enters into another schedule as part of a formal compliance agreement with the department.

1. Nine-year frequency. If the average of the initial monitoring results for each contaminant is below the radionuclide detection limits specified in this subrule, a system must collect and analyze for that contaminant using at least one sample at that SEP every nine years.

2. Six-year frequency. If the average of the initial monitoring results for gross alpha particle activity, uranium, and combined radium-226 and radium-228 is at or above the detection limit and at or below half the MCL for a contaminant, a system must collect and analyze for that contaminant using at least one sample at that SEP every six years. The analytical results for radium-226 and radium-228 must be added together to yield the combined result.

3. Three-year frequency. If the average of the initial monitoring results for gross alpha particle activity, uranium, and combined radium-226 and radium-228 is above half of the MCL and at or below the MCL for a contaminant, a system must collect and analyze for that contaminant using at least one sample at that SEP every three years. The analytical results for radium-226 and radium-228 must be added together to yield the combined result.

(5) Composite samples. To fulfill quarterly monitoring requirements for gross alpha particle activity, radium-226, radium-228, or uranium, a system may composite up to four consecutive quarterly samples from a single entry point if analysis is done within one year of the first sample. The analytical results from the composited samples will be considered by the department as the average analytical result to determine MCL compliance and to determine the future monitoring frequency. If the analytical result from the composited sample is greater than half of the MCL, the department may require additional quarterly samples from the system before the system will be allowed to sample under a reduced monitoring schedule.

(6) Data substitution using gross alpha particle activity results.

1. A gross alpha particle activity measurement may be substituted for the required uranium measurement provided that the measured gross alpha particle activity does not exceed 15 pCi/L.

2. The gross alpha particle activity measurement shall have a confidence interval of 95 percent (1.65 sigma, where sigma is the standard deviation of the net counting rate of the sample) for uranium. When a system uses a gross alpha particle activity measurement in lieu of a uranium measurement, the gross alpha particle activity analytical result will be used to determine the future monitoring frequency for uranium. If the gross alpha particle activity result is less than the detection limit, half the detection limit will be used to determine compliance and the future monitoring frequency.

f. Monitoring requirements for beta particle and photon emitters. To determine compliance with the radionuclide MCLs for beta particle and photon radioactivity, a system must monitor at a frequency specified in this paragraph.

(1) General.

1. Monitoring frequency and confirmation samples. The department may require more frequent monitoring than specified in this paragraph and may require confirmation samples at its discretion. The results of the initial and confirmation samples will be averaged for use in compliance determinations.

2. Monitoring period. Each PWS shall monitor during the time period designated by the department in the operation permit.

(2) Systems designated by the department as vulnerable to man-made radioactivity.

1. Initial monitoring. Systems that have been determined by the department to be vulnerable to man-made radioactivity must collect quarterly samples for beta emitters and annual samples for tritium and strontium-90 at each SEP, beginning within one quarter after being notified by the department of this requirement. Systems already required to conduct beta particle and photon radioactivity monitoring must continue to sample until the department removes the monitoring requirement.

2. Reduced monitoring. The department may reduce the monitoring frequency at that sampling point to once every three years, if the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at an SEP has an RAA (computed quarterly) of less than or equal to 50 pCi/L (screening level). Systems must collect all of the samples required in "1" of this subparagraph during the reduced monitoring period.

3. Data substitution. For a system in the vicinity of a nuclear facility, the department may allow the system to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at its SEP(s), where the department determines such data is applicable. In

the event that there is a release from a nuclear facility, systems using surveillance data must begin monitoring at its SEP(s) in accordance with this subparagraph.

(3) Systems determined to utilize waters contaminated by effluents from nuclear facilities.

1. Initial monitoring. Systems designated by the department as utilizing water contaminated by effluents from nuclear facilities must sample for beta particle and photon radioactivity. Systems must collect quarterly samples for beta emitters and iodine-131 and annual samples for tritium and strontium-90 at each SEP, beginning within one quarter after department notification. Systems already designated by the department as systems using waters contaminated by effluents from nuclear facilities must continue to sample until the department removes the sampling requirement.

- Gross beta particle activity. Quarterly monitoring for gross beta particle activity shall be based on the analysis of monthly samples or the analysis of a composite of three monthly samples. The former is recommended.
- Iodine-131. A composite of five consecutive daily samples shall be analyzed once each quarter for iodine-131. The department may require more frequent monitoring when iodine-131 is identified in the finished water.
- Strontium-90 and tritium. Annual monitoring for strontium-90 and tritium shall be conducted either by analyzing a composite of four consecutive quarterly samples or by analyzing four quarterly samples. The latter is recommended.

2. Reduced monitoring. If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has an RAA (computed quarterly) less than or equal to 15 pCi/L (screening level), the department may reduce the monitoring frequency at that sampling point to every three years. Systems must collect all samples required in this subparagraph during the reduced monitoring period.

3. Data substitution. For systems in the vicinity of a nuclear facility, the department may allow a CWS to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry point(s), where the department determines such data is applicable. In the event that there is a release from a nuclear facility, systems that are using surveillance data must begin monitoring at the CWS SEP in accordance with 41.8(1)*"f"*(2)"1."

(4) Monitoring frequency waiver. A CWS designated by the department to monitor for beta particle and photon radioactivity cannot apply to the department for a waiver from the monitoring frequencies in 41.8(1)*"f"*(2) or (3).

(5) CWSs may analyze for naturally occurring potassium-40 beta particle activity from the same or an equivalent sample used for the gross beta particle activity analysis. Systems are allowed to subtract the potassium-40 beta particle activity value from the total gross beta particle activity value to determine if the screening level is exceeded. The potassium-40 beta particle activity must be calculated by multiplying elemental potassium concentrations (in mg/L) by a factor of 0.82.

(6) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity exceeds the appropriate screening level, a sample analysis must be performed to identify the major radioactive constituents present in the sample, and the appropriate doses must be calculated and summed to determine compliance with 41.8(1)*"b"*(2)"1," using the formula in 41.8(1)*"b"*(2)"2." Doses must also be calculated and summed for measured levels of tritium and strontium to determine compliance.

(7) Monitoring after an MCL violation. Systems must monitor monthly at the sampling point(s) that exceed the MCL in 41.8(1)*"b"*(2) beginning the month after the exceedance occurs. Systems must continue monthly monitoring until a system has established, by a rolling average of three monthly samples, that the MCL is being met. Systems that establish that the

MCL is being met must return to quarterly monitoring until they meet the requirements of 41.8(1)*"f"*(2) or 41.8(1)*"f"*(3)"2."

41.8(2) Reserved.

567—41.9(455B) Special monitoring.

41.9(1) *Sodium special monitoring.* Suppliers of water for CWSs shall collect and have analyzed one sample per source or plant to determine the sodium concentration in the distribution system. Systems utilizing multiple wells that draw raw water from a single aquifer may, with departmental approval, be considered as one source for determining the minimum number of samples to be collected. Sampling frequency and approved analytical methods are as follows:

a. SW systems. Systems utilizing a SW source, in whole or in part, shall monitor for sodium at least once annually at the SEP.

b. GW systems. Systems utilizing GW sources shall monitor at least once every three years at the SEP.

c. Increased monitoring. Suppliers may be required to monitor more frequently where sodium levels are variable or if certain types of treatment are used, such as cation exchange softening.

d. Analytical methodology. Sodium analyses shall be performed in accordance with 41.3(1)*"e"*(1).

e. Reporting. The sodium level shall be reported to the public by at least one of the following methods:

(1) The CWS shall notify the appropriate local public health officials of the sodium levels by written notice by direct mail within three months of receipt of the analytical results. A copy of each notice required by this subrule shall be sent to the department within ten days of its issuance.

(2) In lieu of the reporting requirement in this paragraph, the CWS shall include the sodium level in its annual consumer confidence report, pursuant to 567—subparagraph 40.7(4)*"a"*(11).

f. CWSs using cation exchange treatment. CWS utilizing cation exchange treatment shall collect one sodium sample of the finished water per year after all treatment. Analysis and reporting must be done in accordance with this subrule.

41.9(2) *Ammonia special monitoring.* Ammonia in GW is a precursor to the development of nitrite and nitrate in a drinking water system, which are both contaminants with acute health effects. This subrule lists the ammonia analytical methodology, sample preservation requirements, and holding times to be used for drinking water samples.

a. Analytical methodology. Analyses for ammonia shall be performed in accordance with the following methodology, with a detection limit of 0.1 mg/L ammonia as N:

Analytical Methodology for Ammonia

Methodology	EPA[1]	SM (20th edition)	ASTM	USGS[2]	Other
Manual distillation at pH 9.5[4], followed by:	350.2	4500-NH3 B			973.49[3]
Titration	350.2				
Manual electrode	350.3	4500-NH3 D or E	D1426-93(B)		
Automated phenate	350.1	4500-NH3 G		I-4523-85	
Automated electrode					See note 5

[1]"Methods for Chemical Analysis of Water and Wastes," EPA-600/4-79-020, Revised March 1983 and 1979 where applicable.

[2]Fishman, M.J., et al., "Methods for Analysis of Inorganic Substances in Water and Fluvial Sediments,'' U.S. Department of the Interior, Techniques of Water—Resource Investigations of the USGS, Denver, CO, Revised 1989, unless otherwise stated.

[3]"Official Methods of Analysis of the Association of Official Analytical Chemists," 15th edition, 1990.

[4]Manual distillation is not required if the samples are very low in turbidity; however, manual distillation should be used whenever matrix interferences could be present in the sample, and will be required to resolve any controversies.

[5]Ammonia, Automated Electrode Method, Industrial Method Number 379-75 WE, February 19, 1976, Bran & Luebbe (Technicon) Auto Analyzer II, Bran & Luebbe Analyzing Technologies, Inc., Elmsford, NY 10523.

b. Sample preservation and holding time. Systems must collect a 500 mL grab sample into a plastic or glass bottle. The sample must be acidified at the time of collection to a pH of less than 2 by the addition of sulfuric acid (H_2SO_4) and refrigerated at 4 degrees Celsius. The sample must be analyzed within 28 days. If the sample is analyzed within 24 hours of collection, the sample acidification is not required.

567—41.10(455B) Department analytical results used to determine compliance. Analytical results or other information compiled by departmental staff may be used to determine compliance with the MCLs, TTs, or ALs in this chapter or 567—Chapter 43 or for initiating remedial action with respect to these violations.

567—41.11(455B) Other monitoring.

41.11(1) *Monitoring of interconnected PWS.* When a PWS system supplies water to one or more other PWSs, the department may modify the monitoring requirements imposed by this chapter to the extent that the interconnection of the systems justifies treating them as a single system for monitoring purposes. Any modified monitoring shall be conducted pursuant to a schedule specified by the department and concurred with by the EPA administrator.

41.11(2) *Monitoring of other contaminants.* If the department determines that other contaminants are present in a PWS, and the contaminants are known to pose, or scientific evidence strongly suggests that they pose, a threat to human health, a water supply may be required to monitor for such contaminants. The water supply will monitor at a frequency and in a manner which will adequately identify the magnitude and extent of the contamination. The monitoring frequency and sampling location will be determined by the department. All analytical results will be obtained using EPA-approved methods and submitted to the department for review and evaluation. Any monitoring required under this paragraph will be incorporated into an operation permit or an order.

These rules are intended to implement Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192.

Iowa Department of Natural Resources
Environmental Protection Commission

Decision Item

7. Chapter 43, Water Supplies—Design and Operation – Final Rule

The Commission is requested to approve the Adopted and Filed rule to rescind and replace Chapter 43. This is the result of Water Quality Bureau's Executive Order 10 rule review.

Basic Intent of Rule: Chapter 43 is rescinded and readopted. Chapter 43 implements federal health-based drinking water standards and minimum drinking water treatment requirements in Iowa, consistent with the Safe Drinking Water Act (SDWA). The chapter establishes the following for water supply systems: emergency procedures, engineering and construction standards and associated permitting, sanitary survey procedures, operation permitting and procedures, and certain drinking water treatment requirements. This chapter is necessary for the State of Iowa to maintain primacy for enforcing the SDWA since Iowa's rules must be at least as stringent as the requirements established in the SDWA. This chapter was reviewed and edited consistent with Executive Order 10.

NOIA: The Notice of Intended Action (NOIA) was approved by the Commission at its November 11, 2024 meeting. The NOIA was published in the Iowa Administrative Bulletin on January 8, 2025 as ARC 8617C. Two public hearings were held on January 30, 2025 and January 31, 2025**.**

Changes from NOIA: Four people attended the first public hearing, and four attended the second hearing. No public comments were received at the hearings. Two email comments and one comment letter were received during the public comment period. This final rule is substantially identical to the NOIA. Erroneous rule references were corrected in the final rule, and a subrule regarding recordkeeping was reinserted, as it was mistakenly omitted in the NOIA. Additional minor changes were made to the final rule based on the comments, including the removal of an erroneous phrase; the removal of an obsolete compliance schedule extension; the addition of units to Appendix A, and the correction of typos and additional erroneous rule references.

Effective Date of Final Rule: August 13, 2025

Lori McDaniel, Water Quality Bureau Chief
Environmental Services Division
Meeting Date: June 17, 2025

Attached: Chapter 43 – Final rule

ENVIRONMENTAL PROTECTION COMMISSION[567]

Adopted and Filed

The Environmental Protection Commission (Commission) hereby rescinds Chapter 43, "Water Supplies—Design and Operation," Iowa Administrative Code, and to adopt a new chapter with the same title.

Legal Authority for Rulemaking

This rulemaking is adopted under the authority provided in Iowa Code sections 455B.103(2), 455B.105(3), 455B.173(3) and 455B.173(5) through 455B.173(10).

State or Federal Law Implemented

This rulemaking implements, in whole or in part, Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192 and the federal Safe Drinking Water Act (SDWA) as amended (42 U.S.C. §300f et seq.).

Purpose and Summary

Chapter 43 implements federal health-based drinking water standards and minimum drinking water treatment requirements in Iowa. The chapter establishes the following for water supply systems: emergency procedures, engineering and construction standards and associated permitting, procedures for periodic sanitary surveys to ensure compliance with the SDWA, operation permitting and procedures, and certain drinking water treatment requirements for compliance with the SDWA. This chapter is necessary for the State of Iowa to maintain primacy for enforcing the federal SDWA since Iowa's rules must be at least as stringent as the requirements established in the SDWA. This chapter was reviewed and edited consistent with Executive Order 10.

Public Comment and Changes to Rulemaking

Notice of Intended Action for this rulemaking was published in the Iowa Administrative Bulletin on January 8, 2025, as **ARC 8617C**. A public hearing was held on the following dates(s):

- January 30, 2025
- January 31, 2025

Four people attended the first public hearing, and four attended the second hearing. No public comments were received at the hearings. Two email comments and one comment letter were received during the public comment period.

This rulemaking is substantially identical to the Notice; however, some changes from the Notice have been made. Erroneous rule references were corrected in the final rule, and the subrule regarding recordkeeping for enhanced Cryptosporidium treatment was reinserted, as it was mistakenly omitted in the NOIA. Additional minor changes were made to the final rule based on the comments, including: the removal of an erroneous phrase from the paragraph concerning field surveys for source evaluations, as the phrase was mistakenly left in the revised paragraph in the NOIA; the removal of language regarding an obsolete compliance schedule extension that is nine years out of date; clarification of the automatic water shutoff criteria for disinfection systems in order to ensure the consistency of the paragraphs in the disinfection requirements subrule; the addition of an internal rule reference to correct a discrepancy between two subrules regarding the verification frequency for continuous monitoring instruments; the addition of units to the header paragraph and tables in Appendix A, and the correction of typos and additional erroneous rule references.

Adoption of Rulemaking

This rulemaking was adopted by the Commission on June 17, 2025.

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 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 February 7, 2025. Comments should be directed to:

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).

Effective Date

This rulemaking will become effective on August 13, 2025.

The following rulemaking action is adopted:

ITEM 1. Rescind 567—Chapter 43 and adopt the following **new** chapter in lieu thereof:

CHAPTER 43

WATER SUPPLIES—DESIGN AND OPERATION

567—43.1(455B) General information.

43.1(1) *Emergency actions regarding water supplies.* When, in the opinion of the director, an actual or imminent hazard exists, a water supplier shall comply with the directives or orders of the director necessary to eliminate or minimize that hazard.

a. Water hauling on an emergency basis. A system that is providing finished drinking water hauled from another PWS must ensure the safety of the water in an emergency situation.

(1) Hauled water must come from a PWS currently regulated by the department and in compliance with 567—Chapters 40 through 43. Written department approval is required prior to the use of water from any PWS with a chronic health-based standard violation.

(2) The receiving PWS must have written department approval prior to the use of water from any PWS located in another state. The providing PWS must be in compliance with SDWA requirements.

(3) The hauled water must be disinfected with chlorine to ensure bacterial safety in the tanker, storage vessel, and distribution system. If the PWS providing the water does not disinfect, chlorine disinfectant must be added to the hauled water before use or storage at the receiving PWS. A minimum disinfectant residual of 2.0 mg/L as total chlorine or chloramines or 0.5 mg/L as free chlorine must be maintained in the tanker, storage vessel, and distribution system. If no disinfectant is used, the transported water must be boiled before any human consumptive use, which includes drinking, bathing, handwashing, oral hygiene, food preparation, dishwashing, ice making, or food processing.

(4) The tanker or water bladder must be approved for hauling or storing food grade materials and be sanitized in accordance with AWWA C652 prior to first use.

(5) Both filling and dispensing devices must include backflow protection to protect the source water, such as an air gap, double-check-valve assembly, or reduced pressure zone device.

(6) Total coliform bacteria samples must be collected from the tanker, storage tank or bladder, and distribution system as follows:

1. Tanker: one sample after cleaning and one before first potable water use.

2. Storage tank or bladder: one sample after cleaning and one before first use.

3. Distribution system: one sample initially before first use and with each new load of water or once per month, whichever is more frequent.

(7) Records must be maintained and available for inspection for five years.

b. Water hauling on a nonemergency basis. A system that is providing finished drinking water hauled from another PWS must comply with the conditions in its operation permit.

43.1(2) *Prohibition on the use of lead.* Any pipe, pipe fitting, plumbing fitting, plumbing fixture, solder, or flux that is used in the installation or repair of any public water supply system (PWS) or any plumbing in a facility providing water for human consumption that is connected to a PWS shall be lead free as defined in 567—40.2(455B). This shall not apply to leaded joints necessary for the repair of cast iron pipe.

a. The following items are exempted from the prohibition, depending upon their use in the system: pipes, pipe fittings, plumbing fittings, or fixtures, including backflow preventers, that are used exclusively for nonpotable services such as manufacturing, industrial processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption.

b. Additional products that could be used exclusively for nonpotable services include:

(1) Products that are clearly labeled on the product, package, or tags with a phrase such as "not for use with water for human consumption" or another phrase that conveys the same meaning in plain language;

(2) Products that are incapable of use in potable services with other products that would be needed to convey water for potable uses; or

(3) Products that are plainly identifiable and marketed as being solely for a use other than the conveyance of water. These other uses include conveyance of air, chemicals other than water, hydraulic fluids, refrigerants, gases, or other nonwater fluids.

c. The following items are exempted from the prohibition: toilets, bidets, urinals, fill valves, flushometer valves, tub fillers, shower valves, fire hydrants, service saddles, water distribution main gate valves two inches in diameter or larger, clothes washing machines, emergency drench showers, emergency face wash equipment, eyewash devices, fire suppression sprinklers, steam capable clothes dryers, and sump pumps.

43.1(3) *Use of noncentralized treatment devices.*

a. Community PWS. CWSs shall not use bottled water, point-of-use (POU) or point-of-entry (POE) devices to achieve permanent compliance with a maximum contaminant level (MCL), treatment technique (TT), or action level (AL) requirement in 567—Chapters 41 and 43.

b. Noncommunity PWS. The department may allow NCWSs to use POU devices to achieve MCL compliance, provided the contaminant does not pose an imminent threat to health (such as bacteria) nor place a sensitive population at risk (such as infants for nitrate or nitrite).

c. Reduced monitoring requirements. Bottled water, POU, or POE devices cannot be used to avoid the monitoring requirements of 567—Chapters 41 and 43, but the department may allow reduced monitoring requirements in specific instances.

d. Bottled water requirements. The department may require a PWS exceeding an MCL, TT, or AL requirement in 567—Chapters 41 and 43 to use bottled water as a condition of an interim compliance schedule or as a temporary measure to avoid an unreasonable health risk. Any bottled water must meet the federal Food and Drug Administration (FDA) bottled water standards in 21 CFR §165.110. The system must meet the following requirements:

(1) Monitoring program. Submit a monitoring program for bottled water to the department. The monitoring program must provide reasonable assurances that the bottled water complies with all MCLs, TT, or AL requirements in 567—Chapters 41 and 43. The PWS must monitor a representative sample of bottled water for all contaminants regulated under 567—Chapters 41 and 43 the first quarter that it supplies the bottled water to the public, and annually thereafter. Monitoring program results shall be provided to the department annually. If the bottled water is from a CWS that currently meets all of the federal SDWA requirements, the monitoring requirements of this subparagraph shall be waived by the department. The specific supplier of the bottled water must be identified in order for the department to waive the monitoring requirements.

(2) Certification. The PWS must receive a certification from the bottled water company that the bottled water supplied has been taken from an approved source; the bottled water company has conducted monitoring in accordance with 43.1(3)*"b"*(1); and the bottled water meets MCL, TT, or AL requirements in 567—Chapters 41 and 43. The PWS shall provide the certification to the department the first quarter after it supplies bottled water and annually thereafter.

(3) Provision of bottled water. The PWS is fully responsible for the provision of sufficient quantities of bottled water to every person supplied by the PWS via door-to-door bottled water delivery.

43.1(4) *Cross-connection control.* To prevent backflow or backsiphonage of contaminants into a PWS, connection shall not be permitted between a PWS and any other system that does not meet the monitoring and drinking water standards of this chapter, except as provided in 43.1(4)*"a," "b,"* or *"c."*

a. Piping and plumbing systems. Piping systems or plumbing equipment carrying nonpotable water, contaminated water, stagnant water, liquids, mixtures, or waste mixtures

shall not be connected to a PWS unless properly equipped with an antisiphon device or backflow preventer acceptable to the department.

b. Water loading stations. The Ten States Standards contain the construction standards regarding water loading stations.

c. Contamination as a result of cross-connection. When, in the department's opinion, evidence clearly indicates the source of contamination within a system is the result of a cross-connection, the department may require a PWS to provide public notice (PN), identify and eliminate the connection, and implement a systemwide cross-connection program.

43.1(5) *Requirement for certified operator.* The department maintains a list of certified operators in accordance with 567—Chapter 81. The list includes the operator's name, certification classification (Water Treatment, Water Distribution, or Grade A Water System), and grade (A, I, II, III, or IV), and is periodically updated during the year.

a. CWS and NTNC systems. All CWSs and NTNCs must have a certified operator in direct responsible charge (DRC) of the treatment and distribution systems, pursuant to 567—Chapters 40 through 44 and 81.

b. TNC systems.

(1) Any TNCs owned by the state or federal government or using a surface water (SW) or IGW source must have a certified operator in DRC of the treatment and distribution systems, pursuant to 567—Chapters 40 through 44 and 81.

(2) Any TNC that uses chlorine dioxide as a disinfectant or oxidant must have a certified operator in DRC of the system, pursuant to 567—Chapter 81.

(3) The department may require any TNC to have a certified operator in DRC.

43.1(6) *Return water in PWSs.* Steam condensate, cooling water from engine jackets, water used in conjunction with heat exchange devices, or treated wastewater shall not be returned to a PWS.

43.1(7) *Sanitary surveys.* Each PWS must have a periodic sanitary survey conducted by the department or its designee. Systems must provide, upon request, any information that will enable the department to conduct the sanitary survey.

a. A sanitary survey is a records review and on-site inspection that evaluates a system's ability to produce and distribute safe drinking water and identifies improvements necessary to maintain or improve drinking water quality. A survey includes review and inspection of the following areas: water source; treatment facilities; distribution systems; finished water storage; pumps, pump facilities, controls and other equipment; monitoring, reporting, and data verification, including self-monitoring; system operation and management; maintenance; operator certification; and records.

b. A sanitary survey report is issued by the department or its designee, and may include both enforceable required actions for remedying significant deficiencies and nonenforceable recommended actions.

c. Sanitary surveys shall be conducted at least once every five years for TNCs and NTNCs and once every three years for CWSs.

d. The department or its designee shall provide the PWS with a written notice describing any significant deficiencies identified during the survey no later than 30 days after identification of the deficiency. The notice may be included in the sanitary survey report and may specify corrective actions and deadlines for completion of corrective actions. Systems must respond in writing to significant deficiencies outlined in the sanitary survey report or written notice and indicate how and on what schedule the system will address the noted deficiencies, either within 30 days of receiving the survey report or notice or within the time period specified in the report or notice. All systems must take the steps necessary to address significant deficiencies identified in a sanitary survey report or written notice that are within the control of the system and its governing body.

567—43.2(455B) PWS operation permit.

43.2(1) *Fees.*

a. Annual fee. A fee for the operation of a PWS shall be paid annually. The fee will not be prorated and is nonrefundable. The fee shall be based on the population served. The fee shall be the greater of $25 per year or $0.14 multiplied by the total population served by the PWS for all CWSs and NTNCs. The fee shall be $25 per year for all TNCs. Where a system provides water to another PWS (consecutive PWS) that is required to have an operation permit, the population of the recipient system shall not be counted as a part of the PWS providing the water.

b. Fee notices. The department will send annual notices to PWSs at least 60 days prior to the operation fee due date.

c. Fee payments. The annual operation fee must be paid to the department by September 1 each year.

d. Fee adjustment. The department may adjust the per capita fee payment by up to +/– $0.02 per person served so as to achieve the targeted revenue of $350,000 during each fiscal year. The commission must approve any per capita fee rate above $0.14 per person. Any fee adjustment shall comply with Iowa Code section 455B.183A.

e. Exempted PWSs. PWSs located on Indian lands are exempt from the fee requirements.

f. Late fees. When the owner of a PWS fails to remit payment of fees by September 1, the department will notify the system by a single notice of violation and assess a late fee of $100. The department may thereafter issue an administrative order pursuant to Iowa Code section 455B.175(1)(a) or request a referral to the attorney general under Iowa Code section 455B.175(1)(c).

43.2(2) *Operation permit requirement.* Except as provided in 43.2(3), no person shall operate any PWS or part thereof without, or contrary to any condition of, an operation permit issued by the director.

43.2(3) *Operation permit applications.* The owner of any PWS or part thereof must submit an application for an operation permit. Upon submission of a completed application form, the time requirement for having a valid operation permit is automatically extended until the application has either been approved or disapproved by the director.

a. Application forms and timeline.

(1) Applications for operation permits shall be made on forms provided by the department.

(2) An application shall be filed at least 90 days prior to the date operation is scheduled to begin unless a shorter time is approved by the director.

(3) The director shall issue or deny operation permits within 60 days of receipt of a completed application, unless a longer period is required and the applicant is so notified.

(4) The director may require the submission of additional information deemed necessary to evaluate an application.

(5) An application that is incomplete or otherwise deficient shall not be processed until the applicant has supplied the missing information or otherwise corrected the deficiency.

b. Identity of signatories. The person who signs the application for an operation permit shall be:

(1) Corporation. In the case of a corporation, a principal executive officer of at least the level of vice president. The corporation has the option of appointing a designated signatory to satisfy this requirement.

(2) Partnership. In the case of a partnership, a general partner.

(3) Sole proprietorship. In the case of a sole proprietorship, the proprietor.

(4) Public facility. In the case of a municipal, state or other public facility, by either the principal executive officer or the ranking elected official.

c. Late applications. When the owner of a PWS fails to make timely application, the department will notify the system by a single notice of violation and may thereafter issue an administrative order pursuant to Iowa Code section 455B.175(1)(a) or request a referral to the attorney general under Iowa Code section 455B.175(1)(c).

43.2(4) *Operation permit conditions.*

a. Conditions. Operation permits may contain conditions deemed necessary by the director to ensure compliance with all applicable department rules, to ensure that a PWS is properly operated and maintained, to ensure that potential hazards to the water consumer are eliminated promptly, and to ensure compliance with the SDWA.

b. Compliance schedule. Where one or more MCLs, TTs, ALs, or designated HAs cannot be met immediately, a compliance schedule for achieving compliance with standards may be included in a permit. A compliance schedule requiring alterations in accordance with the standards for construction in 43.3(1) and 43.3(2) may also be included for any supply that, in the opinion of the director, contains a potential hazard.

c. Treatment. If the department determines that a treatment method identified in 43.3(10) is technically feasible, the department may require a system to install or use that treatment method in connection with a compliance schedule, pursuant to 43.2(4)*"b."* The department's determination shall be based upon studies by the system and other relevant information.

43.2(5) *Notification of change.* The owner of a PWS shall notify the director within 30 days of any change in conditions identified in the permit application. This notice does not relieve the owner of the responsibility to obtain a construction permit as required by 567—43.3(455B).

43.2(6) *Renewal.* The department may issue operation permits for durations of up to five years. Operation permits must be renewed prior to expiration in order to remain valid. The renewal date shall be specified in the permit or in any renewal. Application for renewal must be submitted in accordance with 43.2(3).

43.2(7) *Denial, modification, or suspension.* The director may deny a new or renewal of, modify, or suspend, in whole or in part, any operation permit for good cause. Denial of a new permit, renewal of an existing permit, or modification of a permit may be appealed to the commission pursuant to 567—Chapter 7. Suspension or revocation may occur after hearing, pursuant to 567—Chapter 7. Good cause includes:

a. Violation of any term or condition of the permit.

b. Failure to pay the fee in accordance with 43.2(1).

c. Obtaining a permit by misrepresentation of fact or failure to disclose fully all material facts.

d. A change in any condition that requires either a permanent or temporary modification of a permit condition.

e. Failure to submit records and information the director may require both generally and as a condition of the operation permit in order to ensure compliance with permit conditions.

f. Violation of any requirements in, or significant noncompliance with, 567—Chapters 40 through 43, including noncompliance with applicable MCLs, TTs, or ALs.

g. Inability of a system to either achieve or maintain technical, managerial, or financial viability, as determined in 567—43.8(455B).

567—43.3(455B) PWS construction.

43.3(1) *PWS standards.*

a. Any PWS that does not meet the drinking water standards in 567—Chapters 41 and 43 shall make alterations necessary to comply with the drinking water standards in accordance

with the construction standards contained in this rule unless the PWS has been granted a waiver from an MCL or TT as a provision of its operation permit pursuant to this chapter, provided that the PWS meets the schedule established pursuant to this chapter.

b. Any PWS that, in the opinion of the director, contains a potential hazard shall make alterations necessary to eliminate or minimize the hazard in accordance with the construction standards in this rule.

c. A PWS that is not operating within the construction standards may be required by the department via a compliance schedule to upgrade the deficient areas of the system before a construction permit will be issued for any work that does not address the current deficiencies.

43.3(2) *Construction standards.*

a. The construction standards for a drinking water project are the Ten States Standards, the AWWA Standards as adopted through 2023, and 43.3(7) through 43.3(9). In any conflict between the Ten States Standards, and the AWWA Standards, and 43.3(7) through 43.3(9), the Ten States Standards, 43.3(2), and 43.3(7) to 43.3(9) shall prevail. Additional standards include the following:

(1) Polyvinyl chloride (PVC) pipe manufactured in accordance with ASTM D2241, AWWA C900, AWWA C905, ASTM F1483, or AWWA C909 may be used for water main construction. The maximum allowable pressure for PVC or polyethylene pipe shall be determined based on a safety factor of 2.0 and a surge allowance of no less than two feet per second.

(2) For CWS groundwater (GW) systems, a minimum of two wells shall be provided, unless the system demonstrates to the department's satisfaction that a single well will provide a reliable and adequate source. For NTNC and TNC GW systems, a single well is acceptable.

(3) Separation of water mains from sanitary and combined sewers.

1. Horizontal separation of water mains from gravity sanitary and combined sewers. Water mains shall be separated from gravity sanitary and combined sewer mains by a horizontal distance of at least ten feet measured edge to edge unless the bottom of the water main is at least 18 inches above the top of the sewer, and either:

- The water main is placed in a separate trench, or
- The water main is located on a bench of undisturbed earth at a minimum horizontal separation of three feet from the sewer.

If it is not possible to obtain a horizontal separation of three feet and a vertical separation of 18 inches between the bottom of the water main and the top of the sewer, a linear separation of at least three feet shall be provided, and one of the following shall be utilized:

- The water main shall be enclosed in watertight casing pipe with an evenly spaced annular gap and watertight end seals, or
- The sewer shall be constructed of water main materials.

The separation distance (SD) between the water main and the sewer shall be the maximum feasible in all cases.

2. Horizontal separation of water mains from sanitary sewer force mains. Water mains shall be separated from sanitary sewer force mains by a horizontal distance of at least ten feet measured edge to edge unless the sanitary sewer force main is constructed of water main materials and the water main is laid at least four feet horizontally from the sanitary sewer force main. The SD between the water main and the sanitary sewer force main shall be the maximum feasible in all cases.

3. Vertical separation of water mains from sanitary and combined sewer crossovers. Vertical separation of water mains crossing over any sanitary or combined sewers shall be at least 18 inches when measured from the bottom of the water main to the top of the sewer. If

it is not possible to maintain the required vertical separation, one of the following shall be utilized:

- The bottom of the water main shall not be placed closer than six inches above the top of a sewer, or
- The top of the water main shall not be placed closer than 18 inches below the bottom of a sewer.

When a water main crosses below or less than 18 inches above a sanitary or combined sewer, one of the following shall be utilized within approximately ten feet measured edge to edge horizontally, centered on the crossing, with joints located as far as possible from the point of crossing:

- The water main shall be enclosed in watertight casing pipe with an evenly spaced annular gap and watertight ends, or
- Sewer pipe of water main material shall be installed.

The SD shall be the maximum feasible in all cases. Wherever a water main crosses a sanitary or combined sewer, the water main and sanitary or combined sewer pipes must be adequately supported. A low permeability soil shall be used for backfill material within ten feet of the point of crossing along the water main.

4. Horizontal separation of water mains from sanitary and combined sewer manholes. No water pipe shall pass through or come in contact with any part of a sanitary or combined sewer manhole. A minimum horizontal separation of three feet shall be maintained.

(4) Separation of water mains from storm sewers.

1. Horizontal separation of water mains from gravity storm sewers. Water mains shall be separated horizontally from gravity storm sewers by at least ten feet measured edge to edge. If it is not possible to maintain the required horizontal separation of ten feet, a minimum of

three feet of separation shall be maintained and one of the following shall be utilized within ten feet measured edge to edge:

- The water main shall be constructed of ductile iron pipe with gaskets impermeable to hydrocarbons, or
- The water main shall be enclosed in watertight casing pipe with an evenly spaced annular gap and watertight end seals, or
- Storm sewer pipe of water main material shall be installed, or
- Reinforced concrete pipe storm sewers shall be constructed with gaskets manufactured in accordance with ASTM C443.

2. Vertical separation of water mains from storm sewer crossovers. Water mains shall be vertically separated from storm sewers by at least 18 inches between the outside edges of the water main and the storm sewer. The SD shall be the maximum feasible in all cases. In all cases where a water main crosses a storm sewer, the water main and storm sewer pipes must be adequately supported. A low permeability soil shall be used for backfill material within ten feet of the point of crossing along the water main. If it is not possible to obtain 18 inches of vertical separation where the water main crosses above a storm sewer, a minimum of 6 inches vertical separation shall be maintained and one of the following shall be utilized within ten feet measured edge to edge horizontally, centered on the crossing:

- The water main shall be constructed of ductile iron pipe with gaskets impermeable to hydrocarbons, or
- The water main shall be enclosed in watertight casing pipe with an evenly spaced annular gap and watertight end seals, or
- Storm sewer pipe of water main material shall be installed, or
- Reinforced concrete pipe storm sewers shall be constructed with gaskets manufactured in accordance with ASTM C443.

(5) All water mains, including those not designed to provide fire protection, shall be sized based on flow demands and pressure requirements. For regional water systems and for major distribution system upgrades, a hydraulic analysis may be required as part of the project submittal. Systems shall be designed to maintain a minimum pressure of 20 psi at ground level at all points in the distribution system under all conditions of flow. The normal working pressure in the distribution system should be approximately 60 to 80 psi and should not be less than 35 psi.

b. When engineering justification satisfactory to the director is provided substantially demonstrating that a waiver from the construction standards will result in equivalent or improved effectiveness, a waiver may be granted by the director. A waiver denial may be appealed to the commission pursuant to 567—Chapter 7. Waiver requests for projects qualifying for a waiver from the engineering requirement of 43.3(4) may be made without the retained services of a professional engineer.

43.3(3) *Construction permits.* No person shall construct, install or modify any project without first obtaining, or contrary to any condition of, a construction permit issued by the director or by a local public works department authorized to issue permits under Iowa Code section 455B.183, except as provided in this chapter. Construction permits are not required for POU treatment devices installed by a noncommunity water system (NCWS), except for those devices required by the department to meet a drinking water standard pursuant to 567—Chapters 41 and 43. No construction permit will be issued for a new PWS without a completed, department-approved viability assessment, which demonstrates that the system is viable pursuant to 567—43.8(455B).

a. Issuance conditions. A construction permit shall be issued by the director if the director concludes that the project will comply with department rules. Project construction must begin within one year from the permit issuance date; if it does not, the permit is no longer valid. If

construction is ongoing and continuous (aside from weather delays) and the permitted project cannot be completed within one year, the permit shall remain valid until the project is completed. The department may extend a permit for a multiphase project, for a maximum two additional years.

b. Applications. A construction permit application for any project shall be submitted to the department at least 30 days prior to the proposed date for commencing construction or awarding contracts. This requirement may be waived when the department determines that an imminent health hazard exists to a PWS's consumers. Under this waiver, construction, installation, or modification may be allowed by the department prior to review and issuance of a permit if all the following conditions are met:

(1) The construction, installation, or modification will alleviate the health hazard;

(2) The construction is done in accordance with the construction standards, pursuant to 43.3(2);

(3) Plans and specifications are submitted within 30 days after construction;

(4) A professional engineer, licensed in the state of Iowa, supervises the construction; and

(5) The supplier of water receives approval of this waiver prior to any construction, installation, or modification.

c. Fees. A nonrefundable fee, as noted in this paragraph, shall be submitted with a construction permit application.

(1) Construction permit fees. The fee shall be determined based upon the total length of water main plus the non-water-main-related construction costs, calculated as follows:

1. Water mains (minimum $100; maximum $5,000):

Length of permitted water main	Rate
First 1,000 ft.	$100
Next 19,000 ft.	$0.10/ft.
Next 300,000 ft.	$0.01/ft.
Over 320,000 ft.	No additional charge

2. Non-water-main-related construction costs, including source, treatment, pumping, storage and waste handling (minimum $100; maximum $16,000):

Estimated construction cost	Rate
First $50,000	$100
Next $950,000	0.2% of estimated construction cost
Next $14,000,000	0.1% of estimated construction cost
Over $15,000,000	No additional charge

(2) "As-built" construction fees. "As-built" construction is defined as construction that occurred before a construction permit is issued. The fee shall be calculated according to 43.3(3)*"c"*(1), plus an additional fee of $200. The fee for water main projects permitted in accordance with 43.3(3)*"e"* shall be calculated in accordance with 43.3(3)*"c"*(1); however, the additional "as-built" fee of $200 shall not be assessed for these projects.

(3) Other fees. A fee for change orders, addenda, or permit supplements will only be charged if the aggregate of the changes approved for the project to date causes the total project construction cost to exceed the original project construction cost by at least 5 percent. For water main extensions, the fee will be charged if the total length of water main exceeds the original approved length by 5 percent. The request for a time extension is a flat fee.

Other Categories	Rate
Change orders, addenda, and permit supplements for water mains	$0.10/ft. of additional water main, minimum: $50
Change orders, addenda, and permit supplements for non-water-main-related construction costs	0.2% of additional non-water-main-related construction costs, minimum: $50
Request for time extension	$50

(4) Calendar year fee cap. The total amount of construction permit fees for a PWS owner during any calendar year shall not exceed $5,000 for water mains and $16,000 for non-water-main-related construction projects.

d. Water well construction. All water well construction must be performed by a certified well contractor in accordance with 567—Chapter 82. It is the responsibility of the PWS and certified well contractor to ensure that a public well construction permit has been issued by the department prior to initiation of well construction and to ensure that all well construction is performed in accordance with this chapter.

e. Minor water main construction permit. A PWS may obtain a minor water main construction permit from the department for construction or replacement of minor water mains that serve additional users. By obtaining this permit, the system is able to construct, extend, or replace new or existing minor water mains without obtaining an individual construction permit for each specific water main. The permit shall allow construction or replacement of minor water mains that do not exceed six inches in diameter and, in aggregation, do not increase the average daily demand (in gallons per day) of the PWS by more than 5 percent over the duration of the permit.

The additional users must have been included in the system's approved hydraulic analysis. The water demands of the additional users must be consistent with the water demands in the approved hydraulic analysis.

(1) A minor water main construction permit shall be issued subject to the following conditions:

1. The system has approved standard specifications for water main construction filed with the department;

2. The system has adequate source capacity and, where treatment is provided, adequate treatment plant capacity to meet the peak day demand of all existing users and the proposed additional users covered under the permit;

3. The system has adequate storage capacity to meet the average day demand of all existing users and the proposed additional users covered under the permit; and

4. The system submits an application for a minor water main construction permit to the department 90 days before the anticipated first use of the permit. Construction shall not commence prior to the issuance of a permit.

(2) An application for minor water main construction permit shall include:

1. An up-to-date hydraulic analysis of the system, prepared by a licensed professional engineer (unless one is already on file with the department). The hydraulic basis of flow (gallons per minute per connection) used in the analysis must be acceptable to the department. A hydraulic analysis shall include:

- All existing water mains within the system;
- All proposed water mains intended to be covered by the permit;
- A demonstration that the system has adequate hydraulic capacity to serve the existing and new users under peak flow conditions without causing the pressure to fall below 20 psi anywhere within the system;
- The location of all potential users of the system;
- The diameter of all existing and proposed pipes;
- The projected system flows; and
- The static and dynamic pressures anticipated throughout the system with the addition of the new users incorporated in the analysis.

2. A completed Schedule 1b, Form 542-3151.

(3) The PWS must submit completed Schedule 2c, Form 542-3152, prior to the construction or replacement of each minor water main covered by a permit. Each water main covered by a permit must have either been included in the previously submitted hydraulic analysis or must be included in an update to the hydraulic analysis, submitted with Schedule 2c. If an update to the hydraulic analysis is submitted, it must include all portions of the distribution system potentially affected by the new construction.

(4) By January 31 of the year following permit issuance, the PWS shall submit the following to the department:

1. A complete set of plans for all water main extensions constructed under the permit, prepared and submitted by a licensed professional engineer.

2. Completed Schedules 1a, 1c, and 2a.

3. The construction permit fee calculated in accordance with 43.3(3)*"c"*(1). The fee calculation shall be based upon the total length of water main constructed under a permit. For the purpose of calculating the total fee amount in accordance with 43.3(3)*"c"*(4), the fee shall be credited to the calendar year in which it was received by the department.

(5) A permit shall contain conditions deemed necessary by the director to ensure compliance with all applicable department rules.

(6) The director may modify a permit, in whole or in part, at any time. The director may suspend or revoke a permit, in whole or in part, at any time by providing written notice to the permit holder, and is not obligated to renew the permit. Cause for modification, suspension, or revocation of a permit includes but is not limited to:

1. Violation of any term or condition of a permit;

2. Misrepresentation of fact or failure to disclose fully all material facts in order to obtain a permit;

3. Failure to submit department-required records and information, both generally and as condition of a permit;

4. Failure to submit timely reports from previous permits; or

5. Failure to construct in accordance with either approved construction standards, in accordance with 43.3(2), or with the system's approved standard specifications.

(7) A minor water main construction permit expires on December 31 of the year in which it is issued.

(8) No waiver to the construction standards is allowed under a minor water main construction permit, except for AWWA C651 Section 5.1, Sampling Frequency. If a waiver to the construction standards is needed, the system must apply for an individual construction permit following the procedures in 567—subrule 40.4(1).

43.3(4) *Waiver from engineering requirements.* The requirement for preparation of plans and specifications by a licensed professional engineer may be waived for the following types of projects, provided the proposed improvement complies with the construction standards. This waiver does not relieve the supplier of water from meeting the application and permit requirements of 43.3(3), except that the applicant need not obtain a written permit prior to installing the equipment.

a. Simple chemical feed, if all the following conditions are met:

(1) The improvement consists only of a simple chemical solution application or installation, which in no way affects the performance of a larger treatment process, or is included as part of a larger treatment project;

(2) The chemical application is by a positive displacement pump, the acceptability of said pump to be determined by the department;

(3) The supplier of water provides the department with a schematic of the installation and manufacturer's specifications sufficient to determine if the simple chemical feed installation meets the applicable construction standards, pursuant to 43.3(2);

(4) The final installation is approved based on an on-site inspection by department staff; and

(5) The installation includes only the prepackaged delivery of chemicals (from sacks, containers, or carboys) and does not include the bulk storage or transfer of chemicals (from a delivery vehicle).

b. Self-contained treatment unit, if all the following conditions are met:

(1) The equipment can be purchased "off the shelf"; is self-contained, requiring only a piping hookup for installation; and operates throughout a range of 35 to 80 psi;

(2) The plant is designed to serve no more than an average of 250 individuals per day;

(3) The supplier of water provides the department with a schematic of the installation, manufacturer's specifications, or other necessary information, sufficient to determine if the installation of the self-contained treatment unit will alleviate an MCL violation; and

(4) The final installation is approved based on an on-site inspection by department staff.

43.3(5) *Project planning and design basis.* An engineering report describing the project design basis must be submitted to the department either with the project or in advance of construction.

a. The report must contain information and data necessary to determine:

(1) Project conformance with the construction and operation standards in 43.3(2), and

(2) The adequacy of the project to supply water in sufficient quantity, at sufficient pressure, and of a quality that complies with drinking water standards in 567—Chapters 41 and 43.

b. The report must supply pertinent information as set forth in part one of the Ten States Standards.

c. The department may reject receipt or delay review of the plans and specifications until an adequate design basis is received.

43.3(6) *Standard specifications for water main construction.* Standard specifications for water main construction by an entity may be submitted to the department or an authorized local public works department for approval.

a. An approval shall apply to all future water main construction by or for that entity for which plans are submitted with a statement requiring construction in accordance with all applicable approved standard specifications unless the standards for PWSs specified in 43.3(2) are modified subsequent to an approval and the standard specifications would not be approvable under the modified standards.

b. Where approved specifications are on file, construction may commence 30 days following plan receipt by the department or an authorized local public works department, if

no response has been received indicating construction shall not commence until a permit is issued.

43.3(7) *Site and monitoring requirements for new raw water source(s) and underground finished water storage facilities, and water supply separation distances (SDs).*

a. Site approval. The site for each proposed raw source or finished water below-ground level storage facility must be approved by the department prior to the submission of plans and specifications.

b. Site approval criteria. A site may be approved if the director concludes that the criteria in this paragraph are met.

(1) Groundwater (GW) source. GW wells shall be planned and constructed to adapt to the geologic and GW conditions of the proposed site to ensure production of water that is both microbially safe and free of substances that could cause harmful human health effects. GW wells must meet the following requirements:

1. Drainage must be directed away from a well in all directions for a minimum radius of 15 feet.

2. A well site must meet the minimum SDs from contamination sources specified in Table A in 43.3(7)*"d."*

3. After a well site has received preliminary department approval, the owner of the proposed well must submit, as part of the construction permit application, proof of legal control of the land for a 200-foot radius around the well, through purchase, lease, easement, ordinance, or other similar means. Legal control must be maintained by the PWS for the life of the well. The SDs specified in Table A in 43.3(7)*"d"* must be maintained for the life of the well as legal control allows. However, if the proposed well is for an existing NCWS and is replacing an existing well that either does not meet the current standards or is in poor

condition, the 200-foot legal control requirement may be waived by the department, provided that:

- The proposed well is located on the best available site;
- The existing facility does not have adequate land to provide the 200-foot control zone;
- The owner has attempted to obtain legal control without success; and
- There is no other PWS available to which the supply could connect.

4. No GW well shall be constructed within the projected plume of any known anthropogenic GW contamination without the department's written approval. The department may allow well construction within a contamination plume if an applicant can provide treatment that ensures all drinking water standards are met and ensures that the pumpage of the proposed well will not cause plume migration that impacts the water quality of other nearby wells. An applicant must demonstrate, using a hydrogeologic model acceptable to the department, that the time of transport is greater than two years for any viral, bacterial, or other microorganism contaminant and greater than ten years for all chemical contaminants. The projected plume modeling must account for the proposed well pumpage rate. The department may require additional construction standards for these situations to ensure protection of the GW from contamination.

5. The department may require that an identification tag be applied to each GW well and may supply the numbered tag. The responsibility for ensuring that the tag is properly attached to the well is with the certified water well contractor for new wells and with the department for existing wells.

(2) Surface water (SW) source.

1. An applicant must submit proof that a proposed SW source can, through readily available treatment methodology, comply with 567—Chapters 41 and 43, and that the SW source is adequately protected against potential health hazards including, but not limited to,

point source discharges, hazardous chemical spills, and the potential sources of contamination listed in Table A in 43.3(7)*"d."*

2. After a SW impoundment has received preliminary department approval for use as a raw water source, the owner of the PWS shall submit proof of legal control through ownership, lease, easement, or other similar means, of contiguous land for a distance of 400 feet from the shoreline at the maximum water level. Legal control shall be for the life of the impoundment and shall control location of sources of contamination specified in Table A in 43.3(7)*"d"* within the 400-foot distance. Proof of legal control should be submitted with the construction permit application and shall be submitted prior to issuance of a construction permit.

c. New source water monitoring requirements. Water quality monitoring shall be conducted on all new water sources and results submitted to the department prior to placing the new water source into service.

(1) All sources. Water samples shall be collected from each new water source and analyzed for all appropriate contaminants, as specified in 567—Chapter 41, consistent with the particular system classification. If multiple new sources are being added, sample compositing (within a single system) shall be allowed in accordance with the composite sampling requirements in 567—Chapter 41. A single sample may be allowed to meet this requirement, if approved by the department. Subsequent water testing shall be conducted consistent with the system's operation permit monitoring schedule.

(2) GW sources. Water samples from GW sources shall be collected at the conclusion of the drawdown/yield test pumping procedure, with the exception of bacteriological monitoring. Bacteriological monitoring must be conducted after disinfection of each new well and subsequent pumping of the chlorinated water to waste. Water samples must be analyzed for ammonia and should be analyzed for alkalinity, pH, calcium, chloride, copper, hardness,

iron, magnesium, manganese, potassium, silica, specific conductance, sodium, sulfate, filterable and nonfilterable solids, and zinc.

(3) SW sources. Water samples from SW sources should be collected prior to the design of the SW treatment facility and shall be collected and analyzed prior to utilization of the source. Samples shall be collected during June, July, and August. In addition, quarterly monitoring shall be conducted in March, June, September, and December at a location representative of the raw water at its point of withdrawal. Samples shall be analyzed for turbidity, alkalinity, pH, calcium, chloride, color, copper, hardness, iron, magnesium, manganese, potassium, silica, specific conductance, sodium, sulfate, filterable and nonfilterable solids, carbonate, bicarbonate, algae (qualitative and quantitative), total organic carbon (TOC), five-day biochemical oxygen demand, dissolved oxygen, surfactants, nitrogen series (organic, ammonia, nitrite, and nitrate), and phosphate.

d. Separation distances (SDs). The minimum lateral SDs between wells and belowground finished water storage facilities and structures or sources of contamination are specified below in Table A. Additional legal and conveyance-specific SD requirements are specified for public wells in 43.3(7)*"b"* and for water mains in 43.3(2)*"a"*(3) and 43.3(2)*"a"*(4).

(1) There shall be no physical connection between a public or private potable water supply system and a sewer, or appurtenance thereto, that would permit the passage of any sewage into a potable water supply.

(2) When a proposed well is located in an existing well field and will withdraw water from the same aquifer as the existing well(s), the individual SDs listed in Table A may be waived if substantial historical data are available indicating that no contamination has resulted.

(3) Greater SDs than those listed in Table A may be required where necessary to ensure that no adverse effects to systems or the existing environment will result. Lesser SDs may be considered if detailed justification is provided by the applicant's engineer showing that no

adverse effects will result from the lesser distance and the regional department field office staff recommend approval of the lesser distance. Such exceptions must be based on special construction techniques or localized geologic or hydrologic conditions.

TABLE A: PUBLIC WELL AND BELOWGROUND LEVEL FINISHED WATER STORAGE FACILITY SEPARATION DISTANCES

Structure or Source of Contamination	Required Minimum Lateral Distance, as Measured Horizontally on the Ground Surface, in feet		
	Public Wells		Belowground level finished water storage facility
	Deep Well[1]	Shallow Well[1]	
PRIVATE WELLS:			
Private wells (new or existing, deep or shallow)	200	400	50
GHEX loop boreholes[2]	200		50
WASTEWATER STRUCTURES:			
Land Disposal of Treated Wastes:			
Irrigation of wastewater	200	400	50
Land application of solid wastes[3]	200	400	50
Land application of septage[4]	500		50
Water treatment plant waste discharged to the ground surface	50		50
Other sanitary and industrial discharges to the ground surface	400		50
Wastewater Disposal Systems:			
Water treatment plant waste treatment structures[5]	50		50
PSDSs and onsite treatment systems – closed portion[6]	100	200	50
PSDSs and onsite treatment systems – open portion[6]	200	400	50
Lagoons[7]	400	1000	50
Mechanical wastewater treatment plants[8]	200	400	50
CHEMICALS:			
Transmission pipelines (including, but not limited to, fertilizer, liquid petroleum, or anhydrous ammonia)	200	400	50
Chemical applications to ground surface	100	200	50
Chemical and mineral storage, except for liquid propane gas (LPG)			
Above ground storage[9]	100	200	50
On or under ground storage	200	400	50
Liquid propane gas (LPG) storage tanks	15		15
ANIMALS:			
Animal pasturage	50		50
Animal enclosures (such as confinement buildings or open feedlots)	200	400	50
Earthen silage storage trenches or pits	100	200	50
Animal Wastes:			
Storage basins or lagoons or runoff control basins	400	1000	50
Solids stockpiles, solids settling facilities, or storage tanks	200	400	50
Land application of liquid, slurry, or solids	200	400	50
WATERBODIES:			
Flowing streams, ponds, lakes, reservoirs, wetlands, or drainage channels[10]	50		50
MISCELLANEOUS STRUCTURES:			
Basements, pits, or sumps[11]	10		10
Cemeteries	200		50
Cisterns	50	100	50
Railroads	100	200	50
Solid waste landfills and disposal sites[12]	1000		50
GRAVITY SANITARY SEWER MAINS AND STORM SEWERS[13] Includes sewers carrying water treatment plant wastes, building sewer service lines, and laterals[14]			
General gravity sanitary and storm sewer minimums	0-25: prohibited		0-25: prohibited

Water main materials[15]	25-75	25
Standard sanitary sewer materials[15]	75-200	50
SANITARY SEWER FORCE MAINS:[13]		
General sanitary sewer force main minimums	0-75: prohibited	0-50: prohibited
Water main materials[15]	75-400	50
Standard sanitary sewer materials[15]	400-1000	50
DRAINS:[13]		
General drains, including well house floor drains to sewers:		
General drain minimums	0-25: prohibited	0-25: prohibited
General drains - water main materials[15]	25-75	25-50
General drains - sanitary sewer materials[15]	75-200	50
Well house floor drains to surface:		
General well house floor drains to surface minimums	0-5: prohibited	0-5: prohibited
Standard sanitary sewer material[15]	5-50	5-50
MISCELLANEOUS CONVEYANCES:[13]		
Internal conveyance piping for water plant treatment process wastes treated onsite:		
Internal conveyance piping minimums	0-5: prohibited	0-5: prohibited
Standard sanitary sewer materials[15]	5-50	5-50

[1]Deep and shallow wells are defined in 567—40.2(455B).

[2]GHEX loop boreholes are defined in 567—49.2(455B).

[3]Solid wastes, for the purpose of land application, are those derived from the treatment of water or wastewater, including sewage sludge, as defined in 567—Chapter 67. Certain types of solid wastes from water treatment processes may be land-applied within the SD on an individual, case-by-case basis.

[4]Septage shall be land applied in accordance with 567—Chapter 68.

[5]The term "water treatment plant waste treatment structures" includes lagoons that are used solely to store wastes or wastewater from drinking water treatment plants, such as lime sludge storage lagoons.

[6]PSDS (private sewage disposal system) is defined in 567—subrule 69.1(2). "Onsite treatment system" includes any wastewater treatment system not included in the definition of a private sewage disposal system (i.e., provides treatment or disposal of domestic sewage from more than four dwelling units or 16 or more individuals on a continuing basis) that is utilizing onsite wastewater treatment technologies described in 567—Chapter 69 to treat domestic waste. Closed portion refers to the part of a treatment system that is fully contained and does not allow effluent or pretreated effluent to enter soil or groundwater (e.g., septic tank or impervious vault toilet). Open portion refers to the part of a treatment system that allows effluent or pretreated effluent to discharge into soil or groundwater for treatment or disposal (e.g., soil absorption system or unlined ISSF system). These SDs also apply to septic systems that are not considered privately owned.

[7]The term "lagoons" includes aerated lagoon systems, advanced aerated lagoon systems, and waste stabilization lagoons as defined in 567—subrule 81.1(1) and holding ponds, equalization basins, and sludge digestion or holding tanks as described in the IWFDS. The term does not include lagoons used to dispose of water treatment plant wastes and anaerobic lagoons used for animal wastes. The SD from lagoons shall be measured from the water surface.

[8]The term “mechanical treatment plants” include activated sludge systems and fixed film biological treatment systems, as defined in 567—subrule 81.1(1), and any other wastewater disposal system that is not a PSDS, an onsite treatment system, or a lagoon.

[9]The minimum SD for liquid fuel storage associated with standby power generators shall be 50 feet if secondary containment is provided. Secondary containment shall provide for a minimum of 110 percent of the liquid fuel storage capacity. Double-walled storage tanks shall not be considered as secondary containment. Electrical power transformers mounted on a single utility pole are exempt from the SD requirements.

[10]Includes drainage channels that may have a direct connection to the groundwater table or a surface water.

[11]The SDs from basements, pits, and sumps must be met in order for a well to be considered a protected source for the purposes of the coliform sampling frequency determination in 567—subparagraph 41.2(1)*“e”*(4).

[12]Solid waste, when referring to landfills and disposal sites, means garbage, refuse, rubbish, and other similar discarded solid or semisolid materials, including but not limited to such materials resulting from industrial, commercial, agricultural, and domestic activities.

[13]The SDs are dependent upon the two following factors: the type of piping that is in the existing sewer or drain, as noted in the table, and whether the piping was properly installed in accordance with the standards.

[14]The distances for building sewer service lines and laterals shall be considered the minimum distances when constructing sewer lines and shall be increased where possible to provide better protection.

[15]These are the type of materials or pipe used to construct the type of sewer, main, or drain as specified in accordance with 43.3(2) and Section 2.4 of the IWFDS.

43.3(8) *Drinking water system components.* Drinking water system components that come into contact with raw, partially treated, or finished water must be suitable for the intended use in a potable water system. Components must be certified by an American National Standards Institute (ANSI) accredited third party for conformance with ANSI/NSF Standard 61 and ANSI/NSF lead-free (through annex G of 372) specifications, if such specification exists for the particular product, unless approved components are not reasonably available for use. Component materials generally excluded from ANSI/NSF 61 requirements include concrete, stainless steel, and aluminum. If the component does not meet the ANSI/NSF Standard 61 and lead-free specifications or no specification is available, the person

seeking to supply or use the component must prove to the department's satisfaction that the component is not toxic or otherwise a potential hazard in a potable PWS.

43.3(9) *Water treatment filter media material.* For single media filters, grain sizes up to 0.8 mm effective size may be approved for filters designed to remove constituents other than those contained in the primary drinking water standards. Pilot or full-scale studies demonstrating satisfactory treatment efficiency and operation with the proposed media will be required prior to issuing any construction permits that allow filter media sizes greater than 0.55 mm.

43.3(10) *Best available treatment (BAT) technology.*

a. BATs for organic compounds. The table in 40 CFR §141.61(b) identifies either granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OXID) as the BAT, TT, or other means available for achieving compliance with the MCL for organic contaminants identified in 567—paragraph 41.5(1)*"b."* When setting MCLs for synthetic organic chemicals (SOCs), any BAT must be at least as effective as GAC.

b. BATs for inorganic chemicals (IOCs) and radionuclides.

(1) IOCs. The BAT for Inorganic Compounds table in 40 CFR §141.62(c) identifies the BAT technology, TT, or other means available for achieving compliance with the MCLs for the IOC contaminants listed in 567—paragraph 41.3(1)*"b,"* except fluoride.

(2) Arsenic. The Small System Compliance Technologies for Arsenic table in 40 CFR §141.62(c) identifies the affordable technology, TT, or other means available to systems serving 10,000 or fewer persons for achieving compliance with the arsenic MCL.

(3) Radionuclides.

1. Table B in 40 CFR §141.66(g) identifies the BAT for achieving compliance with the radionuclide MCL.

2. Table D in 40 CFR §141.66(h) identifies the radionuclides BATs for systems serving 10,000 or fewer people.

c. BATs for disinfection byproducts (DBPs) and disinfectants. The BATs for achieving compliance with the MCLs for the DBPs listed in 567—paragraph 41.5(2)*"b"* and the MRDLs listed in 567—paragraph 41.5(2)*"c"* are identified in 40 CFR §141.64.

d. Requirement to install the BAT. The department shall require CWSs and NTNCs to install and use any treatment method identified in 43.3(10) as a condition for granting an interim contaminant level, except as provided in 43.3(10)*"e."* If, after installation of the treatment method, a system cannot meet the MCL, it shall be eligible for a compliance schedule with an interim contaminant level granted under 567—subrule 40.5(9) and 567—43.2(455B).

e. Engineering assessment option. If a system can demonstrate through comprehensive engineering assessments, which may include pilot plant studies at the department's discretion, that the treatment methods identified in 43.3(10) would only achieve a de minimis reduction in contaminants, the department may establish a compliance schedule that requires the system being granted the waiver to examine other treatment methods as a condition of obtaining the interim contaminant level.

f. Compliance schedule. If the department determines that a treatment method identified in 43.3(10)*"a,""b,"* and *"c"* is technically feasible, the department may require a system to install or use a treatment method in connection with a compliance schedule established under 567—40.5(9) and 567—43.2(455B). The determination shall be based upon studies by the system and other relevant information.

g. Avoidance of unacceptable risk to health (URTH). To avoid an URTH, the department may require a PWS to use bottled water, POU devices, POE devices, or other means as a

condition of granting a waiver or an exemption from the requirements of 43.3(10) or as a condition of a compliance schedule.

567—43.4(455B) Certification of completion. Within 30 days after completion of construction, installation or modification of any project, the construction permit holder shall submit a certification by a licensed professional engineer that the project was completed in accordance with the approved plans and specifications, except if the project received a waiver pursuant to 43.3(4).

567—43.5(455B) Filtration and disinfection for surface water (SW) and influenced groundwater (IGW) PWSs.

43.5(1) *Applicability/general requirements.* These rules apply to all PWSs using SW or IGW, in whole or in part, and establish criteria under which filtration is required as a treatment technique (TT). In addition, these rules establish TT requirements in lieu of MCLs for *Giardia lamblia*, heterotrophic plate count (HPC) bacteria, *Legionella*, viruses and turbidity. Each PWS with a SW or IGW must provide source water treatment that complies with these TT requirements. Systems that serve at least 10,000 persons must also comply with 567—43.9(455B). Systems that serve fewer than 10,000 persons must also comply with 567—43.10(455B).

a. TT requirements. The TT requirements consist of installing and properly operating water treatment processes which reliably achieve:

(1) At least 99.9 percent (3-log) removal or inactivation of *Giardia lamblia* cysts between a point where the raw water is not subject to recontamination by SW runoff and a point downstream before or at the first customer; and

(2) At least 99.99 percent (4-log) virus removal or inactivation between a point where the raw water is not subject to recontamination by SW runoff and a point downstream before or at the first customer.

b. Criteria for identification of IGW. Direct GW influence must be determined for individual sources in accordance with department criteria. The department determination of direct influence may be based on site-specific measurements of water quality or documentation of well construction characteristics and geology with field evaluation.

c. Sources subject to this rule. Only SW and IGW that are at risk to the contamination from *Giardia* cysts are subject to this rule. GW sources shall not be subject to this rule.

d. Source evaluation criteria. The identification of a source as SW or IGW shall be determined for an individual source, by the department, in accordance with the criteria in this rule. These criteria shall be used to delineate between SW, IGW, and GW. The PWS shall provide to the department that information necessary to make the determination.

e. Preliminary evaluation. For all sources, the department shall conduct a preliminary evaluation of information provided by the PWS to determine if the source is an obvious SW or is an IGW. The source shall be evaluated during that period of highest susceptibility to influence from SW. A preliminary evaluation may include a review of surveys, reports, geological information of the area, physical properties of the source, and departmental and PWS records.

(1) If the source is identified as a SW, no additional evaluation is needed.

(2) If the source is GW and identified as a deep well, no additional evaluation is needed unless through direct knowledge or documentation the source does not meet the well source evaluation requirements in 43.5(1)*"f."* The deep well shall then be evaluated using a formal evaluation in accordance with 43.5(1)*"g."*

(3) If the source is a shallow well, a well source evaluation shall be conducted in accordance with 43.5(1)*"f."*

(4) If the source is a spring, infiltration gallery, radial collector well, or any other subsurface source, a formal evaluation shall be conducted in accordance with 43.5(1)*"g."*

f. Well source evaluation. Shallow wells greater than 50 feet in lateral distance from a SW source shall be evaluated for direct influence of SW through a review of departmental or PWS files in accordance with this paragraph. Sources that meet these criteria shall be considered to be not under the direct influence of SW, and no additional evaluation will be required. Shallow wells 50 feet or less in lateral distance from a SW shall be evaluated in accordance with 43.5(1)*"g"* and *"h."*

(1) Well construction criteria. The well shall be constructed so as to prevent SW from entering the well or traversing the casing.

(2) Water quality criteria. Water quality records shall indicate:

1. No record of total coliform or fecal coliform contamination in untreated samples collected over the past three years.

2. No history of turbidity problems associated with the well, other than turbidity as a result of inorganic chemical precipitates.

3. No history of known or suspected outbreak of *Giardia* or other pathogenic organisms associated with SW (e.g., *Cryptosporidium*) that has been attributed to the well.

(3) Other available data. If data on particulate matter analysis of the well are available, there shall be no evidence of particulate matter present that is associated with SW. If information on turbidity or temperature monitoring of the well and nearby SW is available, there shall be no data on the source which correlates with that of a nearby SW.

(4) Further evaluation. Wells that do not meet all the requirements of this paragraph shall require a formal evaluation in accordance with 43.5(1)*"g"* and may require a particulate analysis and physical properties evaluation in accordance with 43.5(1)*"h."*

g. Formal evaluation. A formal evaluation shall be conducted by the department or a licensed professional engineer at the direction of the PWS.

(1) A formal evaluation shall include a complete file review and may include a field survey, as noted below.

1. Complete file review. In addition to the information gathered in a preliminary evaluation in 43.5(1)*"e,"* a complete file review for a well source shall consider, but not be limited to, design and construction details; evidence of direct SW contamination; water quality analysis; indications of waterborne disease outbreaks; operational procedures; and customer complaints regarding water quality or water-related infectious illness.

2. Field survey. An evaluation of a source other than a well source shall include a complete file review and a field survey. A field survey shall substantiate findings of the complete file review and determine if the source is at risk to pathogens from direct SW influence. A survey shall examine the source for evidence that SW enters the source through defects, which may include but is not limited to infiltration gallery laterals exposed to SW, springs open to the atmosphere, or surface runoff entering a spring or other collector. A field survey shall note the distances to obvious SW sources.

(2) A report summarizing the findings of the complete file review and the field survey, when conducted, shall be submitted to the department for final review and classification of the source. Either method or both may be used to demonstrate that the source is an SW or an IGW.

1. If the complete file review or field survey demonstrates conclusively that the source is subject to the direct SW influence, the source shall be classified as an IGW.

2. If the findings do not demonstrate conclusive evidence of direct influence of SW, the analysis and evaluation in 43.5(1)*"h"* should be conducted.

h. Particulate analysis and physical properties evaluation.

(1) SW indicators. Particulate analysis shall be conducted to identify organisms that only occur in SWs as opposed to GWs, and whose presence in GW would indicate the direct influence of SW.

1. Identification of a *Giardia* cyst, live diatoms, and blue-green, green, or other chloroplast containing algae in any source water shall be considered evidence of direct SW influence.

2. Rotifers and insect parts are indicators of SW. Without knowledge of which species is present, the finding of rotifers indicates that the source is either directly influenced by SW, or the water contains organic matter sufficient to support the growth of rotifers. Insects or insect parts shall be considered strong evidence of SW influence, if not direct evidence.

3. The presence of coccidia (e.g., *Cryptosporidium*) in the source water is considered a good indicator of direct influence of SW. Other macroorganisms (greater than 7 um) that are parasitic to animals and fish, such as, but not limited to, helminths (e.g., tapeworm cysts), ascaris, and Diphyllobothrium, shall be considered as indicators of direct influence of SW.

(2) Physical properties. Turbidity, temperature, pH and conductivity provide supportive, but less direct, evidence of direct influence of SW. Temperature fluctuations or turbidity fluctuations of greater than 0.5-1.0 NTU over the course of a year may indicate direct influence of SW. Changes in other chemical parameters such as pH, conductivity, or hardness may indirectly indicate influence by nearby SW.

i. Compliance. A PWS using a SW source or an IGW is considered to be in compliance with this subrule if it meets the filtration requirements in 43.5(3) and the disinfection requirements in 43.5(2).

j. Certified operator requirement. Each PWS using a SW source or an IGW must be operated by a certified operator who meets the requirements of 567—Chapter 81.

43.5(2) *Disinfection requirements.* All CWS, NTNC, and TNC using SW or IGW in whole or in part shall be required to provide disinfection in compliance with this subrule and

filtration in compliance with 43.5(3). If the department has determined that filtration is required, the system must comply with any interim disinfection requirements the department deems necessary before filtration is installed. A system providing filtration on or before December 30, 1991, must comply with this subrule beginning June 29, 1993. A system providing filtration after December 30, 1991, must comply with this subrule when filtration is installed. Failure to meet any requirement of this subrule after the applicable date is a TT violation.

a. Disinfection treatment criteria.

(1) Disinfection treatment must be sufficient to ensure that the total treatment processes of a system achieve at least 99.9 percent (3-log) inactivation or removal of *Giardia lamblia* cysts and at least 99.99 percent (4-log) virus inactivation or removal, acceptable to the department.

(2) At least 0.5 log inactivation of *Giardia lamblia* cysts must be achieved through disinfection treatment using a chemical disinfectant even if the required inactivation or removal is met or exceeded through physical treatment processes.

(3) Each system must calculate the total inactivation ratio ($CT_{calculated}/CT_{required}$) each day the treatment plant is in operation. A system's total inactivation ratio must be equal to or greater than 1.0 to ensure that the minimum inactivation and removal requirements have been achieved. If a system's total inactivation ratio for the day is below 1.0, it must notify the department within 24 hours.

b. Disinfection system. The disinfection system must include either:

(1) Redundant components, including an auxiliary power supply with automatic start-up and alarm, to ensure that disinfectant application is maintained continuously while water is being delivered to the distribution system, or

(2) Automatic shutoff of delivery of water to the distribution system when the residual disinfectant concentration (RDC) in the water is less than 0.3 mg/L free residual or 1.5 mg/L

total residual chlorine. If the department determines that automatic shutoff would cause unreasonable risk to health or interfere with fire protection, the system must comply with 43.5(2)*"b"*(1).

c. Residual disinfectant entering system. The RDC in the water entering the distribution system, measured as specified in 43.5(4)*"a"*(4) and 43.5(4)*"b"*(2)"1", cannot be less than 0.3 mg/L free residual or 1.5 mg/L total residual chlorine for more than four hours.

d. Residual disinfectant in the system. The RDC in the distribution system, measured as total chlorine, combined chlorine, or chlorine dioxide, as specified in 43.5(4)*"a"*(4) and 43.5(4)*"b"*(2)"2", cannot be undetectable in more than five percent of the samples each month for any two consecutive months that the system serves water to the public. Water within the distribution system with an HPC bacteria concentration less than or equal to 500/mL, measured as HPC as specified in 567—paragraph 41.2(2)*"b,"* is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement. Therefore, the value "V" in the following formula cannot exceed five percent in one month for any two consecutive months.

$$V = [(c + d + e) / (a + b)] \times 100$$

where the letters indicate the number of instances in which:

a = RDC is measured

b = RDC is not measured but HPC bacteria is measured

c = RDC is measured but not detected and no HPC is measured

d = no RDC is detected and where the HPC is greater than 500/mL

e = RDC is not measured and HPC is greater than 500/mL

43.5(3) *Filtration requirements.* Turbidity measurements required by this subrule shall be made in accordance with 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

a. Applicability. A PWS that uses a SW source or an IGW source must provide treatment consisting of both disinfection, as specified in 43.5(2), and filtration treatment that complies

with the turbidity requirements of 43.5(3), 43.5(4), and 43.5(5). A system shall install filtration within 18 months after the department determines, in writing, that filtration is required. The department may require, and a system shall comply, with any interim turbidity requirements the department deems necessary. Failure to meet any requirements of the subrules referenced below after the dates specified is a TT violation.

(1) A system providing or required to provide filtration:

1. On or before December 30, 1991, must comply with this subrule by June 29, 1993; and

2. After December 30, 1991, must comply with this subrule when filtration is installed.

(2) Beginning:

1. January 1, 2002, systems serving at least 10,000 people must meet the turbidity requirements in 567—43.9(455B); and

2. January 1, 2005, systems serving fewer than 10,000 people must meet the turbidity requirements in 567—43.10(455B).

b. Conventional filtration treatment or direct filtration.

(1) Systems using conventional filtration serving at least 10,000 people must meet the turbidity level requirements in 43.9(3)*"a."*

(2) Systems using conventional filtration or direct filtration serving fewer than 10,000 people must meet the turbidity level requirements in 43.10(4)*"c."*

c. Slow sand filtration.

(1) For systems using slow sand filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month.

(2) The turbidity level of representative samples of a system's filtered water must not exceed 1 NTU in two consecutive 15-minute recordings.

d. Diatomaceous earth filtration.

(1) For systems using diatomaceous earth filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month.

(2) The turbidity level of representative samples of a system's filtered water must not exceed 1 NTU in two consecutive 15-minute recordings.

e. Other filtration technologies. A PWS may use either a filtration technology not listed in 43.5(3)*"b"* to *"d"* or a filtration technology listed in 43.5(3)*"b"* or *"c"* at a higher turbidity level if it demonstrates to the department, through a preliminary report submitted by a licensed professional engineer using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of 43.5(2), consistently achieves 99.9 percent removal or inactivation of *Giardia lamblia* and 99.99 percent virus removal or inactivation. For a system that uses alternative filtration technology and makes this demonstration, the turbidity TT requirements are as follows:

(1) The turbidity level of representative samples of a system's filtered water must be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month.

(2) The turbidity level of representative samples of a system's filtered water must not exceed 1 NTU. Beginning January 1, 2002, systems serving at least 10,000 people must meet the requirements for other filtration technologies in 43.9(3)*"b."* Beginning January 1, 2005, systems serving fewer than 10,000 people must meet the requirements for other filtration technologies in 43.10(4).

43.5(4) *Analytical and monitoring requirements.*

a. Analytical methods. Only the analytical method(s) specified in this paragraph, or otherwise approved by the department, may be used to demonstrate compliance with 43.5(2) and 43.5(3). Measurements for pH, temperature, turbidity, and RDCs must be conducted by a Grade II, III or IV operator meeting the requirements of 567—Chapter 81, any person under

the supervision of such an operator, or a laboratory certified in accordance with 567—Chapter 83. For consecutive PWSs from a SW or IGW system, the disinfectant concentration analyses must be conducted by a certified operator who meets the requirements of 567—Chapter 81. Heterotrophic plate count (HPC) bacteria measurements must be conducted by a laboratory certified by the department to do such analysis.

(1) Turbidity shall be analyzed using the methodology in the following table. Calibrate each turbidimeter at least once every 90 days with a primary standard. The calibration of each turbidimeter used for compliance must be verified at least once per week with a primary standard, secondary standard, the manufacturer's proprietary calibration confirmation device, or by a department-approved method. If the verification is not within plus or minus 0.05 NTU for measurements of less than or equal to 0.5 NTU, or within plus or minus 10 percent of measurements greater than 0.5 NTU, the turbidimeter must be recalibrated.

Turbidity Methodology

Methodology	Analytical Method				
	EPA	SM	GLI	HACH	Other
Nephelometric[5]	180.1[1]	2130B[2]	Method 2[3]	FilterTrak 10133[4]; Hach Method 8195, Rev. 3.0[15]	
Laser Nephelometry (online)					Mitchell M5271[6]; Mitchell M5331 Rev. 1.2[10]; Lovibond PTV 6000[13]
LED Nephelometry (online)					Mitchell M5331[7]; Mitchell M5331 Rev. 1.2[10]; AMI Turbiwell[9]; Lovibond PTV 2000[12]; Lovibond PTV 1000[14]
LED Nephelometry (portable)					Orion AQ4500[8]
360-degree Nephelometry					Hach Method 10258[11]

[1]"Methods for the Determination of Inorganic Substances in Environmental Samples," EPA-600/R-93-100, August 1993. NTIS, PB94-121811.

[2]SM, 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012), and 23rd (2017) editions (any of these editions may be used).

[3]GLI Method 2, "Turbidity," November 2, 1992, Great Lakes Instruments, Inc., 8855 North 55th Street, Milwaukee, WI 53223.

[4]Hach FilterTrak Method 10133, "Determination of Turbidity by Laser Nephelometry," January 2000, Revision 2.0, www.hach.com.

[5]Styrene divinyl benzene beads (e.g., AMCO-AEPA-1 or equivalent) and stabilized formazin (e.g., Hach StablCalTM or equivalent) are acceptable substitutes for formazin.

[6]Mitchell Method M5271, Revision 1.1. "Determination of Turbidity by Laser Nephelometry," March 5, 2009, www.nemi.gov.

[7]Mitchell Method M5331, Revision 1.1. "Determination of Turbidity by LED Nephelometry," March 5, 2009, www.nemi.gov.

[8]Orion Method AQ4500, Revision 1.0. "Determination of Turbidity by LED Nephelometry," May 8, 2009, www.nemi.gov or Thermo Scientific, www.thermo.com.

[9]AMI Turbiwell, "Continuous Measurement of Turbidity Using a SWAN AMI Turbiwell Turbidimeter," August 2009, www.nemi.gov.

[10]Mitchell Method M5331, Revision 1.2. "Determination of Turbidity by LED or Laser Nephelometry," February 2016, www.nemi.gov.

[11]Hach Company. "Hach Method 10258 – Determination of Turbidity by 360-Degree Nephelometry," January 2016 and March 2018, revision 2.0, www.hach.com.

[12]Lovibond PTV 2000. "Continuous Measurement of Drinking Water Turbidity Using a Lovibond PTV 2000 660-nm LED Turbidimeter," December 2016, Revision 1.0,Tintometer, Inc., 6456 Parkland Drive, Sarasota, FL 34243.

[13]Lovibond PTV 6000. "Continuous Measurement of Drinking Water Turbidity Using a Lovibond PTV 6000 Laser Turbidimeter," December 2016, Revision 1.0, Tintometer, Inc., 6456 Parkland Drive, Sarasota, FL 34243.

[14]Lovibond PTV 1000. "Continuous Measurement of Drinking Water Turbidity Using a Lovibond PTV 1000 White Light LED Turbidimeter," December 2016, Revision 1.0, Tintometer, Inc., 6456 Parkland Drive, Sarasota, FL 34243.

[15]Hach Company. "Hach Method 8195-Determination of Turbidity by Nephelometry," March 2018, Revision 3.0, www.hach.com.

(2) The temperature and pH (hydrogen ion concentration) shall be determined in compliance with the methodology in 567—subparagraph 41.4(1)*"g"*(1).

(3) The HPC bacteria sampling and analysis shall be conducted in compliance with 567—subrule 41.2(2) and 43.5(2)*"d."* The time from sample collection to initiation of analysis shall not exceed eight hours, and the samples must be held below 10 degrees Celsius during transit.

(4) The residual disinfectant concentrations (RDCs) shall be determined using one of the analytical methods in the following table. RDCs for free chlorine and total chlorine may also be measured by using DPD colorimetric test kits. Free and total chlorine residuals may be measured continuously by adapting a specified chlorine residual method for use with a

continuous monitoring instrument provided the chemistry, accuracy, and precision remain the same. Instruments used for continuous monitoring must be verified with a grab sample measurement at least every seven days. The analyzer concentration must be within plus or minus 0.1 mg/L or plus or minus 15 percent (whichever is larger) of the grab sample measurement. If the verification is not within this range, immediate actions must be taken to resolve the issue and another verification must be conducted.

Disinfectant Analytical Methodology

Residual	Methodology	SM[1,2]	SM Online[6]	Other
Free chlorine	Amperometric Titration	4500-Cl D	4500-Cl D-00	D1253-03[4], 08, 14
	DPD Ferrous Titrimetric	4500-Cl F	4500-Cl F-00	
	DPD Colorimetric	4500-Cl G	4500-Cl G-00	Hach Method 10260[10]
	Syringaldazine (FACTS)	4500-Cl H	4500-Cl H-00	
	Online Chlorine Analyzer			EPA 334.0[7]
	Amperometric Sensor			ChloroSense[8]
	Indophenol Colorimetric			Hach Method 10241[11]
Total chlorine	Amperometric Titration	4500-Cl D	4500-Cl D-00	D1253-03[4], 08, 14
	Amperometric Titration (low-level measurement)	4500-Cl E	4500-Cl E-00	
	DPD Ferrous Titrimetric	4500-Cl F	4500-Cl F-00	
	DPD Colorimetric	4500-Cl G	4500-Cl G-00	Hach Method 10260[10]
	Iodometric Electrode	4500-Cl I	4500-Cl I-00	
	Online Chlorine Analyzer			EPA 334.0[7]
	Amperometric Sensor			ChloroSense[8]
Chlorine dioxide	Amperometric Titration	4500-ClO_2 C	4500-$C10_2$ C-00	
	DPD Method	4500-ClO_2 D		
	Amperometric Titration	4500-ClO_2 E	4500-$C10_2$ E-00	
	Amperometric Sensor			ChlordioX Plus[9]
	Spectrophotometric			327.0, Revision 1.1[5]
Ozone	Indigo method	4500-O_3 B[3]	4500-O_3 B-97	

[1]SM, 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012), and 23rd (2017) editions (any of these editions may be used). Only the 18th, 19th, and 20th editions may be used for chlorine dioxide Method 4500-ClO_2 D.

[2]Other analytical test procedures are contained within Technical Notes on Drinking Water Methods, EPA-600/R-94-173, October 1994, NTIS PB95-104766.

[3]SM, 18th (1992), 19th (1995), 21st (2005), and 22nd (2012) editions (any edition may be used).

[4]ASTM, Vol. 11.01, 2004; any year containing the cited version of the method may be used.

[5]EPA Method 327.0, Revision 1.1, "Determination of Chlorine Dioxide and Chlorite Ion in Drinking Water Using Lissamine Green B and Horseradish Peroxidase with Detection by Visible Spectrophotometry," May 2005, EPA 815-R-05-008, www.nemi.gov.

[6]SM Online, www.standardmethods.org. The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[7]EPA Method 334.0, "Determination of Residual Chlorine in Drinking Water Using an On-Line Chlorine Analyzer," September 2009. EPA 815-B-09-013, www.nemi.gov.

[8]ChloroSense, "Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense," September 2009, www.nemi.gov or Palintest Water Analysis Technologies, www.palintest.com.

[9]ChlordioX Plus. "Chlorine Dioxide and Chlorite in Drinking Water by Amperometry Using Disposable Sensors," November 2013, Palintest Water Analysis Technologies, www.palintest.com.

[10]Hach Company. "Hach Method 10260 – Determination of Chlorinated Oxidants (Free and Total) in Water Using Disposable Planar Reagent-Filled Cuvettes and Mesofluidic Channel Colorimetry," April 2013, www.hach.com.

[11]Hach Company. "Hach Method 10241 – Spectophotometric Measurement of Free Chlorine in Finished Drinking Water," November 2015, Revision 1.2, www.hach.com.

b. Monitoring. A PWS that uses a SW or IGW source must monitor in accordance with this paragraph.

(1) Turbidity.

1. Routine monitoring. Turbidity measurements required by 43.5(3) must be performed on representative samples of the system's filtered water utilizing continuous turbidity monitoring equipment. Turbidity monitoring results must be recorded at least every 15 minutes. Turbidity must be monitored according to a written turbidity protocol approved by the department and audited for compliance during sanitary surveys.

2. Monitoring protocol. The turbidity monitoring protocol shall include, but is not limited to: sample measurement location; calibration method, frequency, and standards; verification method, frequency, and documentation; and data collection, recording frequency, and reporting.

3. Failure of continuous monitoring equipment. If there is a failure in the continuous turbidity monitoring equipment, the system must conduct grab sampling every four hours in

lieu of continuous monitoring until the turbidimeter is repaired and back online. A system has a maximum of five working days after failure to repair the equipment or else the system is in violation. The system must notify the department within 24 hours of both when the turbidimeter was taken offline and when it was returned online. It is a TT violation if the turbidity exceeds 1 NTU at any time during grab sampling. The system must inform the department as soon as possible, but no later than 24 hours after the exceedance is known, in accordance with 567—subparagraph 40.5(3)*"b"*(3).

(2) Residual disinfectant.

1. Residual entering the system. The RDC of the water entering the distribution system shall be monitored continuously, and the lowest value recorded each day. If there is a failure in the continuous monitoring equipment, grab sampling every four hours may be conducted in lieu of continuous monitoring, but shall not exceed five working days following the equipment failure. If acceptable to the department, systems serving 3,300 or fewer persons may take grab samples in lieu of providing continuous monitoring on an ongoing basis at the frequencies prescribed below:

Residual Disinfectant Samples Required of SW or IGW PWS

System size (persons served)	Samples per day*
500 or fewer	1
501 to 1,000	2
1,001 to 2,500	3
2,501 to 3,300	4

*When more than one grab sample is required per day, the day's samples cannot be taken at the same time. The sampling intervals must be a minimum of four-hour intervals.

If at any time the disinfectant concentration falls below 0.3 mg/L free residual or 1.5 mg/L total residual chlorine (TRC) in a system using grab sampling in lieu of continuous monitoring, the system shall take a grab sample every four hours until the RDC is equal to or greater than 0.3 mg/L free residual or 1.5 mg/L TRC.

2. Residual in the system. The RDC must be measured at least daily in the distribution system. Residual disinfectant measurements that are required as part of the total coliform bacteria sample collection under 567—subparagraph 41.2(1)*"c"*(7) shall be used to satisfy this requirement on the day(s) when a bacteria sample(s) is collected. The department may allow a PWS that uses both a GW source and a SW source or uses an IGW to take residual disinfectant samples at points other than the total coliform sampling points, if these points are included as a part of the coliform sample site plan meeting the requirements of 567—paragraph 41.2(1)*"c"*(1)"1" and if the department determines that such points are representative of treated (disinfected) water quality within the distribution system. HPC may be measured in lieu of RDC, using the analytical methods in 567—subparagraph 41.2(2)*"b"*. The time from sample collection to initiation of analysis shall not exceed eight hours. All HPC samples must be kept below 10 degrees Celsius during laboratory transit, and must be analyzed by a laboratory certified in accordance with 567—Chapter 83.

43.5(5) *Reporting.* PWSs shall report the results of routine monitoring required to demonstrate compliance with rule 567—43.5(455B) and TT violations as follows:

a. Waterborne disease outbreak. Each system, upon discovering that a waterborne disease outbreak potentially attributable to that system has occurred, must report that occurrence to the department as soon as possible, but no later than by the end of the next business day.

b. Turbidity exceeds 5 NTU. If at any time the turbidity exceeds 5 NTU, the system must inform the department as soon as possible, but no later than 24 hours after the exceedance is known, in accordance with the PN requirements in 567—subparagraph 40.5(3)*"b"*(3).

c. Residual disinfectant entering distribution system below 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine (TRC). If at any time the residual falls below 0.3 mg/L free residual chlorine or 1.5 mg/L TRC in the water entering the distribution system, the system must notify the department as soon as possible, but no later than by the end of the next

business day. The system also must notify the department by the end of the next business day whether or not the residual was restored to at least 0.3 mg/L free residual chlorine or 1.5 mg/L TRC within four hours.

d. Routine monitoring. Routine monitoring results shall be provided as part of the MORs in accordance with rule 567—40.3(455B) and 567—subrule 40.8(3).

e. Total inactivation ratio below 1.0. If the system's total inactivation ratio for the day is below 1.0, the system must notify the department within 24 hours.

43.5(6) *Filter backwash recycle provisions.* All SW or IGW systems that employ conventional filtration or direct filtration treatment and that recycle spent filter backwash water, thickener supernatant, or liquids from dewatering processes must comply with this subrule.

a. Reporting. A system must notify the department in writing by December 8, 2003, if it recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes. This notification must include the following information.

(1) A plan schematic showing the origin of all recycled flows (including, but not limited to, spent filter backwash water, thickener supernatant, and liquids from dewatering processes), the hydraulic conveyance used to transport them, and the location where they are reintroduced back into the treatment plant.

(2) In gallons per minute (GPM), the typical recycle flow, highest observed plant flow experience in the previous year, design flow for the treatment plant, minimum plant rate during which the filter backwash will be recycled, and the department-approved operating capacity for the plant where the department has made such determinations.

b. Treatment technique (TT) requirement. Any system that recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes must return these flows through the processes of its existing conventional or direct filtration system or at an alternate

location approved by the department by June 8, 2004. However, if capital improvements are necessary to modify the recycle location to meet this requirement, all capital improvements must be completed no later than June 8, 2006.

c. Recordkeeping. The system must collect and retain on file the recycle flow information specified below for department review and evaluation.

(1) A copy of the recycle notification and information submitted to the department under 43.5(6)*"a"*;

(2) A list of all recycle flows and their return frequency;

(3) The average and maximum backwash flow rate through the filters and the average and maximum duration of the filter backwash process in minutes;

(4) The typical filter run length and a written summary of how filter run length is determined;

(5) The type of treatment provided for the recycle flow; and

(6) Data on the physical dimensions of the equalization and treatment units, typical and maximum hydraulic loading rates, type of treatment chemicals used including average dose and frequency of use, and frequency of solids removal, if applicable.

567—43.6(455B) Residual disinfectant and disinfection byproduct (DBP) precursors.

43.6(1) *Residual disinfectant.*

a. Applicability.

(1) CWSs and NTNCs. This rule establishes criteria under which CWSs and NTNCs that add a chemical disinfectant to the water in any part of the drinking water treatment process or that provide water that contains a chemical disinfectant must modify their practices to meet the MCLs in 567—41.6(455B), the MRDLs in this subrule, and the TT requirements for DBP precursors in 43.6(3).

(2) TNC systems with chlorine dioxide disinfection. This rule establishes criteria under which TNCs that use chlorine dioxide as a disinfectant or oxidant must modify their practices to meet the chlorine dioxide MRDL in 43.6(1)*"b."*

(3) Compliance dates. Compliance dates for this rule are based upon the source water type and the population served. Systems must comply with this rule as follows, unless otherwise noted:

1. SW and IGW CWSs and NTNCs. CWSs and NTNCs using SW or IGW in whole or in part and that serve 10,000 or more persons must comply with this rule. CWSs and NTNCs using SW or IGW that serve fewer than 10,000 persons must comply with this rule.

2. GW CWSs and NTNCs. CWSs and NTNCs using only GW not under the direct influence of SW must comply with this rule.

3. TNC systems using chlorine dioxide. TNC systems serving over 10,000 persons and using SW or IGW and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide requirements in this rule. TNC systems serving 10,000 persons or less, regardless of source water type, and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide requirements in this rule.

(4) Residual disinfectant control. Notwithstanding the MRDLs in this rule, systems may increase residual disinfectant levels of chlorine or chloramines (but not chlorine dioxide) in the distribution system to a level and for a time necessary to protect public health or to address specific microbiological contamination problems caused by circumstances including, but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross-connection events.

(5) Consecutive systems. Consecutive systems that provide water containing a disinfectant or oxidant must comply with this rule.

(6) Systems with multiple water sources. Systems with water sources that are used independently from each other, are not from the same source as determined by the department, or do not go through identical treatment processes must monitor for the applicable disinfectants or oxidants and DBPs during operation of each source. Systems must comply with this rule during the use of each water source.

b. MRDLs. The MRDLs are as follows:

Residual Disinfectant	MRDL (mg/L)
Chloramines	4.0 as Cl_2
Chlorine	4.0 as Cl_2
Chlorine dioxide	0.8 as ClO_2

c. Residual disinfectant monitoring requirements.

(1) General requirements.

1. Systems must take all samples during normal operating conditions. If a system does not use the disinfectant or oxidant on a daily basis, it must conduct the required daily monitoring each day the disinfectant or oxidant is used, and any required monthly monitoring during those months in which the disinfectant or oxidant is used during any portion of the month.

2. Failure to monitor in accordance with the monitoring plan required under 43.6(1)*"c"*(1)"5" is a monitoring violation.

3. Failure to monitor is a violation for the entire period covered by the annual average where compliance is based on an RAA of monthly or quarterly samples or averages. The system's failure to monitor makes it impossible to determine MRDL compliance.

4. Systems may use only data collected under this rule or of 567—41.6(455B) to qualify for reduced monitoring.

5. Systems required to monitor under this rule or 567—41.6(455B) must develop and implement a monitoring plan, in accordance with 567—paragraph 41.6(1)*"c"*(1)"6."

(2) Chlorine and chloramines.

1. Routine monitoring. CWSs and NTNCs using chlorine or chloramines must measure the residual disinfectant level at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in 567—subrule 41.2(1). SW and IGW systems may use the results of RDC sampling conducted under 43.5(4)*"b"*(2)"2," in lieu of taking separate samples.

2. Reduced monitoring. Chlorine and chloramine monitoring may not be reduced.

(3) Chlorine dioxide.

1. Routine monitoring. Any PWSs using chlorine dioxide for disinfection or oxidation must take daily samples at the SEP.

2. Additional monitoring. On each day following a routine daily sample monitoring result that exceeds the MRDL, a system is required to take three chlorine dioxide distribution system samples at the locations required below, in addition to the routine daily sample required at the SEP.

- If chlorine dioxide or chloramines are used to maintain a residual disinfectant in the distribution system, or if chlorine is used to maintain a residual disinfectant in the distribution system and there are no disinfection addition points after the SEP (i.e., no booster chlorination), a system must take three samples as close to the first customer as possible, at intervals of at least six hours.
- If chlorine is used to maintain a residual disinfectant in the distribution system and there are one or more disinfection addition points after the SEP (i.e., booster chlorination), a system must take one sample at each of the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

3. Reduced monitoring. Chlorine dioxide monitoring may not be reduced.

d. Residual disinfectant analytical requirements.

(1) Analytical methods. Systems must measure RDCs for free chlorine, combined chlorine (chloramines), and chlorine dioxide by the methods listed in the following table:

Approved Methods for Residual Disinfectant Compliance Monitoring

Methodology	SM[1]	Other Method	Residual measured[2]			
			Free Chlorine	Combined Chlorine	Total Chlorine	Chlorine Dioxide
Amperometric Titration	4500-Cl D	ASTM: D 1253-86[3] (96), 03, 08, 14	X	X	X	
Low Level Amperometric Titration	4500-Cl E				X	
DPD Ferrous Titrimetric	4500-Cl F		X	X	X	
DPD Colorimetric	4500-Cl G	Hach Method 10260[6]	X	X	X	
Syringaldazine (FACTS)	4500-Cl H		X			
Amperometric Sensor		ChloroSense[5]	X		X	
Online Chlorine Analyzer		EPA 334.0[4]	X		X	
Indophenol Colorimetric		Hach Method 10241[8]	X	X	X	
Iodometric Electrode	4500-Cl I				X	
DPD	4500-ClO_2 D					X
Amperometric Method II	4500-ClO_2 E					X
Lissamine Green Spectrophotometric		EPA 327.0 Rev. 1.1				X
Amperometric Sensor		ChlordioX Plus[7]				X

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register on February 16, 1999, in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. The document sources are listed below, and further document information is available from the Safe Drinking Water Hotline, 800.426.4791. Documents may be inspected at EPA's Drinking Water Docket; or at the Office of Federal Register.

The following method is available from the NTIS: "Determination of Chlorine Dioxide and Chlorite Ion in Drinking Water Using Lissamine Green B and Horseradish Peroxidase with Detection by Visible Spectrophotometry, Revision 1.1," EPA, May 2005, EPA 815-R-05-008.

[1]SM, 19th (1995), 20th (1998), 21st (2005), 22nd (2012), and 23rd (2017) editions. Methods: 4500-Cl D, 4500-Cl E, 4500-Cl F, 4500-Cl G, 4500-Cl H, 4500-Cl I, 4500-ClO_2 E. Only the 19th and 20th editions may be used for the chlorine dioxide Method 4500-ClO_2 D.

[2]X indicates method is approved for measuring the specified residual disinfectant. Free chlorine or total chlorine may be measured for demonstrating compliance with the chlorine MRDL, and combined chlorine or total chlorine may be measured for demonstrating compliance with the chloramine MRDL.

[3]ASTM, Volume 11.01, 1996, Method D 1253-86.

[4]EPA Method 334.0, "Determination of Residual Chlorine in Drinking Water Using an On-Line Chlorine Analyzer," September 2009. EPA 815-B-09-013, www.epa/gov/safewater/methods/analyticalmethods_ogwdw.html.

[5]ChloroSense, "Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense," September 2009, www.nemi.gov or Palintest Water Analysis Technologies, www.palintest.com.

[6]Hach Method 10260, "Determination of Chlorinated Oxidants (Free and Total) in Water Using Disposable Planar Reagent-Filled Cuvettes and Mesofluidic Channel Colorimetry," April 2013, www.hach.com.

[7]ChlordioX Plus. "Chlorine Dioxide and Chlorite in Drinking Water by Amperometry Using Disposable Sensors," November 2013, Palintest Water Analysis Technologies, www.palintest.com.

[8]Hach Company. "Hach Method 10241 – Spectrophotometric Measurement of Free Chlorine in Finished Drinking Water," November 2015, Revision 1.2, www.hach.com.

(2) Test kit use. Systems may also measure RDCs for chlorine, chloramines, and chlorine dioxide by using DPD colorimetric test kits acceptable to the department. Free and total chlorine RDCs may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument provided the chemistry, accuracy, and precision remain the same. Continuous monitoring instruments must be verified with a grab sample measurement at least every seven days in accordance with 43.5(4)*"a"*(4).

(3) Operator requirement. RDC measurements shall be conducted by a Grade A through IV operator meeting the requirements of 567—Chapter 81, any person under the direct supervision of such an operator, or a laboratory certified in accordance with 567—Chapter 83.

e. Residual disinfectant compliance requirements.

(1) General requirements.

1. When compliance is based on an RAA of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine MRDL compliance for chlorine and chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

2. All samples taken and analyzed under this rule must be included in determining compliance, even if that number is greater than the minimum required.

(2) Chlorine and chloramines.

1. Compliance must be based on an RAA, computed quarterly, of monthly averages of all samples collected by the system under 43.6(1)*"c"*(2). If the average covering any consecutive four-quarter period exceeds the MRDL, the system is in violation of the MRDL and must provide PN pursuant to 567—40.5(455B) and report to the department pursuant to 567—paragraph 40.8(3)*"d."*

2. In cases where systems switch between the use of chlorine and chloramines for residual disinfection during the year, compliance must be determined by including together all monitoring results of both chlorine and chloramines. Reports submitted pursuant to 567—paragraph 40.8(3)*"d"* must clearly indicate which residual disinfectant was analyzed for each sample.

(3) Chlorine dioxide.

1. Acute violations. Compliance must be based on consecutive daily samples collected under 43.6(1)*"c"*(3). If any daily sample taken at the SEP exceeds the MRDL, and on the following day one or more of the three samples taken in the distribution system exceed the MRDL, the system is in violation of the MRDL and shall take immediate corrective action to lower the level of chlorine dioxide below the MRDL. Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the SEP is also an MRDL violation. For either violation, the system must provide notice pursuant to the Tier 1 PN requirements in 567—subrule 40.5(2), and report to the department pursuant to 567—paragraph 40.8(3)*"d."*

2. Nonacute violations. Compliance must be based on consecutive daily samples collected under 43.6(1)*"c"*(3). If any two consecutive daily samples taken at the SEP exceed the MRDL

and all distribution system samples taken are below the MRDL, the system is in violation of the MRDL and must take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling. Failure to monitor at the SEP the day following an exceedance of the chlorine dioxide MRDL at the SEP is also an MRDL violation. For either violation, the system must provide notice pursuant to the Tier 2 PN requirements in 567—subrule 40.5(3), and report to the department pursuant to 567—paragraph 40.8(3)*"d."*

f. Reporting requirements for disinfectants. Systems required to sample quarterly or more frequently must report to the department within ten days after the end of each quarter in which samples were collected, notwithstanding the PN provisions of rule 567—40.5(455B). Systems required to sample less frequently than quarterly must report to the department within ten days after the end of each monitoring period in which samples were collected. Other disinfectant reporting requirements are in 567—subparagraph 40.8(3)*"d"*(3).

43.6(2) *DBP precursors.*

a. Applicability.

(1) SW or IGW CWS and NTNC systems with conventional filtration. This rule establishes criteria under which SW or IGW CWSs and NTNCs using conventional filtration treatment that either add a chemical disinfectant to the water in any part of the drinking water treatment process, or that provide water that contains a chemical disinfectant, must modify their practices to meet the MCLs in 567—41.6(455B) and the MRDL and TT requirements for DBP precursors in this rule.

(2) CWSs and NTNCs that use ozone in their treatment process must comply with the bromide requirements of this subrule.

(3) Compliance dates for this rule are based upon the population served. CWS and NTNC systems using SW or IGW in whole or in part and that serve 10,000 or more persons must

comply with this rule beginning January 1, 2002; while those systems serving fewer than 10,000 persons must comply with this rule beginning January 1, 2004.

(4) The department may require GW systems to monitor DBP precursors as a part of an operation permit.

b. DBP precursor monitoring requirements.

(1) Routine total organic carbon (TOC) monitoring.

1. SW and IGW systems using conventional filtration treatment must monitor each treatment plant for TOC no later than at the point of CFE turbidity monitoring and representative of the treated water. The systems must also monitor for TOC in the source water prior to any treatment, at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time the source water sample is taken, all systems must monitor for alkalinity in the source water prior to any treatment. Systems must take one paired set of samples and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.

2. SW and IGW systems that do not use conventional filtration treatment must conduct the TOC monitoring under 43.6(2)*"b"*(1)"1" in order to qualify for reduced DBP monitoring for TTHM and HAA5 under 567—paragraph 41.6(1)*"c"*(4)"2." The source water TOC RAA must be less than or equal to 4.0 mg/L based on the most recent four quarters of monitoring on a continuing basis at each treatment plant to reduce or remain on reduced TTHM and HAA5 monitoring. Once qualified for reduced TTHM and HAA5 monitoring, a system may reduce source water TOC monitoring to quarterly TOC samples taken every 90 days at a location prior to any treatment.

(2) Reduced monitoring. The department may allow SW and IGW systems with an average treated water TOC of less than 2.0 mg/L for two consecutive years, or less than 1.0 mg/L for

one year, to reduce monitoring for both TOC and alkalinity to one set of paired samples and one source water alkalinity sample per plant per quarter. The system must revert to routine monitoring in the month following the quarter when the annual average treated water TOC is greater than or equal to 2.0 mg/L.

(3) Bromide. The department may allow systems required to analyze for bromate to reduce bromate monitoring from monthly to once per quarter, if a system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly measurements for one year. A system must continue bromide monitoring to remain on reduced bromate monitoring.

(4) The department may assign DBP precursor monitoring prior to the compliance dates in 43.6(2)*"a"*(3) as part of an operation permit.

c. DBP analytical requirements.

(1) Analytical methods. DBP precursors must be analyzed using the following methods by a laboratory certified in accordance with 567—Chapter 83, unless otherwise specified.

Approved Methods for DBP Precursor Monitoring[1]

Analyte	Methodology	EPA	SM	ASTM	Other
Alkalinity[6]	Titrimetric		2320B	D 1067-92B	
	Electrometric titration				I-1030-85
Bromide	Ion chromatography	300.0, 300.1, 317.0 Rev. 2.0, 326.0		D 6581-00	
Dissolved Organic Carbon[2] (DOC)	High temperature combustion	415.3 Rev. 1.2	5310B or 5310B-00		
	Persulfate-UV or heated-persulfate oxidation	415.3 Rev. 1.2	5310C or 5310C-00		
	Wet oxidation	415.3 Rev. 1.1, 415.3 Rev. 1.2	5310D or 5310D-00		
pH[3]	Electrometric	150.1, 150.2	4500-H^+-B	D 1293-84	
SUVA	Calculation using DOC and UV_{254} data	415.3 Rev. 1.2			
TOC[4]	High temperature combustion	415.3 Rev. 1.2	5310B or 5310B-00		
	Persulfate-UV or heated-persulfate oxidation	415.3 Rev. 1.2	5310C or 5310C-00		Hach Method 10267[7]
	Wet oxidation	415.3 Rev. 1.1, 415.3 Rev. 1.2	5310D or 5310D-00		
	Ozone oxidation				Hach Method 10261[8]
UV Absorption at 254 nm[5]	Spectrophotometry	415.3 Rev. 1.1, 415.3 Rev. 1.2	5910B or 5910B-00, 11		

[1]The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register on February 16, 1999, in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. The document sources are listed below, and further document information is available from the Safe Drinking Water Hotline, 800.426.4791. Documents may be inspected at EPA's Drinking Water Docket or at the Office of Federal Register.

ASTM Methods: ASTM, Volume 11.01, 1996: Method D 1067-92B and Method D 1293-84. ASTM Volume 11.01, 2001 (or any year containing the cited version): Method D 6581-00.

The following methods are available from the NTIS:

"Determination of Inorganic Anions in Drinking Water by Ion Chromatography, Revision 1.0," EPA-600/R-98/118, 1997 (NTIS, PB98-169196): Method 300.1.

Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983, (NTIS PB84-128677): Methods 150.1 and 150.2.

Methods for the Determination of Inorganic Substances in Environmental Samples, EPA-600/R-93/100, August 1993, (NTIS PB94-121811): Method 300.0.

"Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Analysis, Revision 2.0," July 2001, EPA 815-B-01-001: Method 317.0.

"Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography Incorporating the Addition of a Suppressor Acidified Postcolumn Reagent for Trace Bromate Analysis, Revision 1.0,", June 2002, EPA 815-R-03-007: Method 326.0.

"Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water, Revision 1.1," February 2005, EPA/600/R-05/055: Method 415.3 Revision 1.1.

"Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water, Revision 1.2," September 2009, EPA/600/R-09/122: Method 415.3 Revision 1.2.

SM 19th (1995), 21st (2005), 22nd (2012), and 23rd (2017) editions, Methods: 2320B (20th edition, 1998, is also accepted for this method), 4500-H+-B, and 5910B (22nd edition, 2012, is also accepted for this method). Supplement to the 19th (1996), 21st (2005), and 22nd (2012) editions, Methods: 5310B, 5310C, and 5310D. 23rd edition, Methods 5310B and 5310C.

For method numbers ending "-00", the year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that are IBR-approved.

Method I-1030-85, Books and Open-File Reports Section, USGS, Federal Center, Box 25425, Denver, CO 80225-0425.

[2]DOC and UV_{254} samples used to determine a SUVA value must be taken at the same time and at the same location, prior to the addition of any disinfectant or oxidant by the system. Prior to analysis, filter DOC samples through a 0.45 µ pore-diameter filter, as soon as practical after sampling, not to exceed 48 hours. After filtration, DOC samples must be acidified to achieve pH less than or equal to 2 with minimal addition of the acid specified in the method or by the instrument manufacturer. Acidified DOC samples must be analyzed within 28 days. Remove inorganic carbon from the samples prior to analysis. Water passed through the filter prior to filtration of the sample must serve as the filtered blank. This filtered blank must be analyzed using procedures identical to those used for analysis of the samples and must meet a DOC concentration of <0.5 mg/L.

[3]pH must be measured by a laboratory certified in accordance with 567—Chapter 83; a Grade II, III or IV operator meeting the requirements of 567—Chapter 81; or any person under the supervision of any such operator.

[4]Remove inorganic carbon from the TOC samples prior to analysis. TOC samples may not be filtered prior to analysis. TOC samples must be acidified at the time of sample collection to achieve a pH less than or equal to 2 with minimal addition of the acid specified in the method or by the instrument manufacturer. Acidified TOC samples must be analyzed within 28 days.

[5]DOC and UV_{254} samples used to determine a SUVA value must be taken at the same time and at the same location, prior to the addition of any disinfectant or oxidant by the system. Measure UV absorption at 253.7 nm (may be rounded off to 254 nm). Prior to analysis, filter UV_{254} samples through a 0.45 µ pore-diameter filter. The pH of UV_{254} samples may not be adjusted. Samples must be analyzed as soon as practical after sampling, not to exceed 48 hours.

[6]Alkalinity must be measured by a laboratory certified in accordance with 567—Chapter 83; a Grade II, III or IV operator meeting the requirements of 567—Chapter 81; or any person under the supervision of any such operator. Only the listed titrimetric methods are acceptable.

[7]Hach Company. "Hach Method 10267 – Spectrophotometric Measurement of TOC in Finished Drinking Water," December 2015, Revision 1.2, www.hach.com.

[8]Hach Company. "Hach Method 10261 – Total Organic Carbon in Finished Drinking Water by Catalyzed Ozone Hydroxyl Radical Oxidation Infrared Analysis," December 2015, Revision 1.2, www.hach.com.

(2) SUVA. SUVA is equal to the UV absorption at 254 nm (UV_{254}) (measured in m^{-1}) divided by the DOC concentration (in mg/L). To determine SUVA, systems must separately measure UV_{254} and DOC using the methods above in 43.6(2)*"c"*(1). SUVA must be

determined prior to the addition of disinfectants/oxidants. DOC and UV_{254} samples used to determine a SUVA value must be taken at the same time and at the same location.

(3) Magnesium. All methods approved for magnesium in 567—subparagraph 41.3(1)*"d"*(1) are approved for use in measuring magnesium under this rule.

d. DBP precursor compliance requirements.

(1) General requirements. All samples taken and analyzed under this rule must be included in determining compliance, even if that number is greater than the minimum required.

(2) Compliance determination. Compliance must be determined as specified in 43.6(3)*"c."* The department may assign monitoring in an operation permit, or systems may begin monitoring to determine whether Step 1 TOC removals can be met 12 months prior to the compliance date for the system. This monitoring is not required and failure to monitor during this period is not a violation. However, any system that does not monitor during this period and then determines in the first 12 months after the compliance date that it is not able to meet the Step 1 requirements in 43.6(3)*"b"*(2), and must therefore apply for alternate minimum TOC removal (Step 2) requirements, is not eligible for retroactive approval of alternate minimum TOC removal (Step 2) requirements as allowed in 43.6(3)*"b"*(3) and is in violation. Systems may apply for alternate minimum TOC removal (Step 2) requirements anytime after the compliance date. For systems required to meet Step 1 TOC removals, if the value calculated under 43.6(3)*"c"*(1)"4" is less than 1.00, the system is in violation of the TT requirements and must provide PN pursuant to 567—40.5(455B), in addition to reporting to the department pursuant to 567—paragraph 40.8(3)*"d."*

e. Reporting requirements for DBP precursors. Systems required to sample quarterly or more frequently must report to the department within ten days after the end of each quarter in which samples were collected, notwithstanding the PN provisions of 567—40.5(455B). Systems required to sample less frequently than quarterly must report to the department within

ten days after the end of each monitoring period in which samples were collected. The specific reporting requirements for DBP precursors are in 567—subparagraph 40.8(3)*"d"*(4).

43.6(3) *TT for DBP precursor control.*

a. Applicability.

(1) Systems using SW or IGW and conventional filtration treatment must operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels in 43.6(3)*"b"* unless the system meets at least one of the alternative compliance criteria in 43.6(3)*"a"*(2) or 43.6(3)*"a"*(3).

(2) Alternative compliance criteria for enhanced coagulation and enhanced softening systems. Systems using SW or IGW and conventional filtration treatment may use the alternative compliance criteria in this subparagraph to comply with this subrule in lieu of complying with 43.6(3)*"b."* Systems must still comply with monitoring requirements in 43.6(2)*"b."* TOC levels and source water alkalinity must be measured according to 43.6(2)*"c"*(1) and the SUVA must be measured monthly according to 43.6(2)*"c."*

1. The source water TOC level is less than 2.0 mg/L, calculated quarterly as a running annual average (RAA).

2. The treated water TOC level is less than 2.0 mg/L, calculated quarterly as an RAA.

3. The source water TOC level is less than 4.0 mg/L, calculated quarterly as an RAA; the source water alkalinity is greater than 60 mg/L as $CaCO_3$, calculated quarterly as an RAA; and either the TTHM and HAA5 RAAs are no greater than 0.040 mg/L and 0.030 mg/L, respectively; or prior to the effective date for compliance in 567—subparagraphs 41.6(1)*"a"*(2) and 43.6(2)*"a"*(3), the system has made a clear and irrevocable financial commitment to use of technologies that will limit the levels of TTHMs and HAA5 to no more than 0.040 mg/L and 0.030 mg/L, respectively. Systems must submit evidence of a clear and irrevocable financial commitment, in addition to a schedule containing milestones and

periodic progress reports for installation and operation of appropriate technologies, to the department for approval not later than the effective date for compliance in 567—subparagraphs 41.6(1)*"a"*(2) and 43.6(2)*"a"*(3). These technologies must be installed and operating not later than June 30, 2005. Failure to install and operate these technologies by the date in the approved schedule will constitute a TT violation.

4. The TTHM and HAA5 RAAs are less than or equal to 0.040 mg/L and 0.030 mg/L, respectively, and the system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system.

5. The source water SUVA, prior to any treatment, is less than or equal to 2.0 L/mg-m, calculated quarterly as an RAA.

6. The finished water SUVA is less than or equal to 2.0 L/mg-m, calculated quarterly as an RAA.

(3) Additional alternative compliance criteria for softening systems. Systems practicing enhanced softening that cannot achieve the TOC removals required by 43.6(3)*"b"*(2) may use the alternative compliance criteria in this subparagraph in lieu of complying with 43.6(3)*"b."* Systems must still comply with monitoring requirements in 43.6(2)*"b."*

1. Softening that lowers the treated water alkalinity to less than 60 mg/L as $CaCO_3$, measured monthly according to 43.6(2)*"c"* and calculated quarterly as an RAA.

2. Softening that removes at least 10 mg/L of magnesium hardness as $CaCO_3$, measured monthly and calculated quarterly as an RAA.

b. Enhanced coagulation and enhanced softening performance requirements.

(1) Systems must achieve the TOC percent reduction in 43.6(3)*"b"*(2) between the source water and the CFE, unless the department approves a system's request for alternate minimum TOC removal (Step 2 requirements under 43.6(3)*"b"*(3)).

(2) Required Step 1 TOC reductions, indicated in the following table, are based upon specified source water parameters measured in accordance with 43.6(2)*"c."* Systems using softening must meet the Step 1 TOC reductions in the right-hand column (> 120 mg/L) for the specified source water TOC:

Step 1 Required TOC Removal by Enhanced Coagulation and Enhanced Softening for SW or IGW Systems Using Conventional Treatment[1,2]

Source water TOC, mg/L	Source water Alkalinity, mg/L as $CaCO_3$		
	0-60	>60-120	>120[3]
>2.0 - 4.0	35.0%	25.0%	15.0%
>4.0 - 8.0	45.0%	35.0%	25.0%
>8.0	50.0%	40.0%	30.0%

[1]Systems meeting at least one of the conditions in 43.6(3)*"a"*(2)"1" through "6" are not required to operate with enhanced coagulation.

[2]Softening systems meeting one of the alternative compliance criteria in 43.6(3)*"a"*(3) are not required to operate with enhanced softening.

[3]Systems practicing softening must meet the TOC removal requirements in this column.

(3) SW and IGW systems using conventional treatment that cannot achieve the Step 1 TOC removals required by 43.6(3)*"b"*(2) due to water quality parameters (WQPs) or operational constraints must apply to the department for approval of alternative minimum Step 2 TOC removal requirements submitted by the system within three months of failure to achieve the TOC removals. If the department approves the alternative minimum Step 2 TOC removal requirements, it may make those requirements retroactive for the purposes of determining compliance. The system must meet the Step 1 TOC removals in 43.6(3)*"b"*(2) until the department approves the alternate minimum Step 2 TOC removal requirements.

(4) Alternate minimum Step 2 TOC removal requirements. Applications made to the department by enhanced coagulation systems for approval of alternate minimum Step 2 TOC removal requirements under 43.6(3)*"b"*(3) must include, as a minimum, results of bench-

scale or pilot-scale testing conducted under 43.6(3)*"b"*(4)"1" below and used to determine the alternate enhanced coagulation level.

1. Alternate enhanced coagulation level is defined as coagulation at a coagulant dose and pH as determined by the method described in this subparagraph such that an incremental addition of 10 mg/L of alum (or equivalent amount of ferric salt) results in a TOC removal of less than or equal to 0.3 mg/L. The TOC percent removal at this point on the "TOC removal versus coagulant dose" curve is then defined as the minimum TOC removal required for the system. Once approved by the department, this minimum requirement supersedes the minimum TOC removal required by the table in 43.6(3)*"b"*(2). This requirement will be effective until such time as the department approves a new value based on the results of a new bench-scale or pilot-scale test. Failure to achieve department-set alternative minimum TOC removal levels is a TT violation.

2. Conduct bench-scale or pilot-scale testing of enhanced coagulation using representative water samples and adding 10 mg/L increments of alum (or equivalent amounts of ferric salt) until the pH is reduced to a level less than or equal to the enhanced coagulation Step 2 target pH shown in the following table:

Enhanced Coagulation Step 2 Target pH

Alkalinity (mg/L as $CaCO_3$)	Target pH
0 - 60	5.5
>60 - 120	6.3
>120 - 240	7.0
>240	7.5

3. For waters with alkalinities of less than 60 mg/L for which addition of small amounts of alum or equivalent addition of iron coagulant drives the pH below 5.5 before significant TOC removal occurs, a system must add necessary chemicals to maintain the pH between 5.3 and 5.7 in samples until the TOC removal of 0.3 mg/L per 10 mg/L alum added (or equivalent addition of iron coagulant) is reached.

4. A system may operate at any coagulant dose or pH necessary (consistent with department rules) to achieve the minimum TOC percent removal approved under 43.6(3)*"b"*(3).

5. If the TOC removal is consistently less than 0.3 mg/L of TOC per 10 mg/L of incremental alum dose at all dosages of alum (or equivalent addition of iron coagulant), the water is deemed to contain TOC not amenable to enhanced coagulation. The system may then apply to the department for a waiver of enhanced coagulation requirements.

c. Compliance calculations.

(1) SW or IGW systems other than those identified in 43.6(3)*"a"*(2) or 43.6(3)*"a"*(3) must comply with requirements in 43.6(3)*"b"*(2) or 43.6(3)*"b"*(3). Systems must calculate compliance quarterly, beginning after the collection of 12 months of data, by determining an annual average using the following method:

1. Step 1: Determine actual monthly TOC percent removal using the following equation, to two decimal places:

$$\text{Actual monthly TOC percent removal} = 1 - \left(\frac{\text{treated water TOC}}{\text{source water TOC}}\right) \times 100$$

2. Step 2: Determine the required monthly TOC percent removal from either 43.6(3)*"b"*(2) or 43.6(3)*"b"*(3).

3. Step 3: Divide the "actual monthly TOC percent removal" value (from Step 1) by the "required monthly TOC percent removal" value (from Step 2). Determine this value for each of the last 12 months.

$$\text{Monthly percent removal ratio} = \frac{\text{actual monthly TOC percent removal}}{\text{required monthly TOC percent removal}}$$

4. Step 4: Add together the "monthly percent removal ratio" values from Step 3 for each of the last 12 months and divide by 12 to determine the annual average value.

$$\text{Annual average} = \frac{\Sigma \text{ monthly percent removal ratio}}{12}$$

5. Step 5: If the "annual average" value calculated in Step 4 is less than 1.00, the system is not in compliance with the TOC percent removal requirements.

(2) Systems may use the provisions in this subparagraph in lieu of the calculations in the previous subparagraph (43.6(3)*"c"*(1)) to determine compliance with TOC percent removal requirements. Systems may assign a monthly value of 1.0 (in lieu of the value calculated in 43.6(3)*"c"*(1)"3") when calculating compliance under 43.6(3)*"c"*(1), in any month that:

1. The system's treated or source water TOC level, measured according to 43.6(2)*"c"*(1), is less than 2.0 mg/L;

2. A system practicing softening removes at least 10 mg/L of magnesium hardness as $CaCO_3$;

3. The system's source water SUVA, prior to any treatment and measured according to 43.6(2)*"c"*(2), is less than or equal to 2.0 L/mg-m;

4. The system's finished water SUVA, measured according to 43.6(2)*"c"*(2), is less than or equal to 2.0 L/mg-m; or

5. A system using enhanced softening lowers alkalinity below 60 mg/L as $CaCO_3$.

(3) SW or IGW systems using conventional treatment may also comply with this subrule by meeting the criteria in 43.6(3)*"a"*(2) or 43.6(3)*"a"*(3).

d. TT requirements for DBP precursors. The TTs to control the level of DBP precursors in drinking water treatment and distribution systems for SW or IGW systems using conventional filtration treatment are enhanced coagulation or enhanced softening.

567—43.7(455B) Lead and copper treatment techniques (TTs).

43.7(1) *Corrosion control treatment (CCT) for lead and copper control.*

a. Applicability. Systems shall complete the applicable CCT requirements by the deadlines specified in the following rules:

(1) Large systems serving more than 50,000 persons. A large system (serving greater than 50,000 persons) shall complete the CCT steps in 43.7(1)*"d,"* unless the system is deemed to have OCC under 43.7(1)*"b"*(2) or 43.7(1)*"b"*(3).

(2) Small and medium-size systems serving 50,000 or fewer persons. A small system (serving less than or equal to 3,300 persons) or a medium-size system (serving greater than 3,300 and less than or equal to 50,000 persons) shall complete the CCT steps in 43.7(1)*"e,"* unless the system has OCC under 43.7(1)*"b"*(1), 43.7(1)*"b"*(2), or 43.7(1)*"b"*(3).

b. Determination that a system has optimized corrosion control (OCC). A PWS has OCC and is not required to complete the applicable CCT steps in this subrule if the system satisfies one of the criteria in 43.7(1)*"b"*(1) through 43.7(1)*"b"*(3). Any system deemed to have OCC under this paragraph and that has treatment in place shall continue to operate and maintain optimal corrosion control treatment (OCCT) and meet any requirements that the department determines appropriate to ensure OCCT is maintained.

(1) A small or medium-size PWS has optimized CCT if the system meets the lead and copper ALs during each of two consecutive six-month monitoring periods, conducted in accordance with 567—paragraph 41.4(1)*"c."*

(2) Any PWS may be deemed to have optimized CCT if it demonstrates to the department's satisfaction that it has conducted activities equivalent to the corrosion control steps applicable to such system under this subrule. If the department makes this determination, it shall provide the PWS with written notice explaining the basis for its decision and shall specify the WQPs representing OCC in accordance with 43.7(2)*"f."* Systems deemed to have OCCT under this paragraph shall operate in compliance with the department-designated OWQPs in accordance with 43.7(1)*"g"* and continue to conduct lead and copper tap and WQP sampling in accordance with 567—paragraph 41.4(1)*"c"*(4)"3" and (4), respectively. A

system shall provide the department with the following information to support a determination under this paragraph:

1. The results of all samples collected for each of the WQPs in 43.7(2)*"c"*(3);

2. A report explaining the test methods used by the system to evaluate the CCTs in 43.7(2)*"c"*(1), the results of all testing, and the basis for the system's selection of OCCT;

3. A report explaining how CCT was installed and how it is being maintained to ensure minimal lead and copper concentrations at consumers' taps; and

4. The results of tap water samples collected in accordance with 567—paragraph 41.4(1)*"c"* at least once every six months for one year after CCT has been installed.

(3) Any system has OCCT if it submits results of tap water monitoring conducted in accordance with 567—paragraph 41.4(1)*"c"* and source water monitoring conducted in accordance with 567—paragraph 41.4(1)*"e"* that demonstrate, for two consecutive six-month monitoring periods, that the difference between the 90th percentile tap water lead level computed under 567—subparagraph 41.4(1)*"b"*(3) and the highest source water lead concentration is less than the practical quantitation level for lead in 567—paragraph 41.4(1)*"g."* Pursuant to this paragraph:

1. Those systems whose highest source water lead level is below the method detection limit may also be deemed to have OCCT if the 90th percentile tap water lead level is less than or equal to the lead PQL for two consecutive six-month monitoring periods.

2. Any system deemed to have OCC shall continue lead and copper monitoring at the tap no less frequently than once every three calendar years using the reduced number of sites specified in 567—subparagraph 41.4(1)*"c"*(3) and collecting the samples at times and locations specified in 567—paragraph 41.4(1)*"c"*(4)"4," fourth bulleted paragraph.

3. Any system deemed to have OCC shall notify the department in writing of any upcoming long-term change in treatment or the addition of a new source, pursuant to 567—

subparagraph 40.8(2)*"a"*(3). The department must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the water system.

4. Unless a system meets the copper AL, it is not deemed to have OCCT and shall implement CCT pursuant to 43.7(1)*"b"*(3)"5."

5. Any system triggered into corrosion control because it is no longer deemed to have OCCT shall implement CCT in accordance with 43.7(1)*"e."* Any such large system shall adhere to the schedule specified in that paragraph for medium-size systems, with the time periods for completing each step being triggered by the date the system is no longer deemed to have OCC.

c. Requirements to recommence corrosion control steps. Any small or medium-size system required to complete the corrosion control steps due to its exceedance of the lead or copper AL may cease completing the treatment steps when it meets both ALs during each of two consecutive monitoring periods conducted pursuant to 567—paragraph 41.4(1)*"c"* and submits the results to the department. If any such system thereafter exceeds the lead or copper AL during any monitoring period, it shall recommence completion of the applicable treatment steps, beginning with the first treatment step that was not previously completed in its entirety. The department may require a system to repeat previously completed steps when it determines the steps are necessary to properly implement the treatment requirements of this rule. The department will notify the system of such a determination in writing and explain the basis for its decision. The requirement for any small or medium-size system to implement CCT steps in accordance with 43.7(1)*"e"* (including systems deemed to have OCC under 43.7(1)*"b"*(1)) is triggered when any such system exceeds the lead or copper AL.

d. Treatment steps and deadlines for large systems. Except as provided in 43.7(1)*"b"*(2) or 43.7(1)*"b"*(3), large systems shall complete the following CCT steps (described in the rules referenced below) by the indicated dates:

(1) Step 1. The system shall conduct initial monitoring pursuant to 567—paragraph 41.4(1)*"c"*(4)"1" and 567—subparagraph 41.4(1)*"d"*(2) during two consecutive six-month monitoring periods by January 1, 1993.

(2) Step 2. The system shall complete corrosion control studies pursuant to 43.7(2)*"c"* by July 1, 1994.

(3) Step 3. The department will designate OCCT within six months of receiving the corrosion control study results.

(4) Step 4. The system shall install OCCT by January 1, 1997.

(5) Step 5. The system shall complete follow-up sampling pursuant to 567—paragraph 41.4(1)*"c"*(4)"2" and 567—subparagraph 41.4(1)*"d"*(3) by January 1, 1998.

(6) Step 6. The department will review installation of treatment and designate OWQPs pursuant to 43.7(2)*"f"* by July 1, 1998.

(7) Step 7. The system shall operate in compliance with OWQPs delineated by the department and continue to conduct tap sampling.

e. Treatment steps and deadlines for small and medium-size systems. Except as provided in 43.7(2), small and medium-size systems shall complete the following CCT steps (described in the rules referenced below) by the indicated time periods:

(1) Step 1. A system shall conduct initial tap sampling pursuant to 567—paragraph 41.4(1)*"c"*(4)"1" and 567—subparagraph 41.4(1)*"d"*(2) until it either exceeds the lead or copper AL or becomes eligible for reduced monitoring under 567—paragraph 41.4(1)*"c"*(4)"4." A system exceeding the lead or copper AL shall recommend OCCT under 43.7(2)*"a"* within six months after the end of the monitoring period during which it exceeds one of the ALs.

(2) Step 2. Within 12 months after the end of the monitoring period during which a system exceeds the lead or copper AL, the department may require the system to perform corrosion

control studies under 43.7(2)*"b."* If the system is not required to perform such studies, the department will specify OCCT under 43.7(2)*"d"* as follows: for medium-size systems, within 18 months after the end of the monitoring period during which such system exceeds the lead or copper AL, and, for small systems, within 24 months after the end of the monitoring period during which such system exceeds the lead or copper AL.

(3) Step 3. If a system is required to perform corrosion control studies under Step 2, it shall complete the studies (under 43.7(2)*"c"*) within 18 months after such studies are required to commence.

(4) Step 4. If the system has performed corrosion control studies under Step 2, the department will designate OCCT under 43.7(2)*"d"* within six months after completion of Step 3.

(5) Step 5. Systems shall install OCCT under 43.7(2)*"e"* within 24 months after such treatment is designated.

(6) Step 6. Systems shall complete follow-up sampling pursuant to 567—paragraph 41.4(1)*"c"*(4)"2" and 567—subparagraph 41.4(1)*"d"*(3) within 36 months after OCCT is designated.

(7) Step 7. The department will review a system's installation of treatment and designate OWQPs pursuant to 43.7(2)*"f"* within six months after completion of Step 6.

(8) Step 8. Systems shall operate in compliance with the department-designated OWQPs under 43.7(2)*"f"* (and continue to conduct tap sampling per 567—paragraphs 41.4(1)*"c"*(4)"3" and 41.4(1)*"d"*(4)).

43.7(2) *CCT requirements.* Each PWS shall complete the CCT requirements described below that are applicable to such systems under 43.7(1).

a. PWS recommendation. Based on the results of lead and copper tap monitoring and WQP monitoring, small and medium-size systems exceeding the lead or copper AL shall

recommend installation of one or more of the CCTs in 43.7(2)*"c"* that the system believes constitute OCC. The department may require a system to conduct additional WQP monitoring in accordance with 567—subparagraph 41.4(1)*"d"*(2) to assist in reviewing the system's recommendation.

b. Department decision to require CCT studies (small and medium-size systems). The department may require any small or medium-size system that exceeds the lead or copper AL to perform corrosion control studies under 43.7(2)*"c"* to identify OCCT.

c. Performance of corrosion control studies.

(1) Any PWS performing corrosion control studies shall evaluate the effectiveness of each of the following treatments and, if appropriate, combinations of the following treatments to identify the OCCT: alkalinity and pH adjustment; calcium hardness adjustment; and phosphate or silicate-based corrosion inhibitor addition at a concentration sufficient to maintain an effective residual concentration in all test tap samples.

(2) PWSs shall evaluate each of the CCTs using either pipe rig/loop tests, metal coupon tests, partial-system tests, or analyses based on documented analogous treatments with other systems of similar size, water chemistry, and distribution system configuration.

(3) PWSs shall measure the following WQPs in any tests conducted under this paragraph before and after evaluating the CCTs listed above:

1. Lead;
2. Copper;
3. pH;
4. Alkalinity;
5. Calcium;
6. Conductivity;
7. Orthophosphate (when an inhibitor containing a phosphate compound is used);

8. Silicate (when an inhibitor containing a silicate compound is used); and

9. Water temperature.

(4) PWSs shall identify all chemical or physical constraints that limit or prohibit the use of a particular CCT and outline such constraints with data and documentation either showing that a particular CCT has adversely affected other water treatment processes when used by another system with comparable water quality characteristics; or demonstrating that the system has previously attempted to evaluate a particular CCT and has found that the treatment is ineffective or adversely affects other water quality treatment processes.

(5) Systems shall evaluate the effect of the chemicals used for CCT on other water quality treatment processes.

(6) Based on analysis of the data generated during each evaluation, a system shall recommend in writing to the department the treatment option that the corrosion control studies indicate constitutes OCCT for that system. The system shall provide a rationale for its recommendation along with all supporting documentation required by this paragraph.

d. Department designation of OCCT.

(1) Based on consideration of available information including, where applicable, studies performed under 43.7(2)*"c"* and a system's recommended treatment alternative, the department will either approve the CCT option recommended by the PWS, or designate alternative treatment(s) from among those listed in 43.7(2)*"c."* The department will consider the effects that additional treatment will have on WQPs and on other water treatment processes.

(2) The department will notify a PWS of its decision on OCCT in writing and explain the basis for this determination. If the department requests additional information to aid its review, a PWS shall provide the information.

e. Installation of OCC. Each PWS shall properly install and operate throughout its distribution system the OCCT designated under 43.7(2)*"d."*

f. Department review of treatment and specification of optimal water quality control parameters (OWQPs).

(1) The department will evaluate the results of all lead and copper tap samples and WQP samples submitted by a PWS and determine whether the system has properly installed and operated the OCCT designated in 43.7(2)*"d."* After reviewing the sampling results , both before and after a system installs optimal treatment, the department will designate the following:

1. A minimum value or a range of values for pH measured at each SEP;

2. A minimum pH value, measured in all tap samples. Such value shall be equal to or greater than 7.0 unless meeting a pH level of 7.0 is not technologically feasible or is not necessary for the PWS to optimize corrosion control;

3. If a corrosion inhibitor is used, a minimum concentration or a range of concentrations for the inhibitor, measured at each SEP and in all tap samples, necessary to form a passivating film on the interior walls of the pipes of the distribution system;

4. If alkalinity is adjusted as part of OCCT, a minimum concentration or a range of concentrations for alkalinity, measured at each SEP and in all tap samples; or

5. If calcium carbonate stabilization is used as part of corrosion control, a minimum concentration or a range of concentrations for calcium, measured in all tap samples.

(2) The values for the applicable WQPs listed above shall be those reflecting OCCT for a PWS. The department may designate values for additional WQPs determined to reflect OCC for the system. The department will notify the system in writing of these determinations and explain the basis for its decisions.

g. Continued operation with OCC and WQP monitoring compliance determination. In accordance with this paragraph, all systems optimizing corrosion control shall continue to operate and maintain OCCT, including maintaining WQPs at or above minimum values or within ranges designated by the department under 43.7(2)*"f,"* for all samples collected under 567—subparagraphs 41.4(1)*"d"*(4) through 41.4(1)*"d"*(6). Compliance with this paragraph shall be determined every six months, as specified in 567—subparagraph 41.4(1)*"d"*(4). A system is out of compliance with this paragraph for a six-month period if it has excursions for any department-specified parameter on more than nine days during the period. An excursion occurs when the daily value for one or more of the WQPs measured at a sampling location is below the minimum value or outside the department-designated range. The department has the discretion to invalidate results of obvious sampling errors from this calculation. Daily values for WQPs collected at a single sampling location are calculated as follows.

(1) On days when more than one measurement for the WQP is collected, the daily value shall be the average of all results collected during the day regardless of whether they are collected through continuous monitoring, grab sampling, or a combination of both.

(2) On days when only one measurement for the WQP is collected, the daily value shall be the result of that measurement.

(3) On days when no measurement is collected for the WQP, the daily value shall be the daily value calculated on the most recent day that the WQP was measured at the sample site.

h. Modification of department treatment decisions. A determination of the OCCT under 43.7(2)*"d"* or OWQPs under 43.7(2)*"f"* may be modified. A modification request from a PWS or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The department may modify its determination when it concludes that such change is necessary to ensure that a PWS continues to optimize CCT. A revised determination will be made in writing, set forth the new treatment requirements,

explain the basis for the decision, and provide an implementation schedule for completing treatment modifications.

43.7(3) *Source water treatment requirements.* PWSs shall complete the applicable source water monitoring and treatment requirements, as described in the referenced portions of 43.7(3)*"b,"* and in 567—paragraphs 41.4(1)*"c"* and *"e,"* by the following deadlines.

a. Deadlines for completing source water treatment steps.

(1) Step 1. A PWS exceeding the lead or copper AL shall complete lead and copper source water monitoring under 567—subparagraph 41.4(1)*"e"*(2) and make a written treatment recommendation to the department no later than 180 days after the end of the monitoring period during which the lead or copper AL was exceeded.

(2) Step 2. The department will make a determination regarding source water treatment pursuant to 43.7(3)*"b"*(2) within six months after submission of monitoring results under Step 1.

(3) Step 3. If installation of source water treatment is required, the system shall install treatment pursuant to 43.7(3)*"b"*(3) within 24 months after completion of Step 2.

(4) Step 4. A PWS shall complete follow-up tap water monitoring under 567—paragraph 41.4(1)*"c"*(4)"2" and source water monitoring under 567—subparagraph 41.4(1)*"e"*(3) within 36 months after completion of Step 2.

(5) Step 5. The department will review the system's installation and operation of source water treatment and specify maximum permissible source water levels under 43.7(3)*"b"*(4) within six months after completion of Step 4.

(6) Step 6. A PWS shall operate in compliance with the maximum permissible lead and copper source water levels in 43.7(3)*"b"*(4) and continue source water monitoring pursuant to 567—subparagraph 41.4(1)*"e"*(4).

b. Description of treatment requirements.

(1) System treatment recommendation. Any system that exceeds the lead or copper AL shall recommend in writing to the department the installation and operation of one of the source water treatments in 43.7(3)*"b"*(2). A system may recommend that no treatment be installed based upon a demonstration that source water treatment is not necessary to minimize lead and copper levels at users' taps.

(2) Source water treatment determinations. The department will evaluate the results of all source water samples submitted by a PWS to determine whether source water treatment is necessary to minimize lead or copper levels in water delivered to users' taps. If the department determines that treatment is needed, it will require installation and operation of the source water treatment recommended by the PWS or require the installation and operation of another source water treatment from among the following: ion exchange, reverse osmosis, lime softening, or coagulation/filtration. If the department requests additional information to aid in its review, the PWS shall provide the information by the specified date. The department will notify the system in writing of its determination and set forth the basis for its decision.

(3) Source water treatment installation. PWSs shall properly install and operate the source water treatment designated by the department under 43.7(3)*"b"*(2).

(4) Department review and specification. The department will review a system's source water samples both before and after the installation of source water treatment and determine whether the system has properly installed and operated the designated treatment. After the review, the department will designate maximum permissible lead and copper concentrations for finished water entering the distribution system. Such levels shall reflect the contaminant removal capability of the treatment (properly operated and maintained). The department will notify the PWS in writing and explain the basis for its decision.

(5) Continued operation and maintenance. Each PWS shall maintain lead and copper levels below the maximum permissible concentrations designated by the department at each

sampling point monitored in accordance with 567—paragraph 41.4(1)*"e."* A system is out of compliance with this paragraph if the lead or copper level at any sampling point is greater than the maximum permissible designated concentration.

(6) Modification of decisions. The department may modify its determinations of the source water treatment or maximum permissible lead and copper concentrations made under subparagraphs (2) and (4) of this paragraph. A modification request from a PWS or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The department may modify its determination where it concludes that such change is necessary to ensure that a system continues to minimize lead and copper concentrations in source water. A revised determination will be made in writing, set forth the new treatment requirements, explain the basis for the decision, and provide an implementation schedule for completing treatment modifications.

43.7(4) *Lead service line replacement (LSLR) requirements.*

a. Applicability. PWSs that fail to meet the lead AL in tap samples taken pursuant to 567—paragraph 41.4(1)*"c"*(4)"2" after installing corrosion control or source water treatment (whichever sampling occurs later), shall replace lead service lines (LSLs) in accordance with this subrule. If a system is in violation of 43.7(1) and 43.7(3) for failure to install source water or CCT, the department may require the system to commence LSLR under this subrule after the date by which the system was required to conduct monitoring under 567—paragraph 41.4(1)*"c"*(4)"2" has passed.

b. LSLR schedule. A PWS shall replace annually at least seven percent of the initial number of LSLs in its distribution system. The initial number of LSLs is the number of lead lines in place at the time the replacement program begins. A system shall identify the initial number of LSLs in its distribution system, including an identification of the portion(s) owned by the system, based upon a materials evaluation, including the evaluation required under 567—

subparagraph 41.4(1)*"c"*(1), and relevant legal authorities regarding the portion owned by the system.

(1) The first year of LSLR shall begin on the first day following the end of the monitoring period in which the AL was exceeded in tap sampling referenced in 43.7(4)*"a."* If monitoring is required annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs. If the department has established an alternate monitoring period, then the end of the monitoring period will be the last day of that period.

(2) Any system resuming an LSLR program after the cessation of its program as allowed by 43.7(4)*"g"* shall update its inventory of LSLs to include those sites that were previously determined not to require replacement through the sampling provision of 43.7(4)*"c."* The system will then divide the updated number of remaining LSLs by the number of remaining years in the program to determine the number of lines that must be replaced per year. Seven percent LSLR is based on a 15-year replacement program. For example, systems resuming LSLR after previously conducting two years of replacement would divide the updated inventory by 13.

(3) For those systems that have completed a 15-year LSLR program, the department will determine a schedule for replacing or retesting lines that were previously exempted through testing under 43.7(4)*"c"* from the replacement program when the system re-exceeds the AL.

c. Exemption to LSLR requirement. A PWS is not required to replace an individual LSL if the lead concentration in all service line samples from that line, taken pursuant to 567—paragraph 41.4(1)*"c"*(2)"3," is less than or equal to 0.015 mg/L.

d. LSLR requirements. A PWS shall replace that portion of the LSL that it owns. In cases where a system does not own the entire LSL, it shall notify the owner of the line, or the owner's authorized agent, that it will replace the portion of the service line that it owns and shall offer to replace the owner's portion of the line. A system is not required to bear the cost

of replacing the privately owned portion of the line, nor is it required to replace the privately owned portion of the line where the line owner chooses not to pay the cost of replacement, or where replacing the privately owned portion would be precluded by state, local, or common law. A system that does not replace the entire length of the service line shall complete the following tasks.

(1) Resident notification. At least 45 days prior to commencing with the partial replacement of a LSL, a PWS shall provide to the resident(s) of all buildings served by the line notice explaining that the resident(s) may experience a temporary increase of lead levels in their drinking water, along with guidance on measures consumers may take to minimize their lead exposure. The department may allow a system to provide this notice less than 45 days prior to commencing partial LSLR where such replacement is in conjunction with emergency repairs. In addition, a system shall inform the resident(s) served by the line that the system will, at its expense, collect a lead sample from each service line that is representative of the water in the line, as prescribed by 567—paragraph 41.4(1)*"c"*(2)"3," within 72 hours after the completion of the partial service line replacement. The system shall collect the sample and report the analysis results to the owner and the resident(s) served by the line within three business days of receiving the results. Mailed notices postmarked within three business days of receiving the results shall be considered "on time."

(2) Notification methods. The PWS shall provide the information required by 43.7(4)*"d"*(1) to the residents of individual dwellings by mail or by other department-approved methods. In instances where multifamily dwellings are served by the line, a system shall have the option to post the information at a conspicuous location.

e. LSLR schedule. The department may require a PWS to replace LSLs on a shorter schedule than that required by this subrule, taking into account the number of LSLs in the system, where such a shorter replacement schedule is feasible. The department will make this

determination in writing and notify the system of its finding within six months after the system is triggered into LSLR based on monitoring referenced in 43.7(4)*"a."*

f. Cessation of LSLR. Any PWS may cease replacing LSLs when first draw samples collected pursuant to 567—paragraph 41.4(1)*"c"*(2)"2" meet the lead AL during each of two consecutive monitoring periods and the system submits the results. If the first draw tap samples collected in any such system thereafter exceed the lead AL, the system shall recommence replacing LSLs, as detailed in 43.7(4)*"b."*

g. LSLR reporting requirements. To demonstrate compliance with 43.7(4)*"a"* through *"d,"* a system shall report the information in 567—paragraph 40.8(2)*"e."*

567—43.8(455B) Viability assessment.

43.8(1) *Definitions specific to viability assessment.*

a. For viability assessment purposes:

"New system" includes newly constructed PWSs and systems that do not meet the definition of a PWS, but which expand their infrastructure and thereby grow to become a PWS. Systems not currently meeting the definition of a PWS and that add additional users and thereby become a PWS without constructing any additional infrastructure are not "new systems" for the purposes of this rule.

"Nonviable system" means a system lacking the technical, financial, and managerial ability to comply with 567—Chapters 40 through 43 and 81.

"Viable system" means a system with the technical, financial, and managerial ability to comply with applicable drinking water standards adopted by the state of Iowa.

b. "Significant noncompliance" or "SNC" and "viability" are defined in 567—Chapter 40.

43.8(2) *Applicability and purpose.* These rules apply to all new and existing PWS, including the following: new systems; systems deemed to be in SNC with the primary drinking water standards; DWSRF applicants; and existing systems. The purpose of the

viability assessment program is to ensure the safety of the PWS and ensure the viability of new PWS upon commencement of operation. The department may require PN and assess administrative penalties to any PWS that fails to fulfill the requirements of this rule.

43.8(3) *Contents of a viability assessment.* A viability assessment must address the areas of technical, financial, and managerial viability for a PWS. An assessment must include evaluation of the following areas, and the PWS may be required to include additional information as directed by the department.

a. Technical viability. Supply sources and facilities, treatment, and infrastructure.

b. Managerial viability. Operation, maintenance, management, and administration.

c. Financial viability. Capital and operating costs, revenue sources, and contingency plans.

43.8(4) *New systems.*

a. Viability assessment submission.

(1) New PWSs (including CWSs, NTNCs and TNCs) must submit a completed system viability assessment for department review prior to obtaining a construction permit. A viability assessment may be submitted with a construction permit application.

(2) Viability assessment worksheets are available on the department's website at www.iowadnr.gov.

(3) The department may reject receipt or delay review of the construction plans and specifications until an adequate viability assessment is provided.

(4) If the department finds, upon review and approval of the viability assessment, that the PWS will be viable, a construction permit will be issued in accordance with 567—Chapters 40 and 43. Prior to beginning operation, a PWS operation permit must be obtained in accordance with rule 567—43.2(455B) and rule 567—40.5(455B).

b. Viability assessment review. If the department declines to approve a viability assessment, or if the department finds that a PWS is nonviable, the construction and operation

permit applications will be denied. If the viability assessment is conditionally approved, construction and operation permits will be issued, with conditions and a compliance schedule specified in the operation permit.

43.8(5) *Existing systems.*

a. Definition of existing system. Any CWS, NTNC, or TNC in operation prior to October 1, 1999 that was regulated as a PWS by the department shall be considered an existing system. Any system that does not currently meet the definition of a PWS, but which expands their infrastructure and thereby grows to become a PWS, is considered a new system. Systems not currently meeting the definition of a PWS and that add additional users and thereby become a PWS without constructing any additional infrastructure are considered existing systems for the purposes of this subrule.

b. Viability assessment submission. All PWSs should complete a viability assessment. However, only existing PWSs meeting one or more of the following criteria are required to complete a viability assessment.

(1) Systems applying for DWSRF loan funds.

(2) Systems categorized as being in SNC by the department, due to their history of failure to comply with drinking water standards.

(3) Systems identified by the department via a sanitary survey as having technical, managerial, or financial problems as evidenced by such conditions as poor operational control, a poor state of repair or maintenance, vulnerability to contamination, or inability to maintain adequate distribution system operating pressures.

(4) Systems that have been unable to retain a certified operator in accordance with 567—Chapter 81.

c. Forms. Viability assessment worksheets are available on the department's website at www.iowadnr.gov.

d. Review of required viability assessments.

(1) If the assessment is incomplete and does not include all of the required elements, the system will be notified in writing by the department and will be given an opportunity to modify and resubmit the assessment within the specified time period. If the system fails to resubmit a completed viability assessment as specified, the department may find that the system is nonviable.

(2) If the assessment is complete, the department will either indicate that the system is viable or nonviable after the assessment review process. The system will be notified of the results of the department's evaluation.

e. Review of voluntarily submitted viability assessments. All existing systems should complete a viability assessment and submit it to the department. Voluntarily submitted assessments may be reviewed upon request and will be exempt from any requirements to modify the assessment if it is not approved, or from a determination that the system is not viable, providing the system does not meet any of the criteria for mandatory completion of a viability assessment set forth in 43.8(4)*"b"* above.

43.8(6) *Nonviable systems.* The following applies to CWSs, NTNC, and TNCs:

a. Systems applying for DWSRF loan funds must be viable, or the loan funds must be used to assist the system in attaining viable status. If a system applying for a loan is found to be nonviable, and loan funds will not be sufficient or available to ensure viability, then the situation must be corrected to the department's satisfaction prior to qualification to apply for loan funds.

b. Systems that meet the department's SNC criteria are considered nonviable. The system's viability assessment and the most recent sanitary survey results will be evaluated by the department to assist the system in returning to and remaining in compliance, which would achieve viability. Required corrective actions will be specified in the system's operation

permit and will include a compliance schedule. Inspections will be conducted on an as-needed basis to assist the system in implementing the required improvements.

c. Systems experiencing technical, managerial, or financial problems as noted by the department in the sanitary survey will be considered nonviable. The system's viability assessment will be evaluated by the department to assist the system in attaining viability, and any required corrective actions will be specified in the system's operation permit.

d. Systems unable to retain a certified operator will be considered nonviable. All CWSs and NTNCs, and TNCs denoted by the department, must have a certified operator who meets the requirements of 567—Chapter 81. The system's viability assessment will be used to determine the source of the problem, and required corrective actions will be specified in the system's operation permit.

43.8(7) *Revocation or denial of operation or construction permit.*

a. Operation permit revocation or denial. Failure to correct the deficiencies regarding viability, as identified in a compliance schedule set by the department, may result in revocation or denial of a system's operation permit. If the department revokes or denies the operation permit, the system's owner must negotiate an alternative arrangement with the department for providing treatment or water supply services within 30 days of receipt of the notification unless the system's owner appeals the decision. The PWS is required to provide water that continually meets all health-based standards during the appeal process.

b. Denial of new construction permits for an existing system. In addition to the criteria provided in 567—Chapters 40 through 44, new construction permits for system improvements may be denied until a system makes the required corrections and attains viable status, unless the proposed project is necessary to attain viability.

c. Failure to conform or comply. Failure of a project to conform to approved construction plans and specifications, or failure to comply with 567—Chapters 40 through 44, constitutes

grounds for the director to withhold the applicable construction and operation permits. The system is then responsible for ensuring that the identified problem with the project is rectified so that permits may be issued. Once an agreement for correcting the problem is reached between the department and the system, the department will issue the appropriate permits according to the provisions of the agreement. If an agreement cannot be reached within a reasonable time period, the permits shall be denied.

d. Contents of denial notification. The notification of denial or withholding approval of the operation or construction permit will state the department's reasons for withholding or denying permit approval.

43.8(8) *Appeals.*

a. Request for formal review of viability determination. A person or entity who disagrees with the decision regarding the viability of a PWS may request a formal review of the action. A request for review must be submitted in writing to the director by the owner or their designee within 30 days of the viability decision.

b. Appeal of denial of operation or construction permit. A decision to deny an operation or construction permit may be appealed by the applicant to the commission pursuant to 567—Chapter 7. The appeal must be made in writing to the director within 30 days of receiving the notice of denial by the owner of the PWS.

567—43.9(455B) Enhanced filtration and disinfection requirements for SW and IGW systems serving at least 10,000 people.

43.9(1) *General requirements.*

a. Applicability. The requirements of this rule constitute national primary drinking water regulations. This rule establishes the filtration and disinfection requirements in addition to the filtration and disinfection requirements in 567—43.5(455B). This rule is applicable to all PWSs using SW or IGW, in whole or in part, and that serve at least 10,000 people. This rule

establishes or extends TT requirements in lieu of MCLs for the following contaminants: *Giardia lamblia*, viruses, HPC bacteria, *Legionella*, *Cryptosporidium*, and turbidity. Each SW or IGW system serving at least 10,000 people must provide treatment of its source water that complies with these TT requirements. The TT requirements consist of installing and properly operating water treatment processes that reliably achieve:

(1) At least 99 percent (2-log) removal of *Cryptosporidium* between a point where the raw water is not subject to recontamination by SW runoff and a point downstream before or at the first customer for filtered systems.

(2) Compliance with the profiling and benchmark requirements under 43.9(2).

(3) The department may require other SW or IGW systems to comply with this rule, through an operation permit.

b. Compliance determination. A PWS subject to this rule is considered in compliance with 43.9(1)*"a"* if it meets the applicable filtration requirements in either 43.5(3) or 43.9(3) and the disinfection requirements in 43.5(2) and 43.6(2).

c. Prohibition of new construction of uncovered intermediate or finished water storage facilities. Systems required to comply with this rule may construct only covered intermediate or finished water storage facilities. For the purposes of this rule, an intermediate storage facility is defined as a storage facility or reservoir after the clarification treatment process.

d. Systems with populations that increased after January 1, 2002, to more than 10,000 people served. Systems using SW or IGW sources that did not conduct optional monitoring under 43.9(2) because they served fewer than 10,000 persons when such monitoring was required, but serve more than 10,000 persons prior to January 1, 2005, must comply with 43.9(1), 43.9(3), 43.9(4), and 43.9(5). These systems must also consult with the department to establish a disinfection benchmark. A system that decides to make a significant change to

its disinfection practice as described in 43.9(2)*"c"*(1)"1" through "4" must consult with the department prior to making such a change.

43.9(2) *Disinfection profiling and benchmarking.*

a. Determination of systems required to profile. A PWS subject to this rule must determine its total trihalomethane (TTHM) and haloacetic acid (HAA5) annual averages using the procedures listed below. The annual average is the arithmetic average of the quarterly averages of four consecutive quarters of monitoring. Both TTHM and HAA5 samples must be collected as paired samples during the same time period in order for each parameter to have the same annual average period for result comparison. A paired sample is one that is collected at the same location and time and is analyzed for both TTHM and HAA5 parameters.

(1) Allowance of information collection rule data. Those systems that collected data under the federal Information Collection Rule in 40 CFR Part 141 must use the results of the TTHM and HAA5 samples collected during the last four quarters of monitoring required under 40 CFR §141.142. The system must have submitted the results of the samples collected during the last 12 months of required monitoring.

(2) Systems that have not collected TTHM and HAA5 data. Those systems that have not collected four consecutive quarters of paired TTHM and HAA5 samples as described above in 43.9(2)*"a"*(1) must comply with all other provisions of this subrule as if the HAA5 monitoring had been conducted and the results of that monitoring required compliance with 43.9(2)*"b."* The system that elects this option must notify the department in writing of its decision.

(3) The department may require that a system use a more representative annual data set than the data set determined under 43.9(2)*"a"*(1) to determine the applicability of this subrule.

(4) Profiling determination criteria. Any system having either a TTHM annual average greater than 0.064 mg/L or an HAA5 annual average greater than 0.048 mg/L during the period identified in 43.9(2)*"a"*(1) through 43.9(2)*"a"*(3) must comply with 43.9(2)*"b.*"

b. Disinfection profiling.

(1) Applicability. Any system that meet the criteria in 43.9(2)*"a"*(4) must develop a disinfection profile of its disinfection practice for a period of up to three years.

(2) Monitoring requirements. A system must monitor daily for a period of 12 consecutive calendar months to determine the total log inactivation for each day of operation, based on the $CT_{99.9}$ values in Tables 1 through 8 in Appendix A, as appropriate, through the entire treatment plant. A system must begin this monitoring as directed by the department. As a minimum, a system with a single point of disinfectant application prior to entrance to the distribution system must conduct the monitoring in "1" through "4" below. A system with more than one point of disinfectant application must conduct the monitoring in "1" through "4" below for each disinfection segment. A system must monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in 43.5(4)*"a,"* as follows:

1. The temperature of the disinfected water must be measured once per day at each RDC sampling point during peak hourly flow.

2. If the system uses chlorine, the pH of the disinfected water must be measured once per day at each chlorine RDC sampling point during peak hourly flow.

3. The disinfectant contact time(s) ("T") must be determined for each day during peak hourly flow.

4. The RDC(s) ("C") of the water before or at the first customer and prior to each additional point of disinfection must be measured each day during peak hourly flow.

(3) Use of existing data. A system that has existing operational data may use that data to develop a disinfection profile for additional years, in addition to the disinfection profile

generated under 43.9(2)*"b"*(2). Such systems may use these additional yearly disinfection profiles to develop a benchmark under 43.9(2)*"c."* The department must determine whether these operational data are substantially equivalent to data collected under 43.9(2)*"b"*(2). These data must be representative of inactivation through the entire treatment plant and not just of certain treatment segments.

(4) Calculation of the total inactivation ratio. The system must calculate the total inactivation ratio as follows, using the $CT_{99.9}$ values from Tables 1 through 8 listed in Appendix A:

1. If the system uses only one point of disinfectant application, it may determine the total inactivation ratio for the disinfection segment using either of the following methods:

- Determine one inactivation ratio ($CT_{calc}/CT_{99.9}$) before or at the first customer during peak hourly flow; or
- Determine successive $CT_{calc}/CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Under this alternative, the system must calculate the total inactivation ratio by determining ($CT_{calc}/CT_{99.9}$) for each sequence and then adding the ($CT_{calc}/CT_{99.9}$) values together to determine $\Sigma(CT_{calc}/CT_{99.9})$.

2. If the system uses more than one point of disinfectant application before the first customer, the system must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The $CT_{calc}/CT_{99.9}$ value of each segment and $\Sigma(CT_{calc}/CT_{99.9})$ must be calculated using a method above in 43.9(2)*"b"*(4)"1."

3. The system must determine the total log inactivation by multiplying the value calculated above in 43.9(2)*"b"*(4)"1" or "2" by 3.0.

(5) Systems using chloramines or ozone. A system that uses either chloramines or ozone for primary disinfection must also calculate the log inactivation for viruses using a department-approved method.

(6) Profile retention. The system must retain disinfection profile data in graphic form, as a spreadsheet, or in some other format acceptable to the department for review as part of sanitary surveys conducted by the department. The department may require the system to submit the data directly or as part of a MOR.

c. Disinfection benchmarking.

(1) Significant change to disinfection practice. Any system required to develop a disinfection profile under 43.9(2)*"a"* or *"b"* that decides to make a significant change to its disinfection practice must obtain department approval prior to making such change. Significant changes to disinfection practice are:

1. Changes to the point of disinfection;
2. Changes to the disinfectant(s) used in the treatment plant;
3. Changes to the disinfection process; and
4. Any other modification identified by the department.

(2) Calculation of the disinfection benchmark. Any system that is modifying its disinfection practice must calculate its disinfection benchmark using the procedure specified below:

1. For each year of profiling data collected and calculated under 43.9(2)*"b,"* the system must determine the lowest average monthly *Giardia lamblia* inactivation in each year of profiling data. The system must determine the average *Giardia lamblia* inactivation for each calendar month for each year of profiling data by dividing the sum of daily *Giardia lamblia* inactivation by the number of values calculated for that month.

2. The disinfection benchmark is the lowest monthly average value (for systems with one year of profiling data) or average of lowest monthly average values (for systems with more than one year of profiling data) of the monthly log inactivation of *Giardia lamblia* in each year of profiling data.

(3) A system that uses either chloramines or ozone for primary disinfection must also calculate the disinfection benchmark for viruses using a department-approved method.

(4) The system must submit the following information to the department as part of its consultation process:

1. A description of the proposed change;

2. The disinfection profile for *Giardia lamblia* (and, if necessary, viruses) under 43.9(2)*"b"* and the disinfection benchmark as required by 43.9(2)*"c"*(2); and

3. An analysis of how the proposed change will affect the current levels of disinfection.

43.9(3) *Filtration.*

a. Conventional filtration treatment or direct filtration. Turbidity measurements required by this paragraph shall be made in accordance with 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

(1) Turbidity requirement in 95 percent of samples. For systems using conventional filtration or direct filtration, the turbidity level of representative samples of a system's filtered water (CFE) must be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month.

(2) Maximum turbidity level. The turbidity level of representative samples of a system's filtered water (CFE) must at no time exceed 1 NTU in two consecutive 15 minute recordings. If at any time the CFE turbidity exceeds 1 NTU in two consecutive 15 minute recordings, the system must inform the department as soon as possible, but no later than 24 hours after the exceedance is known, in accordance with the PN requirements in 567—subparagraph 40.5(3)*"b"*(3).

b. Filtration technologies other than conventional, direct, slow sand, or diatomaceous earth. The department may allow a PWS to use a filtration technology not listed in 43.9(3)*"a"* or 43.5(3)*"c"* or *"d"* if it demonstrates to the department, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of 43.5(2), consistently achieves 99.9 percent removal or inactivation of *Giardia lamblia* cysts, 99.99 percent removal or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts, and the department approves the use of the filtration technology. For each approval, the department will set turbidity performance requirements that the system must meet at least 95 percent of the time and will require that the system not exceed at any time a level that consistently achieves 99.9 percent removal or inactivation of *Giardia lamblia* cysts, 99.99 percent removal or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts.

43.9(4) *Filtration sampling.*

a. Monitoring requirements for systems using filtration treatment. In addition to monitoring required by 43.5(4), a PWS subject to this rule that provides conventional filtration treatment or direct filtration must conduct continuous turbidity monitoring for each individual filter using an approved method in 43.5(4)*"a"*(1). Turbidity must be monitored according to a written turbidity protocol approved by the department and audited for compliance during sanitary surveys. Major elements of the protocol shall include, but are not limited to: sample measurement location; calibration method, frequency, standards, method of verification, and verification frequency; and data collection, recording frequency, and reporting. PWSs must calibrate turbidimeters at least every 90 days with a primary standard. The calibration of each turbidimeter used for compliance must be verified at least once per week with a primary standard, secondary standard, the manufacturer's proprietary calibration confirmation device, or by a department-approved method. If the verification is not within plus or minus 0.05 NTU

for measurements of less than or equal to 0.5 NTU, or within plus or minus 10 percent of measurements greater than 0.5 NTU, then the turbidimeter must be recalibrated. Systems must record the results of individual filter monitoring every 15 minutes.

b. Failure of the continuous turbidity monitoring equipment. If there is a failure in the continuous turbidity monitoring equipment, a system must conduct grab sampling every four hours in lieu of continuous monitoring until the turbidimeter is repaired and back online. A system has a maximum of five working days after failure to repair the equipment, or else it is in violation.

43.9(5) *Reporting and recordkeeping.*

a. Additional requirements. In addition to the reporting and recordkeeping requirements in 567—paragraph 40.8(3)*"c"*:

(1) A system subject to this rule that provides conventional filtration treatment or direct filtration must report monthly to the department the information in 43.9(5)*"b"* and *"c"*; and

(2) A system subject to this rule that provides filtration approved under 43.9(3)*"b"* must report monthly to the department the information in 43.9(5)*"b."*

b. Turbidity. Turbidity measurements required by 43.9(3) must be reported in a format acceptable to the department and within ten days after the end of each month that the system serves water to the public. This reporting is in lieu of the reporting specified in 567—subparagraph 40.8(3)*"c"*(1). Information that must be reported includes:

(1) The total number of filtered water (CFE) turbidity measurements taken during the month;

(2) The number and percentage of filtered water (CFE) turbidity measurements taken during the month that are less than or equal to the turbidity limits in 43.9(3)*"a"* or *"b"*; and

(3) The date and value of any CFE turbidity measurements taken during the month that exceed 1 NTU in two consecutive recordings taken 15 minutes apart for systems using

conventional filtration treatment or direct filtration or that exceed the maximum level set in 43.9(3)*"b."*

(4) The dates and summary of calibration and verification of all compliance turbidimeters.

c. Individual filter turbidity monitoring.

(1) Systems must maintain the results of individual filter turbidity per monitoring taken under 43.9(4) for at least three years.

(2) Systems must report to the department that they have conducted individual filter turbidity monitoring under 43.9(4) within ten days after the end of each month that the system serves water to the public.

(3) Systems must report to the department individual filter turbidity measurement results taken under 43.9(4) within ten days after the end of each month that the system serves water to the public only if measurements demonstrate one or more of the conditions in 43.9(5)*"c"*(5).

(4) Systems that use lime softening may apply to the department for alternative exceedance levels for the levels specified in 43.9(5)*"c"*(5) if they can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.

(5) In all of the following instances, the system must report the filter number, the turbidity measurement, and the date(s) when the exceedance occurred:

1. For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart. In addition, the system must either produce a filter profile for the filter within seven days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced, or report the obvious reason for the exceedance.

2. For any individual filter that has a measured turbidity level of greater than 0.5 NTU in two consecutive measurements taken 15 minutes apart anytime following the first four hours of continuous filter operation, after the filter has been backwashed or otherwise taken offline. In addition, the system must either produce a filter profile for the filter within seven days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced, or report the obvious reason for the exceedance.

3. For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each month of three consecutive months. In addition, the system must conduct a self-assessment of the filter within 14 days of the exceedance and report that the self-assessment was conducted. The self-assessment must consist of an assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-assessment report.

4. For any individual filter that has a measured turbidity level of greater than 2.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each month of two consecutive months. In addition, the system must arrange for a comprehensive performance evaluation to be conducted by the department or a department-approved third party no later than 30 days following the exceedance and have the evaluation completed and submitted to the department no later than 90 days following the exceedance.

d. Additional reporting requirement for turbidity combined filter effluent (CFE). In the following situations, the system must consult with the department as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the PN requirements under 567—subparagraph 40.5(3)*"b"*(3).

(1) In a system using conventional filtration treatment or direct filtration, if the turbidity exceeds 1 NTU in the CFE in two consecutive recordings taken 15 minutes apart.

(2) If at any time the turbidity in representative samples of filtered water (CFE) exceeds the maximum level in 43.9(3)*"b"* for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration.

567—43.10(455B) Enhanced filtration and disinfection requirements for SW and IGW systems serving fewer than 10,000 people.

43.10(1) *General requirements.*

a. Applicability. This rule constitutes national primary drinking water regulations, and it establishes requirements for filtration and disinfection in addition to the filtration and disinfection requirements in 567—43.5(455B). This rule is applicable beginning January 1, 2005, unless otherwise noted, to all PWSs using SW or IGW, in whole or in part, and that serve less than 10,000 people. This rule establishes or extends TT requirements in lieu of MCLs for the following contaminants: *Giardia lamblia*, viruses, HPC bacteria, *Legionella*, *Cryptosporidium*, and turbidity. The TT requirements consist of installing and properly operating water treatment processes that reliably achieve:

(1) At least 99 percent (2 log) removal of *Cryptosporidium* between a point where the raw water is not subject to recontamination by SW runoff and a point downstream before or at the first customer for filtered systems; and

(2) Compliance with the profiling and benchmark requirements in 43.10(2) and 43.10(3).

b. Prohibition of new construction of uncovered intermediate or finished water storage facilities. Systems required to comply with this rule may construct only covered intermediate or finished water storage facilities. For the purposes of this rule, an intermediate storage facility is defined as a storage facility or reservoir after the clarification treatment process.

43.10(2) *Disinfection profile.*

a. Applicability. A disinfection profile is a graphical representation of a system's level of *Giardia lamblia* or virus inactivation measured during the course of a year. All systems required to comply with this rule must develop a disinfection profile unless the department determines that such a profile is unnecessary. Records must be maintained according to 43.10(7).

(1) The department may approve the use of a more representative data set for disinfection profiling than the data set required in 43.10(2)*"b."*

(2) The department may determine that a disinfection profile is unnecessary only if a system's TTHM and HAA5 levels are below 0.064 mg/L and 0.048 mg/L, respectively. To determine these levels, TTHM and HAA5 samples must be collected during the month with the warmest water temperature and at the point of maximum residence time in the distribution system. The department may approve the use of a more representative annual data set to determine the applicability of this subrule. The annual data set must be calculated on an annual average using the arithmetic average of the quarterly averages of four consecutive quarters of monitoring. At least 25 percent of the samples collected in each quarter must be collected at the maximum residence time location in the distribution system.

(3) If a producing system that provides water to other PWSs meets the byproduct level requirements of less than 0.064 mg/L for TTHM and less than 0.048 mg/L for HAA5, it will not be required to develop a disinfection profile and benchmark unless:

1. The consecutive system cannot meet the byproduct level requirements of less than 0.064 mg/L for TTHM and less than 0.048 mg/L for HAA5 in its distribution system, and
2. The producing system wants to make a significant change to its disinfection practices.

b. Required elements of a disinfection profile.

(1) A system must monitor the following parameters to determine the total log inactivation using the analytical methods in 43.5(4)*"a,"* once per week on the same calendar day, over 12 consecutive months.

1. Temperature of the disinfected water at each RDC sampling point during peak hourly flow, measured in degrees Celsius;

2. For systems using chlorine, the pH of the disinfected water at each RDC sampling point during peak hourly flow, measured in standard pH units;

3. The disinfectant contact time ("T") during peak hourly flow, measured in minutes; and

4. The RDC(s) ("C") of the water following each point of disinfection at a point(s) prior to each subsequent point of disinfection and at the entry point to the distribution system or at a location just prior to the first customer during peak hourly flows, measured in mg/L.

(2) The data collected in 43.10(2)*"b"*(1) must be used to calculate the weekly log inactivation, along with the $CT_{99.9}$ tables in Appendix A. The system must calculate the total inactivation ratio as follows and multiply the value by 3.0 to determine log inactivation of *Giardia lamblia*.

1. If a system uses more than one point of disinfectant application before the first customer, the system must determine the ($CT_{calc}/CT_{99.9}$) value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The system must calculate the total inactivation ratio by determining ($CT_{calc}/CT_{99.9}$) for each sequence and then adding the ($CT_{calc}/CT_{99.9}$) values together to determine $\Sigma(CT_{calc}/CT_{99.9})$.

2. If the system uses only one point of disinfectant application, it must determine:

- One inactivation ratio ($CT_{calc}/CT_{99.9}$) before or at the first customer during peak hourly flow, or

- Successive ($CT_{calc}/CT_{99.9}$) values, representing sequential inactivation ratios, between the point of disinfection application and a point before or at the first customer during peak hourly flow. The total inactivation ratio must be calculated from the successive values by determining ($CT_{calc}/CT_{99.9}$) for each sequence and then adding the ($CT_{calc}/CT_{99.9}$) values together to determine $\Sigma(CT_{calc}/CT_{99.9})$.

3. If a system uses chloramines, ozone, or chlorine dioxide for primary disinfection, the system must also calculate the inactivation logs for viruses and develop an additional disinfection profile for viruses using department-approved methods.

(3) The weekly log inactivations are used to develop a disinfection profile by graphing each log inactivation data point versus time. Each log inactivation serves as a data point in the disinfection profile. The system will have obtained 52 measurements at a minimum, one for each week of the year.

(4) A disinfection profile depicts the variation of microbial inactivation over the course of the year. The system must retain the disinfection profile data both in a graphic form and in a spreadsheet, which must be available for review by the department. This profile is used to calculate a disinfection benchmark if the system is considering changes to its disinfection practices.

43.10(3) *Disinfection benchmark.*

a. Applicability. Any system required to develop a disinfection profile under 43.10(2) must develop a disinfection benchmark prior to making any significant change in disinfection practice. The system must receive department approval before any significant change in disinfection practice is implemented. Records must be maintained according to 43.10(7).

b. Significant changes. Significant changes to disinfection practice include:

(1) Changes to the point of disinfection;

(2) Changes to the disinfectant(s) used in the treatment plant;

(3) Changes to the disinfection process; or

(4) Any other modification identified by the department.

c. Disinfection benchmark calculation. Systems must calculate the disinfection benchmark in the following manner:

(1) Step 1. Using the data collected to develop the disinfection profile, determine the average *Giardia lamblia* inactivation for each calendar month by dividing the sum of all *Giardia lamblia* inactivations for that month by the number of values calculated for that month.

(2) Step 2. Determine the lowest monthly average value out of the 12 values. This value becomes the disinfection benchmark.

d. Information required for department approval of a change in disinfection practice. Systems must submit the following information to the department as part of the consultation and approval process.

(1) A description of the proposed change;

(2) The disinfection profile for *Giardia lamblia* and, if necessary, viruses;

(3) The disinfection benchmark;

(4) An analysis of how the proposed change will affect the current levels of disinfection; and

(5) Any additional information requested by the department.

e. Additional benchmarks if chloramines, ozone, or chlorine dioxide is used for primary disinfection. If a system uses chloramines, ozone, or chlorine dioxide for primary disinfection, the system must calculate the disinfection benchmark from the data collected for viruses to develop a disinfection profile. This viral benchmark must be calculated in addition to, and in the same manner as, the *Giardia lamblia* disinfection benchmark in 43.10(3)*"c."*

43.10(4) *Combined filter effluent (CFE) turbidity requirements.* All systems using SW or IGW that serve less than 10,000 people must use filtration, and the turbidity limits that must be met depend upon the type of filtration used.

a. Turbidity measurements. Turbidity must be measured in the CFE as described in 43.5(4)*"a"* and *"b."*

b. Turbidity monthly reporting. The monthly reporting requirements are in 43.10(6).

c. Conventional filtration treatment or direct filtration.

(1) The turbidity in the CFE must be less than or equal to 0.3 NTU in 95 percent of the turbidity measurements taken each month.

(2) The turbidity in the CFE must never exceed 1 NTU in two consecutive recordings taken 15 minutes apart during the month. If the CFE turbidity exceeds 1 NTU in two consecutive 15 minute recordings, the system must inform the department as soon as possible, but no later than 24 hours after the exceedance is known, in accordance with the PN requirements under 567—subparagraphs 40.5(3)*"b"*(3) and 40.5(2)*"a"*(8).

d. Slow sand filtration or diatomaceous earth filtration. The CFE turbidity limits of 43.5(3) must be met.

e. Other alternative filtration technologies. By using pilot studies or other means, a system using alternative filtration must demonstrate to the department's satisfaction that the system's filtration, in combination with disinfection treatment, consistently achieves 99 percent removal of *Cryptosporidium* oocysts; 99.9 percent removal, inactivation, or a combination of both, of *Giardia lamblia* cysts; and 99.99 percent removal, inactivation, or a combination of both, of viruses. The department will then use the pilot study data to determine system-specific turbidity limits.

(1) The turbidity must be less than or equal to a value set by the department in 95 percent of the CFE turbidity measurements taken each month, based on the pilot study.

(2) The CFE turbidity must never exceed a value set by the department, based on the pilot study. The value may not exceed 1 NTU in two consecutive recordings taken 15 minutes apart.

43.10(5) *Individual filter turbidity requirements.* All systems utilizing conventional filtration or direct filtration must conduct continuous turbidity monitoring for each individual filter. Turbidity must be monitored according to a written turbidity protocol approved by the department and audited for compliance during sanitary surveys. Major elements of the protocol shall include, but are not limited to: sample measurement location; calibration method, frequency, standards, method of verification, and verification frequency; and data collection, recording frequency, and reporting. Records must be maintained according to 43.10(7).

a. Continuous turbidity monitoring requirements.

(1) Conduct monitoring using an approved method listed in 43.5(4)*"a"*;

(2) Calibrate turbidimeters at least every 90 days with a primary standard. The calibration of each turbidimeter used for compliance must be verified at least once per week with a primary standard, secondary standard, the manufacturer's proprietary calibration confirmation device, or by a department-approved method. If the verification is not within plus or minus 0.05 NTU for measurements of less than or equal to 0.5 NTU, or within plus or minus 10 percent of measurements greater than 0.5 NTU, the turbidimeter must be recalibrated;

(3) Record turbidity monitoring results at least every 15 minutes; and

(4) Complete monthly reporting in accordance with 43.10(6).

b. Equipment failure. If there is a failure in the continuous turbidity monitoring equipment, a system must conduct grab sampling every four hours in lieu of continuous monitoring until the turbidimeter is back on-line. A system has a maximum of 14 days after failure to repair

the equipment, or else the system is in violation. The system must notify the department within 24 hours, both when a turbidimeter is taken off-line and when it is returned on-line.

c. Special provision for one-filter or two-filter systems. If a system has only one or two filters, it may conduct continuous monitoring of the CFE turbidity instead of individual effluent turbidity monitoring. The continuous monitoring must meet the requirements in 43.10(5)*"a"* and *"b."*

d. Alternative turbidity levels for systems using lime softening. Systems using lime softening may apply to the department for alternative turbidity exceedance levels for the levels specified in 43.10(5)*"e."* The system must be able to demonstrate to the department's satisfaction that higher turbidity levels are due to lime carryover only, and not due to degraded filter performance.

e. Requirements triggered by individual filter turbidity monitoring data. Systems must conduct additional activities based upon their individual filter turbidity monitoring data, as listed in this paragraph.

(1) If the turbidity of an individual filter (or the CFE turbidity for a system with one or two filters, pursuant to 43.10(5)*"c"*) exceeds 1.0 NTU in two consecutive recordings taken 15 minutes apart, a system must report the following information in the MOR to the department by the tenth day of the following month:

1. The filter number(s);
2. Corresponding date(s);
3. Turbidity value(s) which exceeded 1.0 NTU; and
4. The cause of the exceedance(s), if known.

(2) If the turbidity of an individual filter (or the CFE turbidity for a system with one or two filters, pursuant to 43.10(5)*"c"*) exceeds 1.0 NTU in two consecutive recordings 15 minutes apart in three consecutive months, a system must conduct a self-assessment of the filter(s)

within 14 days of the day the filter exceeded 1.0 NTU in two consecutive measurements for the third straight month, unless a comprehensive performance evaluation (CPE) as specified in the following subparagraph is required. Two-filter systems that monitor the CFE turbidity instead of the individual filters must conduct a self-assessment of both filters. The self-assessment must consist of the following:

1. Assessment of filter performance;
2. Development of a filter profile;
3. Identification and prioritization of factors limiting filter performance;
4. Assessment of the applicability of corrections;
5. Preparation of a filter self-assessment report;
6. Date the self-assessment requirement was triggered; and
7. Date the self-assessment was completed.

(3) If the turbidity of an individual filter (or the CFE turbidity for a system with one or two filters, pursuant to 43.10(5)*"c"*) exceeds 2.0 NTU in two consecutive recordings 15 minutes apart in two consecutive months, a system must arrange to have a CPE conducted by the department or a department-approved third party no later than 60 days following the day the filter exceeded 2.0 NTU in two consecutive measurements for the second straight month.

1. The CPE report must be completed and submitted to the department within 120 days following the day the filter exceeded 2.0 NTU in two consecutive measurements for the second straight month.

2. A new CPE is not required if a CPE has been completed by the department or a department-approved third party within the prior 12 months, or if the system and department are jointly participating in an ongoing comprehensive technical assistance project at the system.

(4) The department may conduct a CPE at a system regardless of individual filter turbidity levels.

43.10(6) *Reporting requirements.* Systems must report as follows:

a. CFE turbidity monitoring.

(1) The following information must be reported in the MOR to the department by the tenth day of the following month:

1. Total number of filtered water turbidity measurements taken during the month;

2. The number and percentage of filtered water turbidity measurements taken during the month that are less than or equal to the system's required 95th percentile limit;

3. The date and analytical result of any turbidity measurements taken during the month that exceeded the maximum turbidity limit for the system, in addition to the requirements of 43.10(6)*"a"*(2); and

4. The dates and summary of calibration and verification of all compliance turbidimeters.

(2) For an exceedance of the CFE maximum turbidity limit, as described below, the system must consult with the department as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the PN requirements under 567—subparagraph 40.5(3)*"b"*(3). Consultation is required if at any time the turbidity in representative samples of filtered water exceeds:

1. 1 NTU in the CFE in two consecutive recordings taken 15 minutes apart for systems using conventional filtration treatment or direct filtration;

2. The maximum level under 43.5(3) for slow sand filtration or diatomaceous earth filtration; or

3. The maximum level in 43.10(4)*"c"* for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration.

b. Individual filter effluent (IFE) turbidity monitoring. The following information must be reported in the MOR to the department by the tenth day of the following month, unless otherwise noted.

(1) That the system conducted individual filter turbidity monitoring during the month.

(2) For any filter that had two consecutive measurements taken 15 minutes apart that exceeded 1.0 NTU:

1. The filter number(s);
2. The corresponding dates;
3. The turbidity values that exceeded 1.0 NTU; and
4. The cause, if known, of the exceedance.

(3) If a self-assessment was required, the date it was triggered, and the date the assessment was completed. If the self-assessment requirement was triggered in the last four days of the month, the information must be reported to the department by the 14th day of the following month.

(4) If a CPE was required, the date it was triggered. A copy of the CPE report must be submitted to the department within 120 days of when the CPE requirement was triggered.

(5) The dates and summary of calibration and verification of all compliance turbidimeters.

c. Disinfection profiling. The following information must be reported to the department by January 1, 2004, for systems serving fewer than 500 people.

(1) Results of DBP monitoring that indicate TTHM levels less than 0.064 mg/L and HAA5 levels less than 0.048 mg/L; or

(2) That the system has begun to collect the profiling data.

d. Disinfection benchmarking. Before a system that was required to develop a disinfection profile makes a significant change to its disinfection practice, it must report the following

information to the department, and the system must receive department approval before any significant change in disinfection practice is implemented.

(1) Description of the proposed change in disinfection practice;

(2) The disinfection profile for *Giardia lamblia* and, if applicable, for viruses;

(3) The disinfection benchmark; and

(4) An analysis of how the proposed change will affect the current disinfection levels.

43.10(7) *Recordkeeping requirements.* Systems must meet the following recordkeeping requirements, in addition to the recordkeeping requirements in 567—paragraph 40.8(3)*"c"* and rule 567—40.9(455B).

a. IFE turbidity. The results of the IFE turbidity monitoring must be kept for at least three years.

b. Disinfection profiling and benchmarking. The results of the disinfection profile and disinfection benchmark, including raw data and analysis, must be kept indefinitely.

567—43.11(455B) Enhanced treatment for *Cryptosporidium*.

43.11(1) *Applicability.* The requirements of this rule are national primary drinking water regulations and establish or extend TT requirements in lieu of MCLs for *Cryptosporidium*. These requirements are in addition to the filtration and disinfection requirements of rules 567—43.5(455B), 567—43.9(455B) and 567—43.10(455B) and apply to all Iowa PWSs supplied by SW or IGW sources.

a. Wholesale systems. Wholesale systems must comply with these requirements based on the population of the largest system in the combined distribution system.

b. Filtered systems. This rule applies to those filtered systems that must provide filtration treatment pursuant to rule 567—43.5(455B), whether or not the system is currently operating a filtration system.

43.11(2) *General.* Systems subject to this rule must comply with the following:

a. Source water monitoring. Systems must conduct two rounds of source water monitoring for each plant that treats a SW or IGW source. This monitoring may include sampling for *Cryptosporidium*, *E. coli*, and turbidity, as described in 43.11(3), to determine what level, if any, of additional *Cryptosporidium* treatment the systems must provide.

b. Disinfection profiles and benchmarks. Systems planning to make a significant change to their disinfection practice must develop disinfection profiles and calculate disinfection benchmarks, as described in 43.11(4).

c. Treatment bin determination. Systems must determine their *Cryptosporidium* treatment bin classification and provide additional *Cryptosporidium* treatment, if required, according to the prescribed schedule.

d. Additional treatment. Systems required to provide additional *Cryptosporidium* treatment must implement microbial toolbox options as described in 43.11(8) through 43.11(13).

e. Recordkeeping and reporting. Systems must comply with the applicable recordkeeping and reporting requirements in 43.11(14) and 43.11(15).

f. Significant deficiencies. Systems must address significant deficiencies identified during sanitary surveys as described in 43.1(7).

43.11(3) *Source water monitoring.*

a. Schedule. Systems must conduct the source water monitoring no later than the month and year listed in Table 1. A system may avoid the source water monitoring if it provides a total of at least 5.5-log treatment for *Cryptosporidium*, equivalent to meeting the treatment requirements of Bin 4 in 43.11(6). The system must install and operate technologies to provide this level of treatment by the applicable treatment compliance date specified in 43.11(7).

Table 1: Source Water Monitoring Schedule

System	First round of monitoring	Second round of monitoring
Serves at least 100,000 people	October 2006	April 2015

Serves 50,000-99,999 people	April 2007	October 2015
Serves 10,000-49,999 people	April 2008	October 2016
Serves fewer than 10,000 people and only monitors *E. coli*	October 2008	October 2017
Serves fewer than 10,000 people and monitors *Cryptosporidium*	April 2010	April 2019

b. Monitoring requirements. The minimum monitoring requirements are listed below. Systems may sample more frequently, provided the sampling frequency is evenly spaced throughout the monitoring period.

(1) Serving at least 10,000 people. Systems serving at least 10,000 people must sample their source water for *Cryptosporidium*, *E. coli*, and turbidity at least monthly for 24 months.

(2) Serving fewer than 10,000 people. Systems serving fewer than 10,000 people are allowed to first conduct *E. coli* monitoring to determine if further *Cryptosporidium* monitoring is required.

1. Systems must sample their source water for *E. coli* at least once every two weeks for 12 months. If the annual mean *E. coli* concentration is at or below 100 *E. coli* per 100 mL, the system can avoid further *Cryptosporidium* monitoring in that sampling round.

2. A system may avoid *E. coli* monitoring if it notifies the department no later than three months prior to the *E. coli* monitoring start date that the system will conduct *Cryptosporidium* monitoring.

3. Systems that fail to conduct the required *E. coli* monitoring or that cannot meet the *E. coli* annual mean limit must conduct *Cryptosporidium* monitoring. The system must sample its source water for *Cryptosporidium* either at least twice per month for 12 months or at least monthly for 24 months.

4. A system that begins monitoring for *E. coli* and determines during the sampling period that the system mathematically cannot meet the applicable *E. coli* annual mean limit may discontinue the *E. coli* monitoring. The system is then required to start *Cryptosporidium* monitoring according to the schedule in Table 1.

(3) Plants operating only part of the year. Systems with SW or IGW treatment plants that operate for only part of the year must conduct source water monitoring in accordance with this rule, but with the following modifications.

1. Systems must sample their source water only during the months that the plant operates unless the department specifies another monitoring period based on plant operating practices.

2. Systems with plants that operate less than six months per year must collect at least six samples per year for two years. The samples must be evenly spaced throughout the period the plant operates.

(4) New sources. A system that begins using a new SW or IGW source after the dates in Table 1 must monitor according to a department-approved schedule and comply with this subrule. The system must also meet the requirements of the bin classification and *Cryptosporidium* treatment for the new source on a department-approved schedule. The system must conduct the second round of source water monitoring no later than six years following the initial bin classification or determination of the mean *Cryptosporidium* level, as applicable.

(5) Monitoring violation determination. Failure to collect any source water sample required under this subrule in accordance with the sampling plan, location, analytical method, approved laboratory, or reporting requirements of 43.11(3)*"c"* through *"e"* is a monitoring violation.

c. Sampling plan. Systems must submit a sampling plan that specifies the sampling locations in relation to the sources and treatment processes and the calendar dates of sample collection. The specific treatment process locations that must be included in the plan are pretreatment, points of chemical treatment, and filter backwash recycle.

(1) The sampling plan must be submitted in a form acceptable to the department no later than three months prior to the applicable monitoring date in Table 1. If the department does

not respond to a system regarding the submitted sampling plan prior to the start of the monitoring period, the system must sample according to the submitted plan.

(2) The system must monitor within two days of the date specified in the plan, unless one of the following conditions occurs.

1. If an extreme condition or situation exists that may pose danger to the sample collector, or that cannot be avoided, and causes the system to be unable to sample in the scheduled five-day period, the system must sample as close to the scheduled date as is feasible unless the department approves an alternative sampling date. The system must submit an explanation for the delayed sampling date to the department within one week of the missed sampling period. A replacement sample must be collected.

2. If a system is unable to report a valid analytical result for a scheduled sampling date due to equipment failure, loss of or damage to the sample, failure to comply with the analytical method or quality control requirements, or failure of the laboratory to analyze the sample, the system must notify the department of the cause of the delay and collect a replacement sample.

3. A replacement sample must be collected within 21 days of the scheduled sampling period or on the department-approved resampling date.

(3) Missed sampling dates. Systems that fail to collect source water samples on the dates specified in their sampling plan must revise their sampling plan to add collection dates all missed samples. The revised plan must be submitted to the department for approval prior to the collection of the missed samples.

d. Sampling locations. Systems must collect samples for each treatment plant that treats a SW or IGW source. If multiple plants draw water from the same influent (same pipe or intake), the department may approve one set of monitoring results to be used to satisfy the requirements for those plants.

(1) Chemical treatment location. Systems must collect source water samples prior to chemical treatment. If the system cannot feasibly collect a sample prior to chemical treatment, the department may grant approval in writing for sample collection after chemical treatment. This approval would only be granted if the department determines that sample collection prior to chemical treatment is not feasible for the system and that the chemical treatment is unlikely to have a significant adverse effect on the sample analysis.

(2) Filter backwash recycle return location. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition.

(3) Bank filtration credit sampling location.

1. Systems that receive *Cryptosporidium* treatment credit for bank filtration under 43.9(3)*"b"* or 43.10(4)*"c"* must collect source water samples in the SW source prior to bank filtration.

2. Systems that use bank filtration as pretreatment to a filtration plant must collect source water samples from the well, which is after bank filtration has occurred. Use of bank filtration during monitoring must be consistent with routine operational practice. Systems collecting samples after a bank filtration process may not receive treatment credit for the bank filtration under 43.11(10)*"c."*

(4) Multiple sources. Systems with plants that use multiple water sources, including multiple SW sources and blended SW and GW sources, must collect samples as follows:

1. The use of multiple sources during monitoring must be consistent with routine operational practice.

2. If a sampling tap is available where the sources are combined prior to treatment, the system must collect samples from that tap.

3. If a sampling tap where the sources are combined prior to treatment is not available, the system must collect samples at each source near the intake on the same day and must use either of the following options for sample analysis.

- Physically composite the source samples into a single sample for analysis. Systems may composite the sample from each source into one sample prior to analysis. The volume of the sample from each source must be weighted according to the proportion of the source in the total plant flow at the time of sample collection, or
- Analyze the samples from each source separately and mathematically composite the results by calculating a weighted average of the analytical results for each sampling date. Calculate the weighted average by multiplying the analytical result for each source by the fraction that source contributed to the total plant flow at the time of sample collection and summing the weighted analytical results.

e. Analytical methodology, laboratory certification, and data reporting requirements. Systems must have samples analyzed pursuant to this paragraph. The system must report, in a format acceptable to the department, the analytical results from the source water monitoring no later than ten days after the end of the first month following the month when the sample is collected.

(1) *Cryptosporidium* samples must be analyzed by a laboratory that is approved under EPA's Laboratory Quality Assurance Evaluation Program for Analysis of *Cryptosporidium* in Water.

1. Approved analytical methods for *Cryptosporidium*:

- "Method 1623: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/FA," 2005, EPA-815-R-05-002, www.nemi.gov;
- "Method 1622: *Cryptosporidium* in Water by Filtration/IMS/FA," 2005, EPA-815-R-05-001, www.nemi.gov; and

- "Method 1623.1: *Cryptosporidium* and *Giardia* in Water by Filtration/Immunomagnetic Separation/Immunofluorescence Assay Microscopy," 2012, EPA-816-R-12-001, www.nepis.epa.gov.

2. Using one of the approved methods, the laboratory must analyze at least a 10 L sample or a packed pellet volume of at least 2 mL. Systems unable to process a 10 L sample must analyze as much sample volume as can be filtered by two filters specified in the method, up to a packed pellet volume of at least 2 mL.

3. A matrix spike (MS) sample must be spiked and filtered by the laboratory according to the approved method. If the volume of the MS sample is greater than 10 L, the system may filter all but 10 L of the MS sample in the field and ship the filtered sample and the remaining 10 L of source water to the laboratory. In this case, the laboratory must spike the remaining 10 L of water and filter it through the filter used to collect the balance of the sample in the field.

4. Flow cytometer-counted spiking suspensions must be used for the MS samples and the ongoing precision and recovery samples.

5. The following data must be reported for each *Cryptosporidium* analysis:

- PWS ID.
- Facility ID.
- Sample collection date.
- Sample type (i.e., field or MS).
- Sample volume filtered (L), to the nearest 0.25 L.
- Whether 100 percent of the filtered volume was examined by the laboratory.
- Number of oocysts counted.
- For MS samples: sample volume spiked and estimated number of oocysts spiked.

- For samples in which less than 10 L is filtered or less than 100 percent of the sample volume is examined: the number of filters used and the packed pellet volume.
- For samples in which less than 100 percent of sample volume is examined: the volume of resuspended concentrate and the volume of this resuspension processed through immunomagnetic separation.

(2) *E. coli* samples must be analyzed by a laboratory certified by EPA, the National Environmental Laboratory Accreditation Conference, or the department for total coliform or fecal coliform analysis in drinking water samples using the same approved *E. coli* method for the source water analysis.

1. Approved analytical methods for the enumeration of *E. coli* in source water are shown in Table 2.

Table 2: *E. coli* Analytical Methods

Method	EPA	SM	Other
Most probable number (MPN) with multiple tube or multiple well[1, 2]		9223 B[11]	991.15[4], Colilert[3, 5] Colilert-18[3, 5, 6]
Membrane filtration, single step[1, 7, 8]	1603[9]		m-ColiBlue24[10]
Membrane filtration, two step		9222D/9222G[12]	

[1]Tests must be conducted to provide organism enumeration (i.e., density). Select the appropriate configuration of tubes/filtrations and dilutions/volumes to account for the quality, consistency, and anticipated organism density in the water sample.

[2]Enumerate samples using the multiple-tube or multiple-well procedure. Using multiple-tube procedures, employ an appropriate tube and dilution configuration of the sample as needed and report the MPN. Samples tested with Colilert® may be enumerated with the multiple-well procedures, Quanti-Tray®, Quanti-Tray® 2000, and the MPN calculated from the table provided by the manufacturer.

[3]These tests are collectively known as defined enzyme substrate tests, where, for example, a substrate is used to detect the enzyme beta-glucouronidase produced by *E. coli*.

[4]Association of Official Analytical Chemists, International. "Official Methods of Analysis of AOAC International, 16th Ed., Volume 1, Chapter 17, 1995. AOAC, 481 N. Frederick Ave., Suite 500, Gaithersburg, MD 20877-2417.

[5]Descriptions of the Colilert®, Colilert-18®, Quanti-Tray®, and Quanti-Tray® 2000 may be obtained from IDEXX Laboratories, Inc., 1 IDEXX Drive, Westbrook, ME 04092.

[6]Colilert-18® is an optimized formulation of the Colilert® for the determination of total coliforms and *E. coli* that provides results within 18 hours of incubation at 35 degrees Celsius rather than the 24 hours required for the Colilert® test.

[7]The filter must be a 0.45 micron membrane filter or a membrane filter with another pore size certified by the manufacturer to fully retain cultivated organisms and to be free of extractables that could interfere with organism growth.

[8]When the membrane filter method has been used previously to test waters with high turbidity or large numbers of noncoliform bacteria, a parallel test should be conducted with a multiple-tube technique to demonstrate applicability and comparability of results.

[9]Method 1603: *Escherichia coli* (*E. coli*) in Water by Membrane Filtration Using Modified Membrane-Thermotolerant *Escherichia coli* Agar (modified mTEC), July 2006, EPA 821-R-06-011, www.nepis.epa.gov.

[10]A description of the m-ColiBlue24® test, Total Coliforms and *E. coli*, Hach Company, 100 Dayton Ave., Ames, IA 50010.

[11]SM 18th (1992), 19th (1995), and 20th (1998) editions.

[12]SM, 20th edition (1998).

2. The holding time (the time period from sample collection to initiation of analysis) shall not exceed 30 hours. The department may approve a 48-hour holding time on a case-by-case basis, if the 30-hour holding time is not feasible. If an extension is allowed, the laboratory must use the Colilert® reagent version of the SM 9223B to conduct the analysis.

3. The samples must be maintained between 0 and 10 degrees Celsius during storage and transit to the laboratory.

4. The following data must be reported for each *E. coli* analysis:

- PWS ID.
- Facility ID.
- Sample collection date.
- Analytical method number.
- Method type.
- Source type (flowing stream or river; lake or reservoir; or IGW).
- Number of *E. coli* per 100 mL.

- Turbidity in NTU.

(3) Turbidity. The approved analytical methods for turbidity are in 43.5(4)*"a"*(1). Turbidity measurements must be made by a party approved by the department, and reported on the laboratory data sheet with the corresponding *E. coli* sample.

43.11(4) *Disinfection profiling and benchmarking.*

a. General requirements. Following completion of the first round of source water monitoring, a system that plans to make a significant change to its disinfection practice must develop disinfection profiles and calculate disinfection benchmarks for *Giardia lamblia* and viruses.

(1) A system must notify the department prior to changing its disinfection practice and must include in the notice the completed disinfection profile and disinfection benchmark for *Giardia lamblia* and viruses, a description of the proposed change in disinfection practice, and an analysis of how the proposed change will affect the current level of disinfection.

(2) A significant change to the disinfection practice is defined as:

1. Any change to the point of disinfection;

2. Any change to the disinfectant(s) used in the treatment plant;

3. Any change to the disinfection process; or

4. Any other modification identified by the department as a significant change to disinfection practice.

b. Developing a disinfection profile. To develop a disinfection profile, a system must monitor at least weekly for a period of 12 consecutive months to determine the total log inactivation for *Giardia lamblia* and viruses. If a system monitors more frequently, the frequency must be evenly spaced. A system that operates for fewer than 12 months per year must monitor weekly during the operation period. Systems must determine log inactivation for *Giardia lamblia* through the entire plant, based on $CT_{99.9}$ values in Appendix A, Tables 1

through 6, as applicable. Systems must determine log inactivation for viruses through the entire treatment plant based on a department-approved protocol.

(1) Monitoring requirements. Systems with a single point of disinfectant application prior to the entrance to the distribution system must conduct the monitoring in this subparagraph. Systems with multiple points of disinfectant application must conduct the same monitoring for each disinfection segment. Systems must monitor the parameters necessary to determine the total inactivation ratio. The analytical methods for the parameters are n 43.5(4)*"a."* All measurements must be taken during peak hourly flow.

1. For systems using a disinfectant other than UV, the temperature of the disinfected water must be measured in degrees Celsius at each RDC sampling point or at an alternative department-approved location.

2. For systems using chlorine, the pH of the disinfected water must be measured at each chlorine RDC sampling point or at an alternative department-approved location.

3. The disinfectant contact time must be determined in minutes.

4. The RDCs of the water must be determined in mg/L before or at the first customer and prior to each additional point of disinfectant application.

5. A system may use existing data to meet the monitoring requirements if: the data are substantially equivalent to the required data, it has not made any significant change to its treatment practice, and it has the same source water as it had when the data were collected. Systems may develop disinfection profiles using up to three years of existing data.

6. A system may use disinfection profiles developed under 43.9(2) or 43.10(2) if it has not made a significant change to its treatment practice and has the same source water as it had when the profile was developed. The virus profile must be developed using the same data on which the *Giardia lamblia* profile is based.

(2) Total inactivation ratio calculation for *Giardia lamblia*.

1. Systems using only one point of disinfectant application may determine the total inactivation ratio ($CT_{calc}/CT_{99.9}$) for the disinfection segment using either of the following methods.

- Determine one inactivation ratio before or at the first customer during peak hourly flow; or
- Determine successive sequential inactivation ratios between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Calculate the total inactivation ratio by determining the inactivation ratio for each sequence ($CT_{calc}/CT_{99.9}$) and adding the values together.

2. Systems using more than one point of disinfectant application before the first customer must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. Calculate the ($CT_{calc}/CT_{99.9}$) value of each segment and add the values together to determine the total inactivation ratio.

3. Systems must then determine the total logs of inactivation by multiplying the total inactivation ratio by 3.0.

(3) Total inactivation ratio calculation for viruses. The system must calculate the log of inactivation for viruses using a department-approved protocol.

c. Disinfection benchmark calculation.

(1) For each year of profiling data collected and calculated under this subrule, systems must determine the lowest mean monthly level of both *Giardia lamblia* and virus inactivation. Systems must determine the mean *Giardia lamblia* and virus inactivation for each calendar month for each year of profiling data by dividing the sum of daily or weekly *Giardia lamblia* and virus log inactivation by the number of values calculated for that month.

(2) For a system with one year of profiling data, the disinfection benchmark is the lowest monthly mean value. For a system with more than one year of profiling data, the disinfection benchmark is the mean of the lowest monthly mean values of *Giardia lamblia* and virus log inactivation in each year of profiling data.

43.11(5) *Bin classification.* Upon completion of the first round of source water monitoring, systems must calculate an initial *Cryptosporidium* bin concentration for each plant for which monitoring was required. Calculation of the bin concentration must use the *Cryptosporidium* results reported under 43.11(3)*"a."*

a. Calculation of mean Cryptosporidium or bin concentration value.

(1) For systems that collect a total of at least 48 samples, the bin concentration is equal to the arithmetic mean of all sample concentrations.

(2) For systems that collect at least 24 samples but not more than 47 samples, the bin concentration is equal to the highest arithmetic mean of all sample concentrations in any 12 consecutive months during which *Cryptosporidium* samples were collected.

(3) For systems that serve fewer than 10,000 people and monitor *Cryptosporidium* for only one year (i.e., 24 samples in 12 months), the bin concentration is equal to the arithmetic mean of all sample concentrations.

(4) For systems with plants operating only part of the year that monitor fewer than 12 months per year, the bin concentration is equal to the highest arithmetic mean of all sample concentrations during any year of *Cryptosporidium* monitoring.

(5) If the monthly *Cryptosporidium* sampling frequency varies, systems must first calculate a monthly average for each month of monitoring. Systems must then use these monthly average concentrations, rather than individual sample concentrations, in the applicable calculation for bin classification.

b. Determination of bin classification.

(1) First monitoring round. A system must determine the bin classification from Table 3, using its calculated bin concentration from 43.11(5)*"a."*

Table 3: Bin Classification Table

System Type	*Cryptosporidium* Concentration, in oocysts/L	Bin Classification
Systems required to monitor for *Cryptosporidium* under 43.11(3)*"b"*(1) or 43.11(3)*"b"*(2)"3"	Fewer than 0.075 oocysts/L	Bin 1
	Between 0.075 and fewer than 1.0 oocysts/L	Bin 2
	Between 1.0 and fewer than 3.0 oocysts/L	Bin 3
	3.0 oocysts/L or greater	Bin 4
Systems serving fewer than 10,000 and not required to monitor for *Cryptosporidium*, pursuant to 43.11(3)*"b"*(2)"1"	Not applicable	Bin 1

(2) Second monitoring round. Following completion of the second round of source water monitoring, a system must recalculate its bin concentration and determine its new bin classification, using the protocols in 43.11(5)*"a"* and *"b."*

c. Reporting bin classification to the department. Within six months of the end of the sampling period, the system must report its bin classification to the department for approval. The report must include a summary of the source water monitoring data and the calculation procedure used to determine the bin classification.

d. TT violation. Failure to comply with 43.11(5)*"b"* and *"c"* is a violation of the TT requirement.

43.11(6) *Additional Cryptosporidium treatment requirements.* A system must provide the level of additional *Cryptosporidium* treatment specified in Table 4 based on its bin classification determined in 43.11(5) and according to the schedule in 43.11(7).

a. Determination of additional requirements. Using Table 4, a system must determine any additional *Cryptosporidium* treatment requirements based upon its bin classification. The Bin 1 classification does not require any additional treatment. Bins 2 through 4 require additional treatment.

Table 4: Additional *Cryptosporidium* Treatment Requirements

Bin Classification	Treatment Used by the System for Compliance with 43.5, 43.9, and 43.10

	Conventional filtration (including softening)	Direct filtration	Slow sand or diatomaceous earth filtration	Alternative filtration technologies
Bin 1	No additional treatment	No additional treatment	No additional treatment	No additional treatment
Bin 2	1-log treatment	1.5-log treatment	1-log treatment	At least 4.0-log[1]
Bin 3	2-log treatment	2.5-log treatment	2-log treatment	At least 5.0-log[1]
Bin 4	2.5-log treatment	3-log treatment	2.5-log treatment	At least 5.5-log[1]

[1]The total *Cryptosporidium* removal and inactivation must be at least this value, as determined by the department.

b. Treatment requirements for Bins 2 through 4. A system that is classified as Bin 2, 3, or 4 must use one or more of the treatment and management options in 43.11(8) to comply with the additional *Cryptosporidium* treatment requirements. Systems classified as Bins 3 and 4 must achieve at least 1-log of additional *Cryptosporidium* treatment by using either one or a combination of the following: bag filters, bank filtration, cartridge filters, chlorine dioxide, membranes, ozone, or UV, as listed in 43.11(9) through 43.11(13).

c. TT violation. Failure by a system in any month to achieve treatment credit by meeting criteria in 43.11(9) through 43.11(13) that is at least equal to the level of treatment required in 43.11(6)*"a"* is a violation of the TT requirement.

d. Significant changes to the watershed. If, after the system's completion of source water monitoring (either round), the department determines during a sanitary survey or an equivalent source water assessment that significant changes occurred in the system's watershed that could lead to increased contamination of the source water by *Cryptosporidium*, the system must take department-specified actions to address the contamination. These actions may include additional source water monitoring or implementation of the microbial toolbox options in 43.11(8).

43.11(7) *Schedule for compliance with Cryptosporidium treatment.* Following the initial bin classification under 43.11(5), systems must provide the level of *Cryptosporidium* treatment required in 43.11(6), according to the schedule in Table 5. If a system's bin classification changes following the second round of source water monitoring, the system

must provide the level of *Cryptosporidium* treatment required in 43.11(6), on a department-approved schedule.

Table 5: *Cryptosporidium* Treatment Compliance Dates

Schedule	Population Served by System	Compliance Date for *Cryptosporidium* treatment requirements[1]
1	At least 100,000 people	April 1, 2012
2	From 50,000 to 99,999 people	October 1, 2012
3	From 10,000 to 49,999 people	October 1, 2013
4	Fewer than 10,000 people	October 1, 2014

[1]The department may allow up to an additional two years for compliance with the treatment requirement if the system must make capital improvements.

43.11(8) *Microbial toolbox options for meeting Cryptosporidium treatment requirements.* Systems receive the treatment credits listed in Table 6 by meeting the conditions for microbial toolbox options described in 43.11(9) through 43.11(13). Systems apply these treatment credits to meet the treatment requirements in 43.11(6). Table 6 summarizes options in the microbial toolbox.

Table 6: Microbial Toolbox Summary Table: Options, Treatment Credits, and Criteria

Toolbox Option	Specific Criteria Rule	*Cryptosporidium* treatment credit with design and implementation criteria
Source Protection and Management Toolbox Options		
Watershed control program (WCP)	43.11(9)	0.5-log credit for department-approved program comprising required elements, annual program status report to department, and regular watershed survey.
Alternative source/intake management	43.11(9)*"b"*	No prescribed credit. Systems may conduct simultaneous monitoring for treatment bin classification at alternative intake locations or under alternative intake management strategies.
Prefiltration Toolbox Options		
Presedimentation basin with coagulation	43.11(10)*"a"*	0.5-log credit during any month that presedimentation basins achieve a monthly mean reduction of 0.5-log or greater in turbidity or alternative department-approved performance criteria. To be eligible, basins must be operated continuously with coagulant addition and all plant flow must pass through the basins.
Two-stage lime softening	43.11(10)*"b"*	0.5-log credit for two-stage softening where chemical addition and hardness precipitation occur in both stages. All plant flow must pass through both stages. Single-stage softening is credited as equivalent to conventional treatment.
Bank filtration	43.11(10)*"c"*	0.5-log credit for 25-foot setback; 1.0-log credit for 50-foot setback; aquifer must be unconsolidated sand containing at least 10 percent fines; average turbidity in wells must be less than 1 NTU. A system using a well followed by filtration when conducting source water monitoring must sample the well to determine bin classification and is not eligible for additional credit.
Treatment Performance Toolbox Options		
Combined filter performance	43.11(11)*"a"*	0.5-log credit for CFE turbidity less than or equal to 0.15 NTU in at least 95 percent of measurements each month.

Individual filter performance	43.11(11)*"b"*	0.5-log credit (in addition to the 0.5-log combined filter performance credit) if IFE turbidity is less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter and is never greater than 0.3 NTU in two consecutive measurements in any filter.
Demonstration of performance	43.11(11)*"c"*	Credit awarded to unit process or treatment train based on a demonstration to the department with a department-approved protocol.
Additional Filtration Toolbox Options		
Bag or cartridge filters (individual filters)	43.11(12)*"a"*	Up to 2-log credit based on the removal efficiency demonstrated during challenge testing with a 1.0-log factor of safety.
Bag or cartridge filters (in series)	43.11(12)*"a"*	Up to 2.5-log credit based on the removal efficiency demonstrated during challenge testing with a 0.5-log factor of safety.
Membrane filtration	43.11(12)*"b"*	Log credit equivalent to removal efficiency demonstrated in challenge test for device if supported by direct integrity testing.
Second-stage filtration	43.11(12)*"c"*	0.5-log credit for second separate granular media filtration stage if treatment train includes coagulation prior to first filter.
Slow sand filtration	43.11(12)*"d"*	2.5-log credit as a secondary filtration step; 3.0-log credit as a primary filtration process. No prior chlorination for either option.
Inactivation Toolbox Options		
Chlorine dioxide	43.11(13)	Log credit based on measured CT in relation to CT table.
Ozone	43.11(13)	Log credit based on measured CT in relation to CT table.
UV	43.11(13)	Log credit based on validated UV dose in relation to UV dose table; reactor validation testing required to establish UV dose and associated operating conditions.

43.11(9) *Source toolbox components.*

a. Watershed control program (WCP). Systems receive 0.5-log *Cryptosporidium* treatment credit for implementing a WCP that meets the requirements of this paragraph.

(1) Notification. Systems that intend to apply for the WCP credit must notify the department of this intent no later than two years prior to the applicable treatment compliance date in 43.11(7).

(2) Proposed watershed control plan. Systems must submit a proposed watershed control plan to the department no later than one year before the applicable treatment compliance date in 43.11(7). The department must approve the plan for the system to receive WCP treatment credit. The plan must include the following:

1. Identification of an "area of influence" outside of which the likelihood of *Cryptosporidium* or fecal contamination affecting the treatment plant intake is not significant. This is the area to be evaluated in future watershed surveys under 43.11(9)*"a"*(5)"2."

2. Identification of both potential and actual sources of *Cryptosporidium* contamination and an assessment of the relative impact of these sources on the system's source water quality.

3. An analysis of the effectiveness and feasibility of control measures that could reduce *Cryptosporidium* loading from sources of contamination to the system's source water.

4. A statement of goals and specific actions the system will undertake to reduce source water *Cryptosporidium* levels. The plan must explain how the actions are expected to contribute to specific goals, identify watershed partners and their roles, identify resource requirements and commitments, and include a schedule for plan implementation with deadlines for completing specific actions.

(3) Existing WCPs. Systems with WCPs that were in place on January 5, 2006, are eligible to seek this credit. The systems' watershed control plans must meet the criteria in 43.11(9)*"a"*(2) and must specify ongoing and future actions that will reduce source water *Cryptosporidium* levels.

(4) Department response to plan. If the department does not respond to a system regarding approval of a watershed control plan submitted under this subrule and the system meets the other requirements of this subrule, the WCP will be considered approved and 0.5-log *Cryptosporidium* treatment credit will be awarded unless and until the department subsequently withdraws such approval.

(5) System requirements to maintain 0.5-log credit. Systems must complete the following actions to maintain the 0.5-log credit.

1. Submit an annual WCP status report to the department. The WPC status report must describe the system's implementation of the approved plan and assess the adequacy of the plan to meet its goals. The report must explain how the system is addressing any shortcomings in plan implementation, including those previously identified by the department or as a result of the watershed survey conducted under 43.11(9)*"a"*(5)"2." It must also describe any significant watershed changes that have occurred since the last watershed sanitary survey. If a system determines during implementation that significant changes to its approved WCP are

necessary, it must notify the department prior to making the changes. If a program change is likely to reduce the level of source water protection, the system must list in its notification the actions the system will take to mitigate this effect.

2. Undergo a watershed sanitary survey every three years for CWSs and every five years for NTNCs or TNCs and submit the survey report to the department. Surveys must be conducted according to department guidelines and by persons acceptable to the department.

- A watershed sanitary survey must encompass the region identified in the department-approved watershed control plan as the area of influence; assess the implementation of actions to reduce source water *Cryptosporidium* levels; and identify any significant new sources of *Cryptosporidium*.
- If the department determines that significant changes may have occurred in the watershed since the previous watershed sanitary survey, systems must undergo another watershed sanitary survey by the department-specified date, which may be earlier than the regular three- or five-year frequency.

3. Systems must make the watershed control plan, annual status reports, and watershed sanitary survey reports available to the public upon request. These documents must be in plain language and include criteria to evaluate the success of the WCP in achieving plan goals. The department may approve systems to withhold portions of the plan or the reports from the public, based on security considerations.

(6) Withdrawal of WCP treatment credit. If the department determines that a system is not carrying out the approved watershed control plan, it may withdraw the WCP treatment credit.

b. Alternative source. Systems may conduct source water monitoring that reflects a different intake location (either in the same source or for an alternate source) or a different procedure for the timing or level of withdrawal from the source (alternative source

monitoring). If the department approves, a system may determine its bin classification under 43.11(5) based on alternative source monitoring results.

(1) Systems conducting alternative source monitoring must also monitor their current plan intake concurrently, as described in 43.11(3).

(2) Alternative source monitoring must meet the requirements for source monitoring to determine bin classification, as described in 43.11(3). Systems must report the alternative source monitoring results to the department and provide supporting information documenting the operating conditions during sample collection.

(3) If a system determines its bin classification under 43.11(5) using alternative source monitoring results that reflect a different intake location or a different procedure for managing the timing or level of withdrawal from the source, it must relocate the intake or permanently adopt the withdrawal procedure, as applicable, no later than the applicable treatment compliance date in 43.11(7).

43.11(10) *Prefiltration treatment toolbox components.*

a. Presedimentation. Systems receive 0.5-log *Cryptosporidium* treatment credit for a presedimentation basin during any month the process meets the criteria in this paragraph.

(1) The presedimentation basin must be in continuous operation and must treat the entire plant flow taken from a SW or IGW source.

(2) The system must continuously add a coagulant to the presedimentation basin.

(3) The presedimentation basin must achieve either of the following performance criteria:

1. Demonstrates at least 0.5-log mean reduction of influent turbidity, determined by using daily turbidity measurements in the presedimentation process influent and effluent, and calculated as follows: LOG_{10}(monthly mean of daily influent turbidity) – LOG_{10}(monthly mean of daily effluent turbidity); or

2. Complies with department-approved performance criteria that demonstrate at least 0.5-log mean removal of micron-sized particulate material through the presedimentation process.

b. Two-stage lime softening. Systems receive an additional 0.5-log *Cryptosporidium* treatment credit for a two-stage lime softening plant if chemical addition and hardness precipitation occur in two separate and sequential softening stages prior to filtration. Both softening stages must treat the entire plant flow taken from a SW or IGW source.

c. Bank filtration. Systems receive *Cryptosporidium* treatment credit for bank filtration that serves as pretreatment to a filtration plant by meeting the criteria in this paragraph. Systems using bank filtration when beginning source water monitoring under 43.11(3)*"a"* must collect samples as described in 43.11(3)*"d"*(3) and are not eligible for this credit.

(1) Treatment credit. Wells with a GW flow path of at least 25 feet receive 0.5-log treatment credit; wells with a GW flow path of at least 50 feet receive 1.0-log treatment credit. The GW flow path must be determined as specified in 43.11(10)*"c"*(4).

(2) Credit eligibility. Only horizontal and vertical wells in granular aquifers are eligible for treatment credit. Granular aquifers are those comprised of sand, clay, silt, rock fragments, pebbles or larger particles, and minor cement. A system must characterize the aquifer at the well site to determine aquifer properties. Systems must extract a core from the aquifer and demonstrate that in at least 90 percent of the core length, grains less than 1.0 mm in diameter constitute at least 10 percent of the core material.

(3) GW flow path measurement. For vertical wells, the GW flow path is the measured distance from the edge of the surface water body under high flow conditions (determined by the 100-year floodplain elevation boundary or by the floodway, as defined in Federal Emergency Management Agency flood hazard maps) to the well screen. For horizontal wells, the GW flow path is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen.

(4) Turbidity monitoring at the wellhead. Systems must monitor each wellhead for turbidity at least once every four hours while the bank filtration process is in operation. If monthly average turbidity levels, based on daily maximum values in the well, exceed 1 NTU, the system must report this result to the department and conduct an assessment within 30 days to determine the cause of the high turbidity levels in the well. If the department determines that microbial removal has been compromised, it may revoke treatment credit until the system implements department-approved corrective actions to remediate the problem.

(5) Springs and infiltration galleries. This treatment credit is not eligible for springs and infiltration galleries. Springs and infiltration galleries are eligible for credit through demonstration of performance study under 43.11(11)*"c."*

(6) Bank filtration demonstration of performance. The department may approve *Cryptosporidium* treatment credit for bank filtration based on a demonstration of performance study that meets the criteria in this subparagraph. This treatment credit may be greater than 1.0-log and may be awarded to bank filtration that does not meet the criteria in 43.11(10)*"c"*(1) to (5). The study must:

1. Follow a department-approved protocol;

2. Involve the collection of data on the removal of *Cryptosporidium* or a surrogate for *Cryptosporidium* and related hydrogeologic and WQPs during the full range of operating conditions; and

3. Include sampling both from the production well(s) and from monitoring wells that are screened and located along the shortest flow path between the SW source and the production well(s).

43.11(11) *Treatment performance toolbox components.* This option pertains to physical treatment processes.

a. Combined filter performance. Systems using conventional filtration treatment or direct filtration treatment receive an additional 0.5-log *Cryptosporidium* treatment credit during any month the system meets the criteria in this paragraph. CFE turbidity must be less than or equal to 0.15 NTU in at least 95 percent of the measurements. Turbidity must be measured as described in 43.5(4) and, if applicable, 43.10(4).

b. Individual filter performance. Systems using conventional filtration treatment or direct filtration treatment receive 0.5-log *Cryptosporidium* treatment credit during any month the system meets the criteria in this paragraph, which can be in addition to the CFE 0.5-log credit from 43.11(11)*"a."* Compliance with these criteria must be based on individual filter turbidity monitoring as described in 43.9(4) or 43.10(5), as appropriate.

(1) The filtered water turbidity for each individual filter must be less than or equal to 0.15 NTU in at least 95 percent of the measurements recorded each month.

(2) No individual filter may have a measured turbidity greater than 0.3 NTU in two consecutive measurements taken 15 minutes apart.

(3) Any system that has received treatment credit for individual filter performance and fails to meet the requirements of 43.11(11)*"b"*(2) and 43.11(11)*"b"*(3) during any month shall not receive a TT violation under 43.11(6) if the department determines the following:

1. The failure was due to unusual and short-term circumstances that could not reasonably be prevented through optimizing the treatment plant design, operation, and maintenance.

2. The system has experienced no more than two such failures in any calendar year.

c. Demonstration of performance. The department may approve *Cryptosporidium* treatment credit for drinking water treatment processes based on a demonstration of performance study meeting the criteria in this paragraph. This treatment credit may be greater than or less than the prescribed treatment credits in 43.11(6) or 43.11(10) through 43.11(13)

and may be awarded to treatment processes that do not meet the criteria for the prescribed credits.

(1) Systems cannot receive the prescribed treatment credit for any toolbox option in 43.11(10) through 43.11(13) if that toolbox option is included in a demonstration of performance study for which treatment credit is awarded under this paragraph.

(2) The demonstration of performance study must follow a department-approved protocol and must demonstrate the level of *Cryptosporidium* reduction the treatment process will achieve under the full range of expected operating conditions for the system.

(3) Department approval must be in writing and may include monitoring and treatment performance criteria that the system must demonstrate and report on an ongoing basis to remain eligible for the treatment credit. The department may designate such criteria where necessary to verify that the conditions under which the demonstration of performance credit was approved are maintained during routine operation.

43.11(12) *Additional filtration toolbox components.*

a. Bag and cartridge filters. By meeting the criteria in this paragraph, systems receive *Cryptosporidium* treatment credit of up to 2.0-log for the use of individual bag or cartridge filters and up to 2.5-log for the use of bag or cartridge filters operated in series. To be eligible for this credit, systems must report the results of challenge testing that meets the requirements of 43.11(12)*"a"*(2) through 43.11(12)*"a"*(9) to the department. The filters must treat the entire plant flow taken from a SW or IGW source.

(1) The *Cryptosporidium* treatment credit awarded for use of bag or cartridge filters must be based on the removal efficiency demonstrated during challenge testing conducted in accordance with the criteria in 43.11(12)*"a"*(2) through 43.11(12)*"a"*(9). A safety factor equal to 1-log for individual bag or cartridge filters and 0.5-log for bag or cartridge filters in series must be applied to challenge testing results to determine removal credit.

(2) Perform challenge testing on full-scale bag or cartridge filters and associated filter housing or pressure vessels that are identical in material and construction to the filters and housings the system will use for removal of *Cryptosporidium*. Bag or cartridge filters must be challenge tested in the same configuration that the system will use, either as individual filters or as a series configuration of filters.

(3) Conduct challenge testing using *Cryptosporidium* or a surrogate that is removed no more efficiently than *Cryptosporidium*. The microorganism or surrogate used during challenge testing is referred to as the challenge particulate. The challenge particulate concentration must be determined using a method capable of discretely quantifying the specific microorganisms or surrogate used in the test; gross measurements such as turbidity shall not be used.

(4) The maximum feed water concentration that can be used during a challenge test must be based on the detection limit of the challenge particulate in the filtrate (i.e., filtrate detection limit) and must be calculated using this equation:

Maximum Feed Water Concentration = 10,000 × Filtrate Detection Limit

(5) Conduct challenge testing at the maximum design flow rate for the filter specified by the manufacturer.

(6) Each filter evaluated must be tested for a duration sufficient to reach 100 percent of the terminal pressure drop, which thereby establishes the maximum pressure drop under which the filter may be used to comply with this paragraph.

(7) Removal efficiency of a filter must be determined from the results of the challenge test and expressed in terms of log removal values (LRV) using the following equation:

$LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$

Where:

LRV = log removal value demonstrated during challenge test;

C_f = feed concentration measured during challenge test; and

C_p = filtrate concentration measured during challenge test.

Equivalent units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, the term C_p must be set equal to the detection limit.

(8) Each filter tested must be challenged with the challenge particulate during three periods over the filtration cycle: within two hours of start-up of a new filter; when the pressure drop is between 45 and 55 percent of the terminal pressure drop; and at the end of the cycle after the pressure drop has reached 100 percent of the terminal pressure drop. An LRV must be calculated for each of these challenge periods for each filter tested. The LRV for the filter (LRV_{filter}) must be assigned the value of the minimum LRV observed during the three challenge periods for that filter.

(9) If fewer than 20 filters are tested, the overall removal efficiency for the filter product line must be set equal to the lowest LRV_{filter} among the filters tested. If 20 or more filters are tested, the overall removal efficiency for the filter product line must be set equal to the tenth percentile of the set of LRV_{filter} values for the various filters tested. The percentile is defined by [i/(n+1)] where "i" is the rank of "n" individual data points ordered lowest to highest. If necessary, the tenth percentile may be calculated using linear interpolation.

(10) If a previously tested filter is modified in a manner that could change the removal efficiency of the filter product line, conduct challenge testing to demonstrate the removal efficiency of the modified filter and submit the results to the department.

b. Membrane filtration.

(1) Systems receive *Cryptosporidium* treatment credit for using membrane filtration that meets the criteria of this paragraph. Systems using membrane cartridge filters that meet the definition of membrane filtration in 567—40.2(455B) are eligible for this credit. The level of

treatment credit a system receives is equal to the lower of the values determined under the following two paragraphs:

1. The removal efficiency demonstrated during challenge testing conducted under the criteria in 43.11(12)*"b"*(2).

2. The maximum removal efficiency that can be verified through DIT used with the membrane filtration process under the conditions in 43.11(12)*"b"*(3).

(2) Challenge testing. The membrane used by the system must undergo challenge testing to evaluate removal efficiency, and the system must report the challenge testing results to the department. Conduct challenge testing according to the criteria in this subparagraph.

1. Conduct challenge testing on either a full-scale membrane module, identical in material and construction to the membrane modules used in the system's treatment facility, or a smaller-scale membrane module, identical in material and similar in construction to the full-scale module. A module is defined as the smallest component of a membrane unit in which a specific membrane surface area is housed in a device with a filtrate outlet structure.

2. Conduct challenge testing using *Cryptosporidium* oocysts or a surrogate that is removed no more efficiently than *Cryptosporidium* oocysts. The organisms or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate, in both the feed and filtrate water, must be determined using a method capable of discretely quantifying the specific challenge particulate used in the test; gross measurements such as turbidity shall not be used.

3. The maximum feed water concentration that can be used during a challenge test is based on the detection limit of the challenge particulate in the filtrate and must be determined according to the following equation:

Maximum Feed Water Concentration = 3,160,000 × Filtrate Detection Limit

4. Conduct challenge testing under representative hydraulic conditions at the maximum design flux and maximum design process recovery specified by the manufacturer for the membrane module. Flux is defined as the throughput of a pressure-driven membrane process expressed as flow per unit of membrane area. Recovery is defined as the volumetric percent of feed water that is converted to filtrate over the course of an operating cycle uninterrupted by events such as chemical cleaning or a solids removal process (i.e., backwashing).

5. Calculate removal efficiency of a membrane module using the challenge test results expressed as a log removal value (LRV), according to the following equation:

$LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$

Where:

LRV = log removal value demonstrated during challenge test;

C_f = feed concentration measured during challenge test; and

C_p = filtrate concentration measured during challenge test.

Use equivalent units for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, the term C_p must be set equal to the detection limit for the purpose of calculating the LRV. An LRV must be calculated for each membrane module evaluated during the challenge test.

6. The removal efficiency of a membrane filtration process demonstrated during challenge testing must be expressed as a log removal value ($LRV_{C\text{-}Test}$). If fewer than 20 modules are tested, then $LRV_{C\text{-}Test}$ is equal to the lowest of the representative LRVs among the modules tested. If 20 or more modules are tested, then $LRV_{C\text{-}Test}$ is equal to the tenth percentile of the representative LRVs among the modules tested. The percentile is defined by [i/(n+1)] where "i" is the rank of "n" individual data points ordered lowest to highest. If necessary, the tenth percentile may be calculated using linear interpolation.

7. The challenge test must establish a quality control release value (QCRV) for a nondestructive performance test that demonstrates the *Cryptosporidium* removal capability of the membrane filtration module. In order to verify *Cryptosporidium* removal capability, this performance test must be applied to each production membrane module that was not directly challenge tested but was used by the system. Production modules that do not meet the established QCRV are not eligible for the treatment credit demonstrated during the challenge test.

8. If a previously tested membrane is modified in a manner that could change the removal efficiency of the membrane or the applicability of the nondestructive performance test and associated QCRV, conduct additional challenge testing to demonstrate the removal efficiency of the modified membrane and submit the results to the department, along with determination of a new QCRV.

(3) Direct integrity testing (DIT). Systems must conduct DITs in a manner that demonstrates a removal efficiency equal to or greater than the removal credit awarded for the membrane filtration process and meets the requirements of this subparagraph. A DIT is defined as a physical test applied to a membrane unit in order to identify and isolate integrity breaches (i.e., one or more leaks that could result in contamination of the filtrate).

1. A DIT must be independently applied to each membrane unit in service. A membrane unit is defined as a group of membrane modules that share common valving that allows the unit to be isolated from the rest of the system for the purpose of integrity testing or other maintenance.

2. The DIT method must have a resolution of 3 micrometers or less, where resolution is defined as the size of the smallest integrity breach that contributes to a response from the DIT.

3. The DIT must have a sensitivity sufficient to verify the log treatment credit awarded by the department for the membrane filtration process, where sensitivity is defined as the

maximum LRV that can be reliably verified by a DIT. Sensitivity must be determined using the approach applicable to the type of DIT the system uses, as follows:

- For DITs using applied pressure or vacuum, calculate test sensitivity using the following equation:

$LRV_{DIT} = LOG_{10} [Q_p/(VCF \times Q_{breach})]$

Where:

LRV_{DIT} = the sensitivity of the DIT;

Q_p = total design filtrate flow from the membrane unit;

Q_{breach} = flow of water from an integrity breach associated with the smallest integrity test response that can be reliably measured; and

VCF = volumetric concentration factor, which is the ratio of the suspended solids concentration on the high-pressure side of the membrane relative to that in the feed water.

- For DITs using a particulate or molecular marker, calculate test sensitivity using the following equation:

$LRV_{DIT} = LOG_{10} (C_f) – LOG_{10} (C_p)$

Where:

LRV_{DIT} = the sensitivity of the DIT;

C_f = typical feed concentration of the marker used in the test; and

C_p = filtrate concentration of the marker from an integral membrane unit.

4. Establish a control limit within the sensitivity limits of the DIT that is indicative of an integral membrane unit capable of meeting the removal credit awarded by the department.

5. If the result of a DIT exceeds the control limit established under 43.11(12)*"b"*(3)"4," the system must remove the membrane unit from service. Systems must conduct a DIT to verify any repairs and may return the membrane unit to service only if the DIT is within the established control limit.

6. Conduct a DIT on each membrane unit at a frequency of not less than once each day that the membrane unit is in operation. The department may approve less frequent testing, based on demonstrated process reliability, the use of multiple barriers effective for *Cryptosporidium*, or reliable process safeguards.

(4) Indirect integrity monitoring. Systems must conduct continuous indirect integrity monitoring on each membrane unit according to the following criteria. Indirect integrity monitoring is defined as monitoring some aspect of filtrate water quality that is indicative of the removal of particulate matter. A system that implements continuous DITs of membrane units in accordance with 43.11(12)*"b"*(3) is not subject to the continuous indirect integrity monitoring requirements. Systems must submit a monthly report to the department summarizing all continuous indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken in each case.

1. Continuous indirect integrity monitoring must:

- Include continuous filtrate turbidity monitoring, unless the department approves an alternative parameter;
- Be conducted at a frequency of no less than once every 15 minutes; and
- Be separately conducted on each membrane unit.

2. If indirect integrity monitoring includes turbidity and if the filtrate turbidity readings are above 0.15 NTU for a period greater than 15 minutes (i.e., two consecutive 15-minute readings above 0.15 NTU), DIT must immediately be performed on the associated membrane unit as specified in 43.11(12)*"b"*(3)"1" through "5."

3. If indirect integrity monitoring includes a department-approved alternative parameter and if the alternative parameter exceeds a department-approved control limit for a period greater than 15 minutes, DIT must immediately be performed on the associated membrane units as specified in 43.11(12)*"b"*(3)"1" through"5."

c. Second-stage filtration. Systems receive 0.5-log *Cryptosporidium* treatment credit for using a separate second stage of filtration that consists of sand, dual media, GAC, or other fine-grain media following granular media filtration, if the department approves. To be eligible for this credit, the first stage of filtration must be preceded by a coagulation step and both filtration stages must treat the entire plant flow taken from a SW or IGW source. A cap, such as GAC, on a single stage of filtration is not eligible for this credit. The department must approve the treatment credit based on an assessment of the design characteristics of the filtration process.

d. Slow sand filtration (as secondary filter). Systems are eligible to receive 2.5-log *Cryptosporidium* treatment credit for using a slow sand filtration process that follows a separate stage of filtration if both filtration stages treat the entire plant flow taken from a SW or IGW source and no disinfectant residual is present in the influent water to the slow sand filtration process. The department must approve the treatment credit based on an assessment of the design characteristics of the filtration process. This does not apply to treatment credit awarded for slow sand filtration used as a primary filtration process.

43.11(13) *Inactivation toolbox components.*

a. Calculation of CT values.

(1) CT is the product of the disinfectant contact time (T, in minutes) and disinfectant concentration (C, in milligrams per liter). Systems with treatment credit for chlorine dioxide or ozone under 43.11(13)*"b"* or *"c"* must calculate CT at least once each day, with both C and T measured during peak hourly flow as specified in 43.5(4).

(2) Systems with several disinfection segments in sequence may calculate CT for each segment, where a disinfection segment is defined as a treatment unit process with a measurable disinfectant residual level and a liquid volume. Under this approach, systems must

add the *Cryptosporidium* CT values in each segment to determine the total CT for the treatment plant.

b. CT values for chlorine dioxide and ozone. As described in 43.11(13)*"a"*:

(1) Systems receive the *Cryptosporidium* treatment credit in Table 1 of Appendix B by meeting the corresponding chlorine dioxide CT value for the applicable water temperature.

(2) Systems receive the *Cryptosporidium* treatment credit in Table 2 of Appendix B by meeting the corresponding ozone CT value for the applicable water temperature.

c. Site-specific study. The department may approve alternative chlorine dioxide or ozone CT values to those in 43.11(13)*"b"* on a site-specific basis. The department must base its approval on a site-specific study conducted by the system. The study must follow a department-approved protocol.

d. Ultraviolet light (UV). Systems receive *Cryptosporidium*, *Giardia lamblia*, and virus treatment credits for UV light reactors by achieving the corresponding UV dose values in Table 3 of Appendix B. Systems must use the following procedures to validate and monitor UV reactors in order to demonstrate that the reactors are achieving a particular UV dose value for treatment credit.

(1) Reactor validation testing. Systems must use UV reactors that have undergone validation testing to determine the operating conditions under which the reactor delivers the required UV dose (i.e., validated operating conditions). These operating conditions must include flow rate, UV intensity as measured by a UV sensor, and UV lamp status.

1. When determining validated operating conditions, systems must account for the following factors: UV absorbance of the water; lamp fouling and aging; measurement uncertainty of on-line sensors; UV dose distributions arising from the velocity profiles through the reactor; failure of UV lamps or other critical system components; and UV reactor inlet and outlet piping or channel configurations.

2. Validation testing must include full-scale testing of a reactor that conforms uniformly to the UV reactors used by the system and inactivation of a test microorganism whose dose response characteristics have been quantified with a low-pressure mercury vapor lamp.

3. The department may approve an alternative approach to validation testing.

(2) Reactor monitoring.

1. Systems must monitor their UV reactors to determine if the reactors are operating within validated conditions, as determined under 43.11(13)*"d"*(1). This monitoring must include UV sensor, flow rate, lamp status, and other parameters the department designates based on UV reactor operation. Systems must verify the calibration of UV sensors and recalibrate sensors in accordance with a department-approved protocol.

2. To receive UV light treatment credit, systems must treat at least 95 percent of the water delivered to the public during each month by UV reactors operating within validated conditions for the required UV dose. Systems must demonstrate compliance with this condition by completing the monitoring required in this subparagraph.

43.11(14) *Reporting requirements.* Systems must report the following to the department:

a. Source water sampling schedules and monitoring results under 43.11(3)*"c"* and *"e,"* unless the systems notify the department that they will not conduct source water monitoring due to meeting the criteria of 5.5-log treatment for *Cryptosporidium* under 43.11(3)*"a."*

b. *Cryptosporidium* bin classification determined under 43.11(5).

c. Disinfection profiles and benchmarks as described in 43.11(4)*"a"* and *"b"* prior to making a significant change in disinfection practice.

d. In accordance with Table 7 for any microbial toolbox options used to comply with treatment requirements under 43.11(6).

Table 7: Microbial Toolbox Reporting Requirements

Toolbox Option	Systems must submit this information	Submit information in accordance with the applicable treatment compliance dates in subrule 43.11(7), as noted
1. Watershed control program (WCP)	Notice of intention to develop a new or continue an existing WCP	No later than two years before applicable date
	Watershed control plan	No later than one year before applicable date
	Annual WCP status report	Every 12 months, beginning one year after applicable date
	Watershed sanitary survey report	- For CWS, every 3 years, beginning 3 years after applicable date - For NTNC or TNC, every 5 years, beginning 5 years after applicable date
2. Alternative source/intake management	Verification that system has relocated the intake or adopted the intake withdrawal procedure reflected in monitoring results	No later than the applicable date
3. Presedimentation	Monthly verification: - Continuous basin operation; - Treatment of 100 percent of the flow; - Continuous coagulant addition; and - At least 0.5-log mean reduction of influent turbidity or compliance with alternative department-approved performance criteria	Monthly reporting within 10 days following the month monitoring was conducted, beginning on applicable date
4. Two-stage lime softening	Monthly verification: - Chemical addition and hardness precipitation occurred in two separate and sequential softening stages prior to filtration; and - Both stages treated 100 percent of plant flow	Monthly reporting within 10 days following the month monitoring was conducted, beginning on applicable date
5. Bank filtration	Initial demonstration of: - Unconsolidated, predominantly sandy aquifer; and - Setback distance of at least 25 feet for 0.5-log credit or 50 feet for 1.0-log credit	No later than applicable date
	If monthly average of daily maximum turbidity is greater than 1 NTU, report result and submit an assessment of the cause.	Report within 30 days following the month monitoring was conducted, beginning on applicable date
6. Combined filter performance	Monthly verification of CFE turbidity levels less than or equal to 0.15 NTU in at least 95 percent of the 4-hour CFE measurements taken each month	Monthly reporting within 10 days following the month monitoring was conducted, beginning on applicable date
7. Individual filter performance	Monthly verification of: - IFE turbidity levels less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter; and - No IFE turbidity levels greater than 0.3 NTU in two consecutive readings 15 minutes apart	Monthly reporting within 10 days following the month monitoring was conducted, beginning on applicable date
8. Demonstration of performance	Results from testing following a department-approved protocol	No later than applicable date
	As required by the department, monthly verification of operation within conditions of department approval for demonstration of performance credit	Within 10 days following the month monitoring was conducted, beginning on applicable date
9. Bag filters and cartridge filters	Demonstration that the: - Process meets the definition of bag or cartridge filtration, and - Removal efficiency established through challenge testing is meeting criteria	No later than applicable date
	Monthly verification that 100 percent of plant flow was filtered	Within 10 days following the month monitoring was conducted, beginning on applicable date
10. Membrane filtration	Results of verification testing demonstrating: - Removal efficiency established through challenge testing meets criteria; and - Integrity test method and parameters, including resolution, sensitivity, test frequency, control limits, and associated baseline	No later than applicable date

	Monthly report summarizing: - All DITs above the control limit, and - If applicable, any turbidity or alternative department-approved indirect integrity monitoring results triggering DITs and corrective action that was taken	Within 10 days following the month monitoring was conducted, beginning on applicable date
11. Second-stage filtration	Monthly verification that 100 percent of flow was filtered through both stages and that first stage was preceded by coagulation step	Within 10 days following the month monitoring was conducted, beginning on applicable date
12. Slow sand filtration as a secondary filter	Monthly verification that both a slow sand filter and a preceding separate stage of filtration treated 100 percent of the flow from surface or IGW sources	Within 10 days following the month monitoring was conducted, beginning on applicable date
13. Chlorine dioxide	Summary of CT values for each day as described in 43.11(13)	Within 10 days following the month monitoring was conducted, beginning on applicable date
14. Ozone	Summary of CT values for each day as described in 43.11(13)	Within 10 days following the month monitoring was conducted, beginning on applicable date
15. UV	Validation test results demonstrating operating conditions that achieve required UV dose	No later than the applicable date
	Monthly report summarizing the percentage of water entering the distribution system that was not treated by UV reactors operating within validated conditions for the required dose as specified in 43.11(13)*"d"*	Within 10 days following the month monitoring was conducted, beginning on applicable date

43.11(15) *Recordkeeping requirements.*

a. Source water monitoring. Systems must keep results from the initial round of source water monitoring under 43.11(3)*"a"* and the second round of source water monitoring under 43.11(3)*"b"* until three years after bin classification under 43.11(5) for the particular round of monitoring.

b. Systems meeting 5.5-log Cryptosporidium treatment. Systems must keep, for three years, records of any notification to the department that they will meet the 5.5-log *Cryptosporidium* treatment requirements and avoid source water monitoring.

c. Microbial toolbox treatment monitoring. Systems must keep the results of treatment monitoring associated with microbial toolbox options under 43.11(8) through 43.11(13) for three years.

567—43.12(455B) Turbidity optimization goals. SW and IGW systems must meet the requirements in this chapter. To encourage operational optimization, the department has adopted the following goals for systems using SW or IGW that wish to pursue the

optimization of their existing treatment processes. These goals are voluntary. Data collected for optimization purposes will not be used to determine compliance with this chapter unless the optimization data are identical to the compliance data.

43.12(1) *Sedimentation performance goals.* The sedimentation performance goals are based upon the average annual raw water turbidity levels. When the annual average raw water turbidity is:

a. Less than or equal to 10 NTU over the course of the calendar year, the turbidity should be less than or equal to 1 NTU in at least 95 percent of measurements based on the maximum daily value of readings taken at least once every four hours from each sedimentation basin while the plant is operating.

b. More than 10 NTU over the course of the calendar year, the turbidity should be less than or equal to 2 NTU in at least 95 percent of measurements based on the maximum daily value of readings taken at least once every four hours from each sedimentation basin while the plant is operating.

43.12(2) *Individual filter performance goals.* Individual filter performance goals depend upon a system's capability of filtering to waste.

a. For systems that have the capability of filtering to waste, the individual filter turbidity should be less than or equal to 0.10 NTU in at least 95 percent of measurements over the course of the calendar year, based on the daily maximum value of readings recorded at least once per minute while the plant is in operation. The maximum individual filter turbidity must not exceed 0.30 NTU at any time. The filter must return to service with a turbidity of 0.10 NTU or less.

b. For systems that do not have the capability of filtering to waste, the individual filter turbidity should be less than or equal to 0.10 NTU in at least 95 percent of measurements over the course of the calendar year, excepting the 15 minutes following the completion of the

backwash process, based on the daily maximum value of readings recorded at least once per minute while the plant is in operation. The maximum individual filter turbidity must not exceed 0.30 NTU following backwash and must return to a level at or below 0.10 NTU within 15 minutes of returning the filter to service.

43.12(3) *Combined filter performance goal.* The combined filter performance goal has two components:

a. CFE turbidity should be less than or equal to 0.10 NTU in at least 95 percent of measurements over the course of the calendar year, based on daily maximum value of readings recorded at least once per minute while the plant is operating.

b. The maximum CFE turbidity must not exceed 0.30 NTU at any time.

These rules are intended to implement Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192.

APPENDIX A: DISINFECTION PROFILING - CT VALUES ($CT_{99.9}$) FOR 99.9 PERCENT INACTIVATION OF *GIARDIA LAMBIA* CYSTS

These tables provide the $CT_{99.9}$ values in mg-min/L for 99.9 percent (3-log) inactivation of *Giardia lamblia* cysts using the indicated disinfectant at the indicated temperature in degrees Celsius (°C). The CT values in the tables achieve greater than a 99.99 percent (4-log) inactivation of viruses. Any CT values between the indicated pH values in each table and any CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

TABLE 1: Inactivation by Free Chlorine at 0.5 °C or Lower

Free Residual Chlorine, mg/L	pH, standard units						
	>6.0	6.5	7.0	7.5	8.0	8.5	>9.0
>0.4	137	163	195	237	277	329	390
0.6	141	168	200	239	286	342	407
0.8	145	172	205	246	295	354	422
1.0	148	176	210	253	304	365	437
1.2	152	180	215	259	313	376	451
1.4	155	184	221	266	321	387	464

1.6	157	189	226	273	329	397	477
1.8	162	193	231	279	338	407	489
2.0	165	197	236	286	346	417	500
2.2	169	201	242	297	353	426	511
2.4	172	205	247	298	361	435	522
2.6	175	209	252	304	368	444	533
2.8	178	213	257	310	375	452	543
3.0	181	217	261	316	382	460	552

TABLE 2: Inactivation by Free Chlorine at 5.0 °C

Free Residual Chlorine, mg/L	pH, standard units						
	>6.0	6.5	7.0	7.5	8.0	8.5	>9.0
>0.4	97	117	139	166	198	236	279
0.6	100	120	143	171	204	244	291
0.8	103	122	146	175	210	252	301
1.0	105	125	149	179	216	260	312
1.2	107	127	152	183	221	267	320
1.4	109	130	155	187	227	274	329
1.6	111	132	158	192	232	281	337
1.8	114	135	162	196	238	287	345
2.0	116	138	165	200	243	294	353
2.2	118	140	169	204	248	300	361
2.4	120	143	172	209	253	306	368
2.6	122	146	175	213	258	312	375
2.8	124	148	178	217	263	318	382
3.0	126	151	182	221	268	324	389

TABLE 3: Inactivation by Free Chlorine at 10.0 °C

Free Residual Chlorine, mg/L	pH, standard units						
	>6.0	6.5	7.0	7.5	8.0	8.5	>9.0
>0.4	73	88	104	125	149	177	209
0.6	75	90	107	128	153	183	218
0.8	78	92	110	131	158	189	226
1.0	79	94	112	134	162	195	234
1.2	80	95	114	137	166	200	240
1.4	82	98	116	140	170	206	247
1.6	83	99	119	144	174	211	253
1.8	86	101	122	147	179	215	259
2.0	87	104	124	150	182	221	265
2.2	89	105	127	153	186	225	271
2.4	90	107	129	157	190	230	276
2.6	92	110	131	160	194	234	281
2.8	93	111	134	163	197	239	287
3.0	95	113	137	166	201	243	292

TABLE 4: Inactivation by Free Chlorine at 15.0 °C

Free Residual Chlorine, mg/L	pH, standard units						
	>6.0	6.5	7.0	7.5	8.0	8.5	>9.0
>0.4	49	59	70	83	99	118	140
0.6	50	60	72	86	102	122	146
0.8	52	61	73	88	105	126	151
1.0	53	63	75	90	108	130	156
1.2	54	64	76	92	111	134	160

1.4	55	65	78	94	114	137	165
1.6	56	66	79	96	116	141	169
1.8	57	68	81	98	119	144	173
2.0	58	69	83	100	122	147	177
2.2	59	70	85	102	124	150	181
2.4	60	72	86	105	127	153	184
2.6	61	73	88	107	129	156	188
2.8	62	74	89	109	132	159	191
3.0	63	76	91	111	134	162	195

TABLE 5: Inactivation by Free Chlorine at 20.0 °C

Free Residual Chlorine, mg/L	pH, standard units						
	>6.0	6.5	7.0	7.5	8.0	8.5	>9.0
>0.4	36	44	52	62	74	89	105
0.6	38	45	54	64	77	92	109
0.8	39	46	55	66	79	95	113
1.0	39	47	56	67	81	98	117
1.2	40	48	57	69	83	100	120
1.4	41	49	58	70	85	103	123
1.6	42	50	59	72	87	105	126
1.8	43	51	61	74	89	108	129
2.0	44	52	62	75	91	110	132
2.2	44	53	63	77	93	113	135
2.4	45	54	65	78	95	115	138
2.6	46	55	66	80	97	117	141
2.8	47	56	67	81	99	119	143
3.0	47	57	68	83	101	122	146

TABLE 6: Inactivation by Free Chlorine at 25.0 °C and Higher

Free Residual Chlorine, mg/L	pH, standard units						
	>6.0	6.5	7.0	7.5	8.0	8.5	>9.0
0.4	24	29	35	42	50	59	70
0.6	25	30	36	43	51	61	73
0.8	26	31	37	44	53	63	75
1.0	26	31	37	45	54	65	78
1.2	27	32	38	46	55	67	80
1.4	27	33	39	47	57	69	82
1.6	28	33	40	48	58	70	84
1.8	29	34	41	49	60	72	86
2.0	29	35	41	50	61	74	88
2.2	30	35	42	51	62	75	90
2.4	30	36	43	52	63	77	92
2.6	31	37	44	53	65	78	94
2.8	31	37	45	54	66	80	96
3.0	32	38	46	55	67	81	97

TABLE 7: Inactivation by Chlorine Dioxide and Ozone

Disinfectant	Water Temperature, °C					
	<1	5	10	15	20	>25
Chlorine Dioxide	63	26	23	19	15	11
Ozone	2.9	1.9	1.4	0.95	0.72	0.48

TABLE 8: Inactivation by Chloramines[1]

Disinfectant	Water Temperature, °C					
	<1	5	10	15	20	25
Chloramines	3800	2200	1850	1500	1100	750

[1]These values are for pH values of 6 to 9 standard units. These CT values may be assumed to achieve greater than 99.99 percent (4-log) inactivation of viruses only if chlorine is added and mixed in the water prior to the addition of ammonia. If this condition is not met, the system must demonstrate, based on on-site studies or other department-approved information, that the system is achieving at least 99.99 percent (4-log) inactivation of viruses.

APPENDIX B: CT TABLES FOR *CRYPTOSPORIDIUM* INACTIVATION

TABLE 1: CT Values (mg-min/L) for *Cryptosporidium* Inactivation by Chlorine Dioxide[1]

Log Credit	Water Temperature, °C										
	>0.5	1	2	3	5	7	10	15	20	25	30
0.25	159	153	140	128	107	90	69	45	29	19	12
0.5	319	305	279	256	214	180	138	89	58	38	24
1.0	637	610	558	511	429	360	277	179	116	75	49
1.5	956	915	838	767	643	539	415	268	174	113	73
2.0	1275	1220	1117	1023	858	719	553	357	232	150	98
2.5	1594	1525	1396	1278	1072	899	691	447	289	188	122
3.0	1912	1830	1675	1534	1286	1079	830	536	347	226	147

[1]Systems may use this equation to determine log credit between the indicated values: Log credit = [0.001506 × $(1.09116)^{Temp}$] × CT

TABLE 2: CT Values (mg-min/L) for *Cryptosporidium* Inactivation by Ozone[1]

Log Credit	Water Temperature, °C										
	>0.5	1	2	3	5	7	10	15	20	25	30
0.25	6.0	5.8	5.2	4.8	4.0	3.3	2.5	1.6	1.0	0.6	0.39
0.5	12	12	10	9.5	7.9	6.5	4.9	3.1	2.0	1.2	0.78
1.0	24	23	21	19	16	13	9.9	6.2	3.9	2.5	1.6
1.5	36	35	31	29	24	20	15	9.3	5.9	3.7	2.4
2.0	48	46	42	38	32	26	20	12	7.8	4.9	3.1
2.5	60	58	52	48	40	33	25	16	9.8	6.2	3.9
3.0	72	69	63	57	47	39	30	19	12	7.4	4.7

[1]Systems may use this equation to determine log credit between the indicated values: Log credit = [0.0397 × $(1.09757)^{Temp}$] × CT

TABLE 3: UV Dose for *Cryptosporidium*, *Giardia lamblia*, and Virus Inactivation Credit[1]

Log Credit	*Cryptosporidium* UV dose (mJ/cm^2)	*Giardia lamblia* UV dose (mJ/cm^2)	Virus UV dose (mJ/cm^2)
0.5	1.6	1.5	39
1.0	2.5	2.1	58
1.5	3.9	3.0	79
2.0	5.8	5.2	100
2.5	8.5	7.7	121
3.0	12	11	143
3.5	15	15	163
4.0	22	22	186

[1]The treatment credits listed in Table 3 are for UV light at a wavelength of 254 nm as produced by a low-pressure mercury vapor lamp. To receive treatment credit for other lamp types, systems must demonstrate an equivalent germicidal dose through reactor validation testing. The UV dose values in this table are applicable only to post-filter applications of UV in filtered systems.

APPENDIX C: CT TABLES FOR VIRUS INACTIVATION UNDER THE GROUNDWATER RULE, 567—41.7(455B)

TABLE 1: CT Values (mg-min/L) for Inactivation of Viruses by Free Chlorine, pH 6.0-9.0

(CT values provided are modified by linear interpolation between 0.5° Celsius (C) increments)

Inactivation Log Credit	Water Temperature, °C												
	1	2	3	4	5	6	7	8	9	10	11	12	13
2	5.8	5.3	4.9	4.4	4.0	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4
3	8.7	8.0	7.3	6.7	6.0	5.6	5.2	4.8	4.4	4.0	3.8	3.6	3.4
4	11.6	10.7	9.8	8.9	8.0	7.6	7.2	6.8	6.4	6.0	5.6	5.2	4.8
Inactivation Log Credit	**Water Temperature, °C**												
	14	15	16	17	18	19	20	21	22	23	24	25	
2	2.2	2.0	1.8	1.6	1.4	1.2	1.0	1.0	1.0	1.0	1.0	1.0	
3	3.2	3.0	2.8	2.6	2.4	2.2	2.0	1.8	1.6	1.4	1.2	1.0	
4	4.4	4.0	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.2	2.0	

TABLE 2: CT Values (mg-min/L) for Inactivation of Viruses by Free Chlorine, pH 9.1-10.0

Inactivation Log Credit	Water Temperature, °C					
	0.5	5	10	15	20	25
2	45	30	22	15	11	7
3	66	44	33	22	16	11
4	90	60	45	30	22	15

TABLE 3: CT Values (mg-min/L) for Inactivation of Viruses by Chlorine Dioxide, pH 6.0-9.0

(CT values provided are modified by linear interpolation between 0.5°C increments)

Inactivation Log Credit	Water Temperature, °C												
	1	2	3	4	5	6	7	8	9	10	11	12	13
2	8.4	7.7	7.0	6.3	5.6	5.3	5.0	4.8	4.5	4.2	3.9	3.6	3.4
3	25.6	23.5	21.4	19.2	17.1	16.2	15.4	14.5	13.7	12.8	12.0	11.1	10.3
4	50.1	45.9	41.8	37.6	33.4	31.7	30.1	28.4	26.8	25.1	23.4	21.7	20.1
Inactivation Log Credit	**Water Temperature, °C**												
	14	15	16	17	18	19	20	21	22	23	24	25	
2	3.1	2.8	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.5	1.4	
3	9.4	8.6	8.2	7.7	7.3	6.8	6.4	6.0	5.6	5.1	4.7	4.3	
4	18.4	16.7	15.9	15.0	14.2	13.3	12.5	11.7	10.9	10.0	9.2	8.4	

TABLE 4: CT Values (mg-min/L) for Inactivation of Viruses by Ozone

(CT values provided are modified by linear interpolation between 0.5°C increments)

Inactivation Log Credit	Water Temperature, °C												
	1	2	3	4	5	6	7	8	9	10	11	12	13
2	0.90	0.83	0.75	0.68	0.60	0.58	0.56	0.54	0.52	0.50	0.46	0.42	0.38
3	1.40	1.28	1.15	1.03	0.90	0.88	0.86	0.84	0.82	0.80	0.74	0.68	0.62
4	1.80	1.65	1.50	1.35	1.20	1.16	1.12	1.08	1.04	1.00	0.92	0.84	0.76
Inactivation Log Credit	**Water Temperature, °C**												
	14	15	16	17	18	19	20	21	22	23	24	25	
2	0.34	0.30	0.29	0.28	0.27	0.26	0.25	0.23	0.21	0.19	0.17	0.15	
3	0.56	0.50	0.48	0.46	0.44	0.42	0.40	0.37	0.34	0.31	0.28	0.25	
4	0.68	0.60	0.58	0.56	0.54	0.52	0.50	0.46	0.42	0.38	0.34	0.30	

No CT table is provided for chloramines or total chlorine because the CT values would be prohibitively high for GW systems. Tables are from the EPA Groundwater Rule Implementation Guidance, EPA 816-R-09-004, January 2009, pages 97-98.

Iowa Department of Natural Resources
Environmental Protection Commission

ITEM	**#8**	**DECISION**
TOPIC	**Grant funding for four Environmental Management System (EMS) Proposals**	

Applications and Recommendations:
DNR received seven grant applications from EMS participants, requesting a total of $405,265.18 for this competitive round with available funding limited to $207,030. During the review process, four proposals were recommended for funding for a total of $202,095.18 in DNR financial assistance. These proposals are described in Attachment #1.

Contract Selection Process:
The EMS grant review committee was composed of the following representatives: Department of Natural Resources (2), Iowa Society of Solid Waste Operations, Iowa Recycling Association and the Iowa Waste Exchange. Review Committee members evaluated each application based on its relevance to EMS program areas, its potential environmental impact and sustainability of the project. Recommendations were decided after each proposal was discussed by the five members who all attended the April 29, 2025 review committee meeting.

Background and Funding Source
The Iowa Solid Waste EMS program was established pursuant to 2008 Legislation (House File 2570) as a voluntary alternative to comprehensive planning. Under the program, DNR supports designated solid waste agencies in building their own EMS and actively pursuing environmental stewardship goals beyond waste reduction. Iowa Code section 455J.7 authorizes the EPC to allocate funds to reward EMS participants for operating in an innovative, cost-effective, technologically advanced, and environmentally sensitive manner.

Laurie Rasmus, Program Planner
Environmental Services Division – Financial and Business Assistance
June 17, 2025

Attachment #1

Commission approval is being request for the following proposals.

Cedar Rapids Linn County Solid Waste Agency	**Requested Amount/Awarded Amount:**	$40,312.50
	Cash Match:	$13,437.50
	Total Project Cost:	$53,750.00
Project Title:	Site Signage	
Description:	Grant funds will be used to hire a sign consultant to design a wayfinding system, to optimize messaging and placement, for the installation of new site signage at the Agency's Site 2 location. The new signs and associated social media posts will have a QR code that will direct users to the recycling page of the Agency's website. The project is associated with an EMS environmental education objective/target to increase customer awareness of recycling services by measuring the number of customer interactions through QR codes, social media engagements and customer feedback.	

Landfill of North Iowa	**Requested Amount/Awarded Amount:**	$92,908.80
	Cash Match:	$30,967.60
	Total Project Cost:	$123,876.40
Project Title:	Metal Recovery Excavator	
Description:	Grant funds will be used to purchase a mini excavator with a thumb attachment to recover metal from the working face of the landfill. Staff operators will sort, pick, and place metal from mixed loads into a roll off box for recycling. The project is associated with a EMS recycling services objective/target to increase recovery of metal by 240 tons in the excavator's first year of operation.	

Metro Waste Authority	**Requested Amount/Awarded Amount:**	$36,301.15
	Cash Match:	$12,100.39
	Total Project Cost:	$48,401.54
Project Title:	Fleet Charging Stations	
Description:	Grant funds will be used to install a Level 2 commercial electric vehicle charging system, including electrical upgrades and constructing a concrete pad, at MWA's administrative office in downtown Des Moines to allow for the transition to an electric-powered fleet. The project is associated with an EMS greenhouse gas reduction objective/target to decrease emissions from the central office fleet by 50%.	

Waste Commission of Scott County	**Requested Amount/Awarded Amount:**	$32,572.73
	Cash Match:	$10,857.58
	Total Project Cost:	$43,430.31
Project Title:	Energy-efficient Speed Door	
Description:	Grant funds will be used to install a 12'x12' overhead, energy-efficient speed door in the Electronic Recovery Center to minimize heat loss during the door's frequent opening and closing. The project is associated with an EMS greenhouse gas reduction objective/target to decrease natural gas usage by 10% the in the Electronics Recovery Center.	

Iowa Department of Natural Resources
Environmental Protection Commission

ITEM #9 **DECISION**

Contract with the UNIVERSITY OF NORTHERN IOWA

Recommendation:
Commission approval is requested for a service Contract with the University of Northern Iowa (UNI) of Cedar Falls, Iowa. Services are to be provided by the Iowa Air Emissions Assistance Program (IAEAP) at UNI's Iowa Waste Reduction Center.

Contract Terms:
Amount: Not to exceed $230,090
Dates: July 1, 2025, to June 30, 2026
Funding Source: Title V emission fees (cost reimbursable payments)
Statutory Authority: 11 Iowa Administrative Code (IAC) section 118.4

Contract Background:
The Small Business Assistance Program, which is mandated by Section 507 of the U.S. Clean Air Act Amendments of 1990, provides technical and non-technical assistance to small businesses. This Contract establishes the requirements of Iowa's technical assistance program.

Contract Purpose:
The parties propose to enter into this Contract to outline UNI's activities and projects related to providing technical air quality assistance to Iowa's small businesses. The Contract specifies that UNI will provide assistance and outreach to small businesses so that they may understand and fulfill their air quality regulatory obligations, and includes UNI offering training to small businesses on completing and submitting required air emissions inventories. Please see **Attachment A** for the proposed Contract's Summary of Obligations and **Attachment B** for the proposed Contract's budget.

Contractor Selection Process:
This Contract is authorized by 11 IAC 118.4, which states that if another governmental entity has resources available to supply a service sought by a state agency, the state agency may enter into an intergovernmental agreement with the other governmental entity and is not required to use competitive selection.

Contract History:
UNI's IAEAP was formally designated as the technical and compliance small business assistance provider in a State Implementation Plan revision that was submitted to and approved by the EPA in the early 1990s. IAEAP has demonstrated itself to be an effective assistance provider to Iowa's small businesses.

A summary of the terms for the past five years' contracts with UNI for IAEAP are, as follows:

SFY 2025 Contract Terms:
Dates: July 1, 2024 to June 30, 2025
Amount: $230,090
Amendment(s): No amendments

SFY 2024 Contract Terms:
Dates: July 1, 2023 to June 30, 2024
Amount: $230,090
Amendment(s): No amendments

SFY 2023 Contract Terms:
Dates: July 1, 2022 to June 30, 2023
Amount: $230,090
Amendment(s): No amendments

SFY 2022 Contract Terms:
Dates: July 1, 2021 to June 30, 2022
Amount: $204,076
Amendment(s): No amendments

SFY 2021 Contract Terms:
Dates: July 1, 2020, to June 30, 2021
Amount: $200,926
Amendment(s): No amendments

As in the 2025 Contract, the 2026 Contract funding amount remains status quo and maintains the funding for the additional 0.70 FTE (1.95 FTE in total). This accounts for a new IAEAP project to assist small businesses that conduct building demolitions and renovations with completing electronic submittal of the required asbestos notifications. The additional 0.70 FTE also covers continuing IAEAP efforts related to Iowa Easy Air assistance, SLEIS assistance, and education, outreach, and assistance related to federal air toxics standards and other federal regulations.

More detail on anticipated activities is included in UNI's IAEAP 2025 Work Plan (see **Attachment C**). DNR will again evaluate the need to fund all or part of the additional FTE allocation over 2020 levels (0.70 FTE) when developing the 2027 Contract.

Christine Paulson, Environmental Specialist Senior, Air Quality Bureau
Environmental Services Division
June 17, 2025

Appendix A – Summary of 2026 UNI IAEAP Obligations

The following is a summary of the obligations UNI shall complete to meet tasks identified in this Contract.

Obligation	Reference	Task Milestone Date
Personnel Commitment	5A.1(1)	Ongoing
Training	5A.1(2)	As Needed/Determined
Key Personnel	5A.1(3)	Ongoing
Key Personnel Changes	5A.1(3)	Within 10 business days
Maintain General, NESHAP, and Facility Closings/Changes Databases	5A.4(1), (2) and (5)	Ongoing, minimum of 3 years
Maintain Website	5A.4(4)	Ongoing
Address DNR Concerns	5A.5	Within 15 days
Documentation	5A.6	Ongoing
Intergovernmental Collaboration	5A.7	As Needed or Requested by DNR
Responsibilities of the DNR	5A.8	Ongoing
Notice of CAA Rights & Obligations	5B.1	Ongoing
Compliance Methods	5B.2	Ongoing
Modification Requests	5B.3	As Requested
Air Pollution Prevention	5B.4	Ongoing
Develop Compliance Assistance Tools	5B.5(1)	As Requested
Distribute Compliance Assistance Tools	5B.5(3)	Ongoing
Prioritization of NESHAP	5B.5(4)	As Requested
NESHAP Compliance Assistance Tools & Outreach	5B.5(4)	As Requested
Provide On-Site Audits	5B.5(5)	As Requested
MSEI Training	5B.6(1)	As Requested
MSEI Site Visit	5B.6(5)	As Determined
SLEIS Assistance	5B.6(6)	As Requested
Late Work Products	6.1(2)	No later than 10 days
Review Meetings	6.2(1)	Annually
Task Force/Workgroup Participation	6.2(2)	As Determined
Outreach Meetings	6.2(3)	As Requested
Small Business Meetings/Event Participation	6.2(4)	Within 2 weeks of request
Special Reports	6.3(3)	As Requested

Obligation	Reference	Task Milestone Date
MSEI Planning Meeting	5B.6	September 15, 2025
Draft MSEI Training Proposal	5B.6	October 31, 2025
Quarter 1 Report (July 1 – Sept. 30, 2025)	7.4	October 31 2025
Quarter 1 Invoice	6.3(1)	October 31, 2025
Final Draft MSEI Training Proposal	5B.6	December 15, 2025
2027 Work Plan & Staffing Plan	5A.3(1)	January 31, 2026
2027 Budget	5A.3(2)	January 31, 2026
Quarter 2 Report (Oct. 1 – Dec. 31, 2025)	6.3(1)	January 31, 2026
Quarter 2 Invoice	7.4	January 31, 2026
Initial 2027 Contract Review	5A.3(3)	April 17, 2026
Quarter 3 Report (Jan. 1 – March 31, 2026)	6.3(1)	April 30, 2026
Quarter 3 Invoice	7.4	April 30, 2026
SLEIS Program Primary Assistance	5B.6	May 15, 2026
Final 2027 Contract Review	5A.3(4)	May 15, 2026
Quarter 4 Report (April 1 – June 30, 2026)	6.3(1)	July 31, 2026
Quarter 4 Invoice	7.4	July 31, 2026
Final Report	6.3(2)	July 31, 2026

Attachment B (UNI IAEAP 2026 Budget)

EXPENDITURE CATEGORY	OVERALL TOTAL
Personnel/Benefits (Total) – Not to Exceed	**$210,517**
Personnel (FTE)	$147,485
Benefits (FTE)	$63,032
Travel/Training	**$2,529**
Indirect charges	**$17,044**
Total Project Costs – Not to Exceed	**$230,090**

Attachment C (UNI's 2026 Work Plan for IAEAP activities)

Introduction

The Small Business Environmental Assistance Program for Iowa is operated by the Iowa Waste Reduction Center (IWRC) at the University of Northern Iowa (UNI). The program, known as the Iowa Air Emissions Assistance Program (IAEAP), is designed to fulfill the requirements of Section 507 of the 1990 Clean Air Act Amendments (CAAA).

Contract Number 25ESDAQBCPAUL-0003 between the Iowa Department of Natural Resources (DNR) and the University of Northern Iowa establishes the current IAEAP operation parameters. This work plan, covering the period July 1, 2025 to June 30, 2026, is submitted to the Iowa DNR to fulfill the requirements of the agreement. It shall be used as the blueprint for activities during that time.

Program Elements

The Iowa Waste Reduction Center at the University of Northern Iowa shall implement a program which contains the elements as envisioned in the 1990 CAAA.

Eligibility -- Any "small business stationary source" that: (1) is owned or operated by a person that employs 100 or fewer individuals; (2) is a small business concern as defined in the federal Small Business Act; (3) is not a 'major' source as defined in CAAA. The term "small business stationary source" also shall include any stationary source designated by the DNR as eligible, according to the provisions of the CAAA section 507(c)(2) and (3).

Individual Program Elements

The IAEAP work plan for FY26 shall include the following activities:

1. Information Dissemination and Data Management

    - Electronic newsletter: The IWRC electronic newsletter is utilized for articles and information dissemination on air quality related and other IWRC related issues. The newsletter shall be one of the primary tools for reaching businesses during FY26. As of January 2025, there are 1070 subscribers to the IWRC newsletter.
    - Social media: The IWRC's social media accounts including Facebook, Instagram, X and LinkedIn including the LinkedIn Newsletter (143 subscribers) will be used to disseminate relevant air quality related information to Iowa small businesses.
    - Website: The IAEAP webpages can be accessed through the IWRC general website at www.iwrc.uni.edu. Included within the IAEAP webpages are permitting, recordkeeping and reporting (MSEI) information. Also included are industry specific NESHAP information, regulatory summaries, vendor lists, recordkeeping and compliance tools, links to Paint Tracker and GrainPTE, minor source emissions inventory resources, publications developed over the years, and contact information. Website content will be updated as deemed necessary.
    - Email lists: the IAEAP maintains lists of email addresses for businesses in industries that are impacted by specific air quality regulations. This enables staff to be able to distribute information quickly and directly to targeted facilities.
    - Trade/industry/educational presentations: the IAEAP staff will be available to provide presentations for trade associations, industry groups, and/or other entities that represent broad sectors of small businesses in Iowa as requested. The IAEAP will also be available to present on the program and air quality related topics to young professionals as requested.
    - The IAEAP staff will document all detailed (in-depth assistance involving more than one

hour of staff time with a client) and brief assistance (provided over the phone or email involving less than one hour of staff time) provided to Iowa small businesses.

2. Minor Source Emissions Inventory / State and Local Emissions Inventory System (SLEIS) Assistance

   Facilities in the DNR's field offices 2 and 5 (central Iowa) will be required to complete the minor source emissions inventory (MSEI) in FY26. The IAEAP will provide training and assistance to small businesses required to complete the 2025 minor source emissions inventory as outlined in the emissions inventory training proposal developed by the IAEAP and the DNR emissions inventory staff.

   The IAEAP's MSEI training webpage developed over the past several years will continue to be maintained and updated as deemed necessary by the DNR and/or the IAEAP. Online resources will include industry and process specific emissions calculators, tutorials and commonly used links.

   The IAEAP will continue to provide SLEIS related assistance during FY26 to businesses. At the request of the business, the IAEAP will be available to answer questions and support facilities in entering emissions inventory data and submitting their inventories in SLEIS.

   In the event changes to the federal Air Emissions Report Rule (AERR) are made, the IAEAP will work with the Iowa DNR to help educate, inform and guide small businesses on any impacts or changes that will need to be made to the emissions inventory process.

3. Iowa Air Quality Construction Permit / Iowa Easy Air Assistance

   The IAEAP will continue its history of assisting Iowa small businesses in complying with Iowa air quality permitting requirements. This assistance will include but is not limited to helping small businesses identify sources that emit regulated air pollutants and may require air quality construction permits. Staff will educate businesses on their permitting options including reviewing applicable exemptions. The IAEAP will also educate Iowa small businesses on monitoring and operating condition requirements outlined in their existing construction permits, reviewing or assisting with recordkeeping requirements and documentation and/or referring them to the DNR Air Quality Bureau if additional assistance with their construction permits is required.

   The IAEAP will continue to assist businesses in applying for air quality construction permits using the Iowa Easy Air online air permitting system. At the request of the company, the IAEAP will be available to provide guidance and answer questions as the business navigates the system.

   The IAEAP will continue to serve as a resource for the DNR air quality bureau and field office staff to refer small businesses who may need assistance with permit requirements or completing permit applications.

4. On-Site Visits

   On-site visits are provided by the IAEAP as requested by the clients. Site visits address compliance with air quality permitting requirements, permitting exemptions, recordkeeping requirements, applicable federal NESHAP requirements, reporting requirements, available resources, and pollution prevention techniques and opportunities. Compliance with air quality regulations are also discussed as part of the IWRC's multi- media site visits.

5. EPA Area Source NESHAP Rule Assistance

   The IAEAP will continue to aid Iowa small businesses impacted by new, modified, or existing Environmental Protection Agency (EPA) area source National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations. This assistance may include answering small businesses' questions, on-site visits to assist in developing compliance strategies for the business ensuring compliance, or the development of educational materials as deemed necessary by the DNR and the IAEAP.

6. Email Outreach

   The IAEAP will continue to contact grain elevators on an annual basis via an email sent in January reminding them of the requirement to calculate their PM10 PTE by January 31 (approximately 600 impacted facilities).

   The IAEAP will also continue to email the feed mill industry to remind them of recordkeeping and permitting requirements in addition to 7D NESHAP applicability (approximately 310 impacted facilities).

   The email campaign started in 2025 will continue to facilities subject to the 6X NESHAP reminding them of the annual reporting requirement that must be submitted by January 31 (approximately 75 impacted facilities).

7. Compliance Assistance Calendars

   IAEAP's current dry cleaning (approximately 80 facilities) and gasoline bulk plant (approximately 95 facilities) compliance calendars will be updated for at least calendar years 2026 and 2027, while also exploring options to make the calendar non-year- specific. Electronic and printed versions of the calendars will be made available.

   Due to recent updates to the gasoline bulk 6B NESHAP, the IAEAP is anticipating needing to complete a more detailed review of the gasoline bulk calendar during FY26 to ensure consistency with any rule changes. In addition, with the recent TSCA rule passed regarding the phase out of perc, additional information may need to be included with this calendar. The IAEAP with work with the DNR, industry or trade associations to determine appropriate changes to the calendars.

8. GrainPTE Enhancement

   The online version of the GrainPTE program developed by the IAEAP has been operating since 2014. The current program allows users to calculate their PM10PTE by entering throughput and process information. The program assists grain elevators in identifying the Group category they fall under along with the associated requirements.

   In addition to calculating the PTE requirements, the program also requires facilities to provide information such as permanent storage capacity. In FY26, the IAEAP will enhance the GrainPTE program to encourage facilities to update (if necessary) their storage capacity and flag facilities that may be subject to NSPS Subpart DD. The flag will identify facilities that enter a permanent storage capacity greater than 2.5 million bushels. Information will be shared with these companies regarding potential requirements under the NSPS and resources to call for additional information.

9. State of Iowa Online Asbestos Notification System

   Contractors are required to notify the DNR when performing asbestos abatement work. The DNR uses an online notification system for these notifications. During FY26, the IAEAP will receive training from the DNR related to the access, use and navigation of the online Asbestos Notification System.

   After proper training and guidance on using and navigating the system, the IAEAP will aid small business demolition and renovation contractors with setting up accounts, navigating the online application and submitting the required notifications electronically. Direct assistance to businesses will be provided as agreed upon by the DNR and the IAEAP and as time and resources allows.

10. Project Update Meetings

    The IAEAP will continue regular meeting with the DNR to discuss the elements of the work plan, address other topics as necessary and determine the priorities for outreach and training during FY26.

Budget and Allocation of Resources

The proposed IAEAP budget for FY26 is $230,090, which is the same as the last two fiscal years FY24 and FY25 budget. The 1.95 FTE includes a 0.7 FTE increase over the base 1.25 FTE to account for the increased effort related to continued Iowa Easy Air and SLEIS assistance; updates to the dry cleaning and gasoline bulk plant compliance calendars; ongoing email outreach to grain elevators, feed mills and 6X facilities; the enhancement to the GrainPTE program; and staff training and client assistance related to online Asbestos Notification System.

Iowa Department of Natural Resources
Environmental Protection Commission

ITEM #10 **DECISION**

Contract with LINN COUNTY

Recommendation:
Commission approval is requested for a service Contract with the county government of Linn County, Cedar Rapids, Iowa.

Contract Terms:

Amount: Not to exceed $792,813
Dates: July 1, 2025, to June 30, 2026
Funding Source(s): Cost reimbursable payments, as follows:

Funding Source	Not to Exceed
Title V Application Fees	$52,312
Title V Emissions Fees	$578,215
PSD Application Fees	$21,637
CAA §105 federal grant dollars	$123,150
CAA §103 federal grant dollars	$17,500

Statutory Authority: Iowa Code sections 455B.134(11), 455B.144, and 455B.145

Contract Background:
Under Iowa Code section 455B.134(11)-(12) local political subdivisions are able to address air quality issues in their jurisdictions and can establish their own rules, in accordance with Iowa Code Chapter 455B, Subchapter II. Linn County has had a local program, including ordinances and enforcement, in place since before DNR's delegation from EPA for a state air program.

As specified in Iowa Code section 455B.145 and 567 Iowa Administrative Code (IAC) Chapter 27, the Linn County Air Quality Division meets the conditions necessary to retain a local program. As established under the requirements of this Contract, the Linn County Air Quality Division is responsible for the ongoing implementation of an air program within their county.

In addition, Linn County has agreed to a funding commitment of $499,649 from local funding sources.

Contract Purpose:
The parties propose to enter into this Contract to specify the extent and manner of cooperation between the two agencies in conducting programs for the abatement, control, and prevention of air pollution within Linn County. Particular emphasis is placed on fulfilling the requirements of the federal Clean Air Act Amendments of 1990 through the collection and assessment of information regarding air quality, the permitting of sources of air emissions, the enforcement of emission limits, and the attainment and maintenance of ambient air quality standards. Please see **Attachment A** for the proposed Contract's Summary of Obligations and **Attachment B** for the proposed Contract's programmatic budget.

Selection Process Summary: This Contract is authorized by 11 IAC section 118.4, which states that if another governmental entity has resources available to supply a service sought by a state agency, the state agency may enter into an intergovernmental agreement with the other governmental entity and is not required to use competitive selection. The Contract is also authorized by Iowa Code chapter 28E and Iowa Code sections 455B.144 – 455B.145.

Contract History: Records indicate that DNR has been contracting with Linn County for implementation of an air program within Linn County since at least 1992. The Contract is re-negotiated annually with Linn County to provide services that allow for the ongoing implementation of an air program.

In 2016, 567 IAC Chapter 30 established fee rules and required the establishment of a fee structure by the DNR. As in SFY 2025, applicants of Title V and Prevention of Significant Deterioration (PSD) permits will be billed by the DNR at the rate established in the DNR fee schedule and Linn County will then be reimbursed by the DNR for their work on the project. Linn County has implemented their own fee structure for major (non-PSD) and minor source construction permit applications; these fees are used by Linn County to assist with their required funding commitment.

A summary of the terms for the past five years' contracts with Linn County are, as follows:

SFY 2025 Contract Terms:
Dates: July 1, 2024 to June 30, 2025
Amount: $789,751
Amendment(s): No amendments

SFY 2024 Contract Terms:
Dates: July 1, 2023 to June 30, 2024
Amount: $824,299
Amendment(s): No amendments

SFY 2023 Contract Terms:
Dates: July 1, 2022 to June 30, 2023
Amount: $1,020,425
Amendment(s): No amendments

SFY 2022 Contract Terms:
Dates: July 1, 2021 to June 30, 2022
Amount: $806,747
Amendment(s): No amendments

SFY 2021 Contract Terms:
Dates: July 1, 2020, to June 30, 2021
Amount: $804,363
Amendment(s): No amendments

Factors that contribute to variations in funding from year to year include ambient air monitoring (AAM) network equipment replacement and maintenance costs and AAM equipment vendor training requirements. Additionally, year to year variability arises from the expected number and complexity of applications for new and renewal Title V permits and PSD Permits. Of note, the 2026 Contract maintains the same Title V Emissions Fee funding level as 2025 because Linn County reduced this funding by approximately $40,000 in the previous contract.

Christine Paulson, Environmental Specialist Senior, Air Quality Bureau
Environmental Services Division
June 17, 2025

Attachment A: Linn County 2026 Summary of Obligations

The following is a summary of the obligations the Local Program shall complete to meet tasks identified in the 2026 Contract.

Obligation	Reference	Task Milestone Dates
General Provisions		
Personnel Commitment	5A.1(1)	Ongoing
Key Personnel	5A.1(2)	Ongoing
Training	5A.1(3)	Ongoing
Program Activity Summary	5A.1(4)(a)	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Training Summary	5A.1(4)(b)	Annually: July 31, 2026
Personnel Changes	5A.1(5)(a)	10 days from effective date
New Personnel Report	5A.1(5)(b)	10 days from start date
Fiscal Reporting	5A.2	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Convene Fee Advisory Group(s)	5A.3(1)	As scheduled by Linn in February or March 2026
Proposed Budget	5A.3(1)	January 15, 2026
Personnel Plan	5A.3(2)	January 15, 2026
Initial Agreement Review	5A.3(3)	March 31, 2026
Final Agreement Review	5A.3(4)	April 30, 2026
Website – Review & Update As Needed	5A.4(1)	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Routine Rule Revision	5A.5	As agreed upon by parties
MBE/WBE	5A.6	Annually: October 31, 2025
Intergovernmental Cooperation	5A.7(1)-(11)	As requested & agreed upon by parties
Attend Fee Advisory Groups	5A.7(8)	As scheduled by DNR
Construction Permitting Provisions		
Source Review	5B.1(1)	Ongoing
Permit Issuance	5B.1(2)	Ongoing
Draft Permit Review	5B.1(3)	Prior to Issuance
Permit Transfer	5B.1(4)	Upon Receipt
Permit/Modeling Procedure Utilization	5B.2	Ongoing
PSD Activities	5B.3	Ongoing
Proposed Final PSD permit	5B.3(1)	180 days after final application receipt
Pre-Application Protocol	5B.4	Ongoing
Receipt of 80% PSD pre-application	5B.4(1)(a)	2 weeks prior to pre-meeting
Copy of PSD pre-application to DNR & EPA	5B.4.(1)(b)	10 days prior to pre-meeting or after receipt of 100% application
Review Pre-Application Materials	5B.4(2)	Ongoing
PSD Application Review	5B.5	Ongoing
Denial of Permit Application	5B.5(1)(b)	As soon as possible
Prepare Draft PSD Permit	5B.6	Ongoing
Fact Sheet	5B.6(2)	Ongoing
Electronic Copy of Draft PSD permit	5B.6(3)	Prior to facility review
Permit Review by EPA	5B.7(1)	10 days prior to public comment
Public Notice & Participation	5B.7(2)	Ongoing
Changes to Draft Permit	5B.8(1)	Ongoing
Proposed Final PSD to DNR	5B.8(2)	Ongoing
Response to Comment	5B.8(4)(a)	Ongoing
BACT Data	5B.8(4)(b)	Within 30 days after permit issuance
Final PSD Permit to EPA	5B.8(4)(c)	After DNR Issuance

Obligation	Reference	Task Milestone Dates
Construction Permitting Provisions (cont'd)		
PSD Permit Modifications	5B.8(9)	Ongoing
Excel Report	5B.10	Semi-Annual: January 31, 2026, and July 31, 2026
Title V Permitting Provisions		
Three (3) Initial/Renewal permits	5C.1(1)	June 30, 2026
Issuance Schedule for Next Agreement Period	5C.1(1)(a)	May 15, 2026
Completeness Determination	5C.2(1)	60 days after receipt
Application Processing	5C.2(2)	Ongoing
Denial of Permit Application	5C.2(2)(b)	As soon as possible
Permit Drafting Procedures	5C.3	Ongoing
Fact Sheet	5C.3(2)	Ongoing
Draft Permit Review	5C.3(3)	Prior to Facility Review
Permit Review by EPA	5C.4(1)	Start of Public Comment Period
Affected States Review	5C.4(2)	Start of Public Notice
Public Notice & Participation	5C.4(3)	Ongoing
Response to Comments	5C.4(3)(e)	Ongoing
Changes to Draft Permit	5C.5(1)	Ongoing
Proposed Final Title V to DNR	5C.5(2)	Ongoing
Final Title V Permit to EPA	5C.5(3)	Within 30 days of DNR Issuance
Title V Renewals	5C.6	Ongoing
Reopening Issues Title V Permits	5C.7	Ongoing
Permit Changes	5C.8	Ongoing
Status Reports	5C.9	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Compliance Provisions		
Compliance Activities	5D.1	Ongoing
Notice of Violation	5D.1(2)(a)-(b)	Within 60 days
Electronic Compliance Schedules	5D.1(3)	Ongoing
Minimum 1 Joint Stack Test	5D.2	June 30, 2026
Inspection Schedule	5D.3(1)	Ongoing
Joint Inspection Documents	5D.3(2)	Provided prior to each inspection
Joint Inspection Report	5D.3(2)	30 days following each
Variances	5D.4	Ongoing
Training Fire Permits	5D.4(2)	DNR copied at time of issuance
CMS Plan	5D.5(1)	September 1, 2025
ICIS Reporting	5D.5(2)	15 days following reported month
Summary of Facility Actions	5D.5(2)	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Compliance Quarterly Report	5D.5(3)	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Emission Test Results	5D.6	Report to EPA (ICIS)
Ambient Air Monitoring Provisions		
Existing Network Operations	Table 2	Ongoing
Network Modifications	Table 3	None
Unscheduled Network Modifications	5E.1(1)(a)	Upon Request
Final Equipment List	5E.1(2)(a)	July 15, 2025
Vendor Training Selection	5E.1(3)(a)	July 15, 2025
Monitoring Sites	5E.1(3)	Ongoing
Daily Polling	5E.1(4)	Ongoing
High Concentration Reports	5E.1(5)	Ongoing
Quality System Implementation	5E.2(1)	Ongoing

Obligation	Reference	Task Milestone Dates
Ambient Air Monitoring Provisions (cont'd)		
Revised QA Documents	5E.2(2)	Within 40 working days
SO_2 or PSD Sites	5E.2(3)	Within 30 days of request
Annual Network/Quality Assurance Review	5E.2(5)	March 16, 2026
Training & Safety Plan	5E.3(1)	Ongoing
Coordination Meetings	5E.3(2)	Quarterly as scheduled
Equipment Inventory List	5E.3(3)	7 days after request
List of equipment to maintain & operate existing network	5E.3(4)(a)(1)	January 15, 2026
Equipment Replacement Schedule	5E.3(4)(a)(2)	January 15, 2026
List equipment to expand network (next Agreement), or written notice to DNR that no network expansion is planned.	5E.3(4)(b)	March 16, 2026
Network Modifications	5E.3(5)	Ongoing
Data Validation	5E.4(1)	Ongoing
Site Setup & Closure	5E.4(2)	Ongoing
AQS/PARS Data Submission	5E.4(3)	15 days following reported month
Data Screening	5E.4(4)	Ongoing
Monthly AQS Recordkeeping Requirements	5E.4(5)(a)	Monthly
Quarterly AQS Recordkeeping Requirements	5E.4(5)(b)	Quarterly
Real-time Monitoring	5E.4(6)	Ongoing
Toxics Monitoring	5E.4(7)	Ongoing
Exceedance Report	5E5(1)	Immediate
Weekly Network Status Report	5E.5(2)	Weekly – 1st working day
Monthly Continuous Monitor Report	5E.5(3)	15 working days following reported month
Monthly Report: SHL-PM FRM Monthly Report: SHL-Air Toxics Monthly Report: SHL-Speciation	5E.5(4)	20 working days after receipt from outside contractor
Monthly Equipment Procurement Report	5E.5(5)	15 working days following reported month
Quarterly Monitoring Report (Continuous & Non-Continuous)	5E.5(6)	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Computer audit (security & adequacy of backup)	5E.6(2)	September 1, 2025
AQS Upload of 0/Span Checks	5E.6(3)	January 1, 2026
Monitoring and Review		
Reporting Provisions	6.3	Ongoing
Compensation		
Invoice Submission	7.5	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Unmet Obligations	7.5(2)	With Quarterly Invoices as Needed
Billable Hour Documentation	7.5(2)(b)	With Quarterly Invoice as Needed

Attachment B: Linn County 2026 Programmatic Budget

Program		Funding Source									
Activity	**FTE**	**Total**	**County Annual Fee**	**County General Fund**	**County Minor CP App Fee**	**County Major (non-PSD) CP App Fee**	**103**	**105**	**Title V EI Fee**	**PSD App Fee**	**Title V App Fee**
TV Operating Permitting Personnel	0.40	$52,312									$52,312
Major Source Con Perm Personnel	0.99	$123,722				$123,722					
PSD Permitting Personnel	0.17	$21,637								$21,637	
Minor Source Con Perm Personnel	1.04	$126,105	$40,785	$31,997	$25,403			$27,919			
Program Development & Management	1.17	$142,760		$22,677					$120,083		
Compliance - Major	0.90	$120,180	$14,795	$0					$105,386		
Compliance - Minor	1.35	$179,160	$53,723	$52,325				$73,112			
Ambient Air Monitoring	3.18	$398,302	$9,851	$46,204			$14,551	$16,557	$311,140		
Personnel Subtotal	**9.20**	**$1,164,178**	**$119,153**	**$153,203**	**$25,403**	**$123,722**	**$14,551**	**$117,588**	**$536,609**	**$21,637**	**$52,312**
Travel/Training - Direct Expense		$20,000	$2,475	$11,594	$201	$2,600	$253	$564	$2,313		
Other		$18,911	$1,491	$11,929	$331	$1,542	$229	$674	$2,716		
Supplies		$9,823	$774	$6,002	$172	$801	$119	$350	$1,605		
One Time Allocation											
AAM: Engineering & Scientific Equipment		$15,000	$343	$10,230			$576	$779	$3,072		
AAM: Repair & Maintenance of Equipment		$24,050	$551	$15,958			$334	$1,248	$5,960		
AAM: Lab Supplies		$21,000	$481	$322			$806	$1,090	$18,301		
AAM: Monitoring Site Lease		$5,500	$126	$826			$211	$286	$4,051		
AAM: Monitoring Utilities		$11,000	$252	$9,169			$422	$571	$586		
AAM: Vendor Training		$3,000	$0	$0				$0	$3,000		
Direct Expense Subtotal		**$128,284**	**$6,492**	**$66,029**	**$705**	**$4,942**	**$2,949**	**$5,561**	**$41,605**	**$0**	**$0**
Total Linn County Budget	**9.20**	**$1,292,462**	**$125,645**	**$219,232**	**$26,108**	**$128,665**	**$17,499**	**$123,150**	**$578,214**	**$21,637**	**$52,312**

Iowa Department of Natural Resources
Environmental Protection Commission

ITEM #11 **DECISION**

Contract with POLK COUNTY

Recommendation:
Commission approval is requested for a service Contract with the county government of Polk County, Des Moines, Iowa.

Contract Terms:
Amount: Not to exceed $928,763
Dates: July 1, 2025, to June 30, 2026
Funding Source(s): Cost reimbursable payments, as follows:

Funding Source	Not to Exceed
Title V Application Fees	$124,916
Title V Emissions Fees	$619,656
CAA §105 federal grant dollars	$164,192
CAA §103 federal grant dollars	$20,000

Statutory Authority: Iowa Code sections 455B.134(11), 455B.144, and 455B.145

Contract Background:
Under Iowa Code section 455B.134(11)-(12) local political subdivisions are able to address air quality issues in their jurisdictions and can establish their own rules, in accordance with Iowa Code Chapter 455B, Subchapter II. Polk County has had a local program, including ordinances and enforcement, in place since before DNR's delegation from EPA for a state air program.

As specified in Iowa Code section 455B.145 and 567 Iowa Administrative Code (IAC) Chapter 27, the Polk County Air Quality Division meets the conditions necessary to retain a local program. As established under the requirements of this Contract, the Polk County Air Quality Division is responsible for the ongoing implementation of an air program within their county.

In addition, Polk County has agreed to a funding commitment of $630,000 from local funding sources.

Contract Purpose:
The parties propose to enter into this Contract to specify the extent and manner of cooperation between the two agencies in conducting programs for the abatement, control, and prevention of air pollution within Polk County. Particular emphasis is placed on fulfilling the requirements of the federal Clean Air Act Amendments of 1990 through the collection and assessment of information regarding air quality, the permitting of sources of air emissions, the enforcement of emission limits, and the attainment and maintenance of ambient air quality standards. Please see **Attachment A** for the proposed Contract's Summary of Obligations and **Attachment B** for the proposed Contract's programmatic budget.

Selection Process Summary:
This Contract is authorized by 11 IAC section 118.4, which states that if another governmental entity has resources available to supply a service sought by a state agency, the state agency may enter into an intergovernmental agreement with the other governmental entity and is not required to use competitive selection. The Contract is also authorized by Iowa Code chapter 28E and Iowa Code sections 455B.144 – 455B.145.

Contract History:
Records indicate that DNR has been contracting with Polk County for implementation of an air program within Polk County since at least 1992. The Contract is re-negotiated annually with Polk County to provide services that allow for the ongoing implementation of an air program.

In 2016, 567 IAC Chapter 30 established fee rules and required the establishment of a fee structure by the DNR. As in SFY 2025, applicants of Title V permits will be billed by the DNR at the rate established in the DNR fee schedule and Polk County will then be reimbursed by the DNR for their work on the project. Polk County has implemented their own fee structure for major and minor source construction permit applications; these fees are used by Polk County to assist with their required funding commitment.

A summary of the terms for the past five years' contracts with Polk County are, as follows:

SFY 2025 Contract Terms:
Dates: July 1, 2024 to June 30, 2025
Amount: $995,620
Amendment(s): No amendments

SFY 2024 Contract Terms:
Dates: July 1, 2023 to June 30, 2024
Amount: $981,684
Amendment(s): No amendments

SFY 2023 Contract Terms:
Dates: July 1, 2022 to June 30, 2023
Amount: $1,085,270
Amendment(s): No amendments

SFY 2022 Contract Terms:
Dates: July 1, 2021 to June 30, 2022
Amount: $993,334
Amendment(s): No amendments

SFY 2021 Contract Terms:
Dates: July 1, 2020, to June 30, 2021
Amount: $895,752
Amendment(s): No amendments

Factors that contribute to variations in funding from year to year include ambient air monitoring (AAM) network equipment replacement and maintenance costs and AAM equipment vendor training requirements. Additionally, year to year variability arises from the expected number and complexity of applications for new and renewal Title V permits. Of note, the Title V Emissions Fees funding portion of the Contract has been reduced by approximately $40,000 from the SFY 2025 funding level.

Christine Paulson, Environmental Specialist Senior, Air Quality Bureau
Environmental Services Division
June 17, 2025

Attachment A: Polk County 2026 Summary of Obligations

The following is a summary of the obligations the Local Program shall complete to meet tasks identified in the 2026 Contract.

Obligation	Reference	Task Milestone Dates
General Provisions		
Personnel Commitment	5A.1(1)	Ongoing
Key Personnel	5A.1(2)	Ongoing
Training	5A.1(3)	Ongoing
Program Activity Summary	5A.1(4)(a)	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Training Summary	5A.1(4)(b)	Annually: July 31, 2026
Personnel Changes	5A.1(5)(a)	10 days from effective date
New Personnel Report	5A.1(5)(b)	10 days from start date
Fiscal Reporting	5A.2	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Seek Board Approval to Convene Fee Groups	5A.3(1)	October 1, 2025
Convene Fee Advisory Groups	5A.3(1)	Prior to January 15, 2026 (or as scheduled by the Local Program in February or March 2026)
Proposed Budget	5A.3(1)	January 15, 2026
Personnel Plan	5A.3(2)	January 15, 2026
Initial Agreement Review	5A.3(3)	March 31, 2026
Final Agreement Review	5A.3(4)	April 30, 2026
Website – Review & Update As Needed	5A.4(1)	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Rule Revision	5A.5	As agreed upon by parties
MBE/WBE	5A.6	Annually: October 31, 2025
Intergovernmental Cooperation	5A.7(1)-(11)	As specified in the Agreement and as requested & agreed upon by parties
Attend Fee Advisory Groups	5A.7(8)	As scheduled by DNR
Construction Permitting Provisions		
Source Review	5B.1(1)	Ongoing
Permit Issuance	5B.1(2)	Ongoing
Draft Permit Review	5B.1(3)	Prior to Issuance
Permit Transfer	5B.1(4)	Upon Receipt
Permit Referrals	5B.1(5)	Upon Receipt
Permit Coordination	5B.1(6)	Ongoing
Regulatory Determination	5B.1(6)(d)	Prior to Final Determination
Pre-Application Meeting	5B.1(6)(e)	As scheduled by DNR
Permit Issuance	5B.1(6)(f)	After DNR Issuance of Permit
Permit/Modeling Procedure Utilization	5B.2	Ongoing
Excel Report	5B.3	Semi-Annual: January 31, 2026 and July 31, 2026
Title V Permitting Provisions		
Four (4) initial/renewal permits	5C.1(1)	June 30, 2026

Obligation	Reference	Task Milestone Dates
Title V Permitting Provisions (con't)		
Issuance Schedule	5C.1(2)(a)	May 15, 2026
Completeness Determination	5C.2(1)	60 days after receipt
Denial of Permit Application	5C.2(2)(b)	As soon as possible
Application Processing	5C.2(2)	Ongoing
Permit Drafting Procedures	5C.3	Ongoing
Fact Sheet	5C.3(2)	Ongoing
Draft Permit Review	5C.3(3)	Prior to Facility Review
Permit Review by EPA	5C.4(1)	Start of Public Comment Period
Public Notice & Participation	5C.4(2)	Ongoing
Response to Comments	5C.4(2)(e)	Ongoing
Changes to Draft Permit	5C.5(1)	Ongoing
Proposed Final Title V to DNR	5C.5(2)	Ongoing
Final Title V Permit to EPA	5C.5(3)	Within 30 days DNR Issuance
Title V Renewals	5C.6	Ongoing
Reopening Issued Title V	5C.7	Ongoing
Permit Changes	5C.8	Ongoing
Status Reports	5C.9	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Compliance Provisions		
Compliance Activities	5D.1	Ongoing
Notice of Violation	5D.1(2)(a)-(b)	Within 60 days
Electronic Compliance Schedules	5D.1(3)	Ongoing
Minimum 1 Joint Stack Test	5D.2	June 30, 2026
Inspection Schedule	5D.3(1)	Ongoing
Joint Inspection Documents	5D.3(2)	Provided prior to each inspection
Joint Inspection Report	5D.3(2)	30 days following each
Variances	5D.4	Ongoing
Burn Permits	5D.4(1)	DNR copy at time of issuance
Training Fire Permits	5D.4(2)	DNR copy at time of issuance
CMS Plan	5D.5(1)	September 1, 2025
ICIS Reporting	5D.5(2)	15 days following reported month
Summary of Facility Actions	5D.5(2)	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Compliance Quarterly Report	5D.5(3)	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Emission Test Results	5D.6	Report to EPA (ICIS)
Ambient Air Monitoring Provisions		
Existing Network Operations	Table 2	Ongoing
Network Modifications	Table 3	N/A
Unscheduled Network Modifications	5E.1(1)(a)	Upon Request
Final Equipment List	5E.1(2)(a)	July 15, 2025
Vendor Training Selection	5E.1(3)	July 15, 2025
Monitoring Sites	5E.1(4)	Ongoing
Daily Polling	5E.1(5)	Ongoing
Real-time Monitoring	5E.1(6)	Ongoing

Obligation	Reference	Task Milestone Dates
Ambient Air Monitoring Provisions (con't)		
High Concentration Reports	5E.1(6)	Ongoing
Quality System Implementation	5E.2(1)	Ongoing
Revised QA Documents	5E.2(2)	Within 40 working days
PSD Sites	5E.2(3)	Within 30 days of request
Annual Network/Quality Assurance Review	5E.2(5)	March 16, 2026
QA FTE Commitment	5E.2(6)	Ongoing
Coordination Meetings	5E.3(2)	Quarterly as scheduled
Equipment Inventory List	5E.3(3)	7 days after request
List of equipment to maintain & operate existing network	5E.3(4)(a)(1)	January 15, 2026
Equipment Replacement Schedule	5E.3(4)(a)(2)	January 15, 2026
List equipment to expand network (next Agreement), or provide a written notice that no network expansions are planned.	5E.3(4)(b)	March 16, 2026
Network Modifications	5E.3(5)	Ongoing
Data Validation	5E.4(1)	Ongoing
Site Setup & Closure	5E.4(2)	Ongoing
AQS/PARS Data Submission	5E.4(3)	15 days following reported month
Data Screening	5E.4(4)	Ongoing
Monthly AQS Recordkeeping Requirements	5E.4(5)(a)	Monthly
Quarterly AQS Recordkeeping Requirements	5E.4(5)(b)	Quarterly
Toxics Monitoring	5E.4(6)	Ongoing
Exceedance Report	5E.5(1)	Immediate
Weekly Network Status Report	5E.5(2)	Weekly – 1st working day
Monthly Continuous Monitor Report	5E.5(3)	15 working days following reported month
Monthly Report: SHL-PM FRM Monthly Report: SHL-Air Toxics	5E.5(4)	20 days after receipt from outside contractor
Monthly Equipment Procurement Report	5E.5(5)	15 days following reported month
Quarterly Monitoring Report (Continuous)	5E.5(6)	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Computer audit (security and adequacy of backup)	5E.6(1)	September 1, 2025
Monitoring and Review		
Reporting Provisions	6.3	Ongoing
Compensation		
Invoice Submission	7.5	Quarterly: October 31, 2025; January 31, 2026; April 30, 2026; and July 31, 2026
Unmet Obligations	7.5(2)(a)	With Quarterly Invoice as Needed
Billable Hour Documentation	7.5(2)(b)	With Quarterly Invoice as Needed

Attachment B: Polk County 2026 Programmatic Budget

Program		Funding Source								
Activity	**FTE**	**Total**	**County Annual Fee**	**County General Fund**	**County Minor CP App Fee**	**County Major (non-PSD) CP App Fee**	**103**	**105**	**Title V EI Fee**	**Title V App Fee**
TV Operating Permitting Personnel	0.68	$119,336								$119,336
Major Source Con Perm Personnel	0.53	$83,622		$25,087		$58,535				
Minor Source Con Perm Personnel	1.42	$220,142	$145,294	$37,424	$37,424					
Program Development & Management	1.73	$261,057	$69,364					$23,493	$168,200	
Compliance - Major	0.45	$78,668	$787						$77,882	
Compliance - Minor	0.74	$103,214	$17,650					$85,564		
Local Program Permits	0.89	$147,339	$44,202	$103,137						
Ambient Air Monitoring	3.31	$420,986	$54,042				$20,000	$40,834	$306,110	
Indirect Costs		$25,000	$5,722		$1,305	$1,457		$2,676	$11,759	$2,080
Personnel Subtotal	**9.75**	**$1,459,363**	**$337,060**	**$165,648**	**$38,729**	**$59,993**	**$20,000**	**$152,568**	**$563,950**	**$121,416**
Travel/Training - Direct Expense		$7,100	$1,530		$272	$300		$814	$3,683	$500
Supplies		$9,400	$1,930		$340	$400		1,054	$4,676	$1,000
Other		$18,400	$3,989		$850	$900		$2,015	$8,646	$2,000
AAM: Engineering & Scientific Equipment		$18,000	$5,040					$2,160	$10,800	
AAM: Repair & Maintenance of Equipment		$19,925	$5,579					$2,391	$11,955	
AAM Data Processing Equipment		$14,075	$3,941					$1,689	$8,445	
AAM: Lab Supplies		$5,000	$1,400					$600	$3,000	
AAM: Monitoring Site Needs/Monitoring Utilities		$2,500	$700					$300	$1,500	
AAM: Vendor Training		$5,000	$1,400					$600	$3,000	
Direct Expense Subtotal		**$99,400**	**$25,509**	**$0**	**$1,462**	**$1,600**	**$0**	**$11,624**	**$55,706**	**$3,500**
Total Polk County Budget		**$1,558,763**	**$362,569**	**$165,648**	**$40,191**	**$61,593**	**$20,000**	**$164,192**	**$619,656**	**$124,916**

Iowa Department of Natural Resources
Environmental Protection Commission

ITEM #12 **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 $1,896,942
Dates: July 1, 2025 – June 30, 2026
Funding Source(s): Cost reimbursable payments, as follows:

Funding Source	Not to Exceed
Title V Air Contaminant Funds	$886,839
Clean Air Act Section 103 Federal Grants	$435,103
State Environmental First Funds	$425,000
Clean Air Act Section 105 Federal Grant Funds & State General Fund	$140,000
Air Quality Fund – Asbestos Account	$10,000

Statutory Authority: Iowa Code section 455B.103

Contract Background:
Under Iowa Code section 455B.103, DNR has responsibility for conducting ambient air monitoring in the State of Iowa. Under DNR's direction, SHL currently operates most of the ambient air monitoring sites in Iowa. SHL also provides analytical and technical support for ambient air monitoring activities throughout the state including those at the local air quality programs. It weighs particulate samples and performs analysis of air samples for toxic compounds. SHL also provides analysis of asbestos samples gathered by DNR inspectors. SHL conducts annual audits of its own ambient air monitoring activities as well as those of the Polk and Linn County Local Programs. This Contract provides for a continuation of these essential services.

Contract Purpose:
The parties propose to enter into this Contract for the purpose of retaining SHL to perform ambient monitoring and related services in support of the DNR Air Quality Bureau.

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

Contract History:
DNR has contracted with the University of Iowa for ambient air monitoring services for over thirty years.

SFY 2025 Contract Terms:
Dates: July 1, 2024 to June 30, 2025
Amount: $1,839,136
Amendment(s): No amendments

SFY 2024 Contract Terms:
Dates: July 1, 2023 to June 30, 2024
Amount: $1,836,088
Amendment(s): No amendments

SFY 2023 Contract Terms:
Dates: July 1, 2022 to June 30, 2023
Amount: $2,041,186
Amendment(s): No amendments

Wendy Walker, Environmental Specialist Senior, Air Quality Bureau
Environmental Services Division
June 17, 2025

5.1 Statement of Work. Contractor shall perform the following Tasks. Contractor shall complete its obligations under this Contract by the Task Milestone Dates set out in the following table. Appendix A is attached to and by this reference and made a part of this Contract.

Obligation	Task Milestone Date
Task 1: Particulate Filter Sampling Network Operation Contractor shall operate the particulate filter federal reference method (FRM) Ambient Monitoring Network described in Appendix A. **Task 1a:** Contractor shall obtain, equilibrate, weigh, load, retrieve, equilibrate, and reweigh filters for FRM samplers for $PM_{2.5}$ and PM_{10}. Samplers shall include five samplers operating on a daily schedule, twelve samplers operating once every three days, and four samplers operating on a one in six schedule. **Task 1b:** Contractor shall procure filters for the Polk and Linn County Local Programs and supply Polk and Linn Counties with equilibrated and pre-weighed filters for their FRM samplers and equilibrate and reweigh the filters after sampling. **Task 1c:** Contractor shall operate a filter weighing laboratory as listed in 40 CFR Part 50, Appendix L, and shall use the current data validation templates available on AMTIC. **Task 1d:** Contractor shall perform all quality assurance procedures as described in Task 17 including sampler testing, calibration, and verification before deployment, checks of sampler measured temperature, barometric pressure, and flow rate, leak checks, audits, and sampler maintenance as described in the equipment operations manuals, 40 CFR Part 50 and 40 CFR Part 58, the current version of the Quality Assurance Handbook for Air Pollution Measurement Systems Volume II, the EPA data validation templates for $PM_{2.5}$ and PM_{10} local conditions, and additional EPA guidance (https://www.epa.gov/quality/guidance-preparing-standard-operating-procedures-epa-qag-6-march-2001) and DNR guidance and requirements in the QAPP and SOP's described or referred to in this Contract. **Task 1e:** Data upload and quality assurance. SHL shall upload all required data for particulate filter and sampler data ($PM_{2.5}$, PM coarse, and PM_{10}) to the Air Quality System (AQS) database as specified in the DNR-approved SOP and run and review reports in AQS, validate the data, and complete reporting as described in Task 18 of this document.	These responsibilities shall be conducted throughout the term of the Contract. SHL shall provide weekly network status reports, monthly and quarterly monitoring reports, and immediate emergency episode reports as specified in Section 6.3. AQS/PARS Upload: SHL shall report the data on 30th of the month following the month of data collection to the AQS database.
Task 2: Ozone Network Operation Contractor shall operate the ozone Ambient Monitoring Network described in Appendix A. **Task 2a:** Contractor shall operate collocated analyzers and associated transfer standards at 9 sites as listed in Appendix A. Eight sites are seasonal and shall be operated from March 1 through October 31, and the NCore site in Davenport shall be operated year-round.	These responsibilities shall be conducted throughout the term of the Contract. SHL shall provide weekly network status reports, monthly and quarterly monitoring reports, and immediate emergency

Obligation	Task Milestone Date
Task 2b: Contractor shall operate the network consistent with 40 CFR, Part 58 and perform all quality assurance and data management activities according to Tasks 17 and 18 below.	episode report as specified in Section 6.3. AQS/PARS Upload: SHL shall report the data on 15th of the month following the month of data collection to the AQS database.
Task 3: Sulfur Dioxide (SO2) Network Operation Contractor shall operate the SO_2 monitoring network described in Appendix A. The DNR SO_2 network consists of 5 sites as listed in Appendix A. All sites shall be operated year-round. **Task 3a:** Contractor shall operate the network consistent with 40 CFR, Part 58 and perform all quality assurance and data management activities according to Tasks 17 and 18 below.	These responsibilities shall be conducted throughout the term of the Contract. Weekly network status reports, monthly and quarterly monitoring reports, and immediate emergency episode report as specified in Section 6.3. AQS/PARS Upload: SHL shall report the data on 15th of the month following the month of data collection to the AQS database.
Task 4: BAM (beta attenuation monitor) Continuous Network Operation Contractor shall operate the $PM_{2.5}$ and PM_{10} BAM monitoring network described in Appendix A. The DNR BAM particulate network consists of 1 site with collocated PM_{10} monitors and 5 sites with collocated $PM_{2.5}$ BAM monitors as listed in Appendix A. All sites shall be operated year-round. **Task 4a:** Contractor shall operate the network consistent with 40 CFR, Part 58 and perform all quality assurance and data management activities according to Tasks 17 and 18 below.	These responsibilities shall be conducted throughout the term of the Contract. Weekly network status reports, monthly and quarterly monitoring reports, and immediate emergency episode report as specified in Section 6.3. AQS/PARS Upload: SHL shall report the data on 15th of the month following the month of data collection to the AQS database.
Task 5: $PM_{2.5}$ Teledyne T640 Continuous Network Operation Contractor shall operate the $PM_{2.5}$ Teledyne T640 monitoring network described in Appendix A.	These responsibilities shall be conducted throughout the term of the Contract.

Obligation	Task Milestone Date
The DNR T640 particulate network consists of 3 sites with collocated $PM_{2.5}$ T640 monitors as listed in Appendix A. All sites are to be operated year-round. **Task 5a:** Contractor shall operate the network consistent with 40 CFR, Part 58 and perform all quality assurance and data management activities according to Tasks 17 and 18 below.	Weekly network status reports, monthly and quarterly monitoring reports, and immediate emergency episode report as specified in Section 6.3. AQS/PARS Upload: SHL shall report the data on 15th of the month following the month of data collection to the AQS database.
Task 6: Nitrogen Dioxide (NO2) Network Operation Contractor shall operate the NO_2 monitoring network described in Appendix A. The DNR NO_2 network consists of 2 sites as listed in Appendix A. All sites are to be operated year-round. **Task 6a:** Contractor shall operate the NO_2 network consistent with 40 CFR, Part 58 and perform all quality assurance and data management activities according to Tasks 17 and 18 below.	These responsibilities shall be conducted throughout the term of the Contract. Weekly network status reports, monthly and quarterly monitoring reports, and immediate emergency episode report as specified in Section 6.3. AQS/PARS Upload: SHL shall report the data on 15th of the month following the month of data collection to the AQS database.
Task 7: Carbon Monoxide (CO) Network Operation Contractor shall operate the CO monitoring network described in Appendix A. The DNR CO network consists of a single site as listed in Appendix A. This site is to be operated year-round. **Task 7a:** Contractor shall operate the CO network consistent with 40 CFR, Part 58 and perform all quality assurance and data management activities according to Tasks 17 and 18 below.	These responsibilities shall be conducted throughout the term of the Contract. Weekly network status reports, monthly and quarterly monitoring reports, and immediate emergency episode report as specified in Section 6.3. AQS/PARS Upload: SHL shall report the data on 15th of the month following the month of data collection to the AQS database.

Obligation	Task Milestone Date
Task 8: Lead (Pb) Network Operation Contractor shall operate the lead monitoring network described in Appendix A. The DNR lead network consists of a single site as listed in Appendix A. The lead site includes collocated high-volume samplers that each collect samples on a 1 in six day schedule as well as a third sampler kept in operable condition as a backup and to provide a platform for filters collected for quality assurance. The lead site is to be operated year-round. **Task 8a:** Contractor shall operate the lead network consistent with 40 CFR, Part 58 and perform all quality assurance and data management activities according to Tasks 17 and 18 and including the activities listed below. **Task 8b: Lead Monitoring Activities.** SHL shall perform all of the following lead monitoring activities in support of the DNR lead monitoring network. - provide shipping containers as needed to insure sample handling is conducted in accordance with the QAPP and SOP's described in Tasks 17 and 18 below; - maintain an inventory of supplies and consumables sufficient to support lead monitoring efforts in the State; and - report lead data analysis results to the DNR and upload to the AQS database within forty-five (45) days from the end of the month in which the samples were collected; and enter all non-zero values (even if less than the MDL or IDL) into the AQS database along with appropriate flags and the MDL for each concentration. **Task 8c: Lead Analysis.** The SHL lead analysis laboratory shall provide support and analysis for lead samplers, as directed by the DNR. Lead analysis costs for the Contract period shall be $0.00 per sample. The SHL lead laboratory shall: - operate all laboratory equipment in accordance with EPA/DNR approved QAPP, SOPs, and manufacturer's operation manuals; - conduct a method detection limit determination for lead for each analyte on each filter substrate at a minimum annual frequency; - analyze filter samples as determined by the DNR; and maintain an inventory of supplies and consumables sufficient to support lead monitoring efforts in the state.	These responsibilities shall be conducted throughout the term of the Contract. AQS/PARS Upload: SHL shall report lead data analysis results to the DNR and upload to the AQS database within forty-five (45) days from the end of the month in which the samples were collected. SHL shall enter all non-zero values (even if less than the MDL or IDL) into the AQS database along with appropriate flags and the MDL for each concentration.
Task 9: Air Toxics (TO-11a parameters) Network Operation **Air toxics Monitoring Activities.** Contractor shall operate the air toxics monitoring network described in Appendix A. The DNR toxics network consists of 1 site as listed in Appendix A. The toxics site samples shall be collected on a 1 in 12-day schedule. The toxics site shall be operated year-round.	These responsibilities shall be conducted throughout the term of the Contract. SHL shall report toxic data analysis results to the DNR within forty-five (45) days from the end of the month when the samples were collected.

Obligation	Task Milestone Date
Task 9a: Contractor shall operate the toxics network and perform all quality assurance and data management activities according to Tasks 17 and 18 and including the activities listed below. SHL shall perform all of the following toxic monitoring activities in support of the air toxics monitoring network. - Field Activities. SHL shall perform all field activities at toxic monitoring sites in the DNR network. These duties include sample collection, calibrations, audits, and routine maintenance for all toxics monitors. These duties shall be performed in accordance with EPA/DNR approved QAPP and SOP's. - SHL shall be responsible for setting up and shutting down toxics sites in AQS and shall validate toxics data in accordance with EPA/DNR approved QAPP and SOP's. SHL shall upload toxics data to AQS unless otherwise directed by the DNR. - SHL shall enter all non-zero values (even if less than the MDL or IDL) into the AQS database along with appropriate flags and the MDL for each concentration. - SHL shall report toxic data analysis results to the DNR within forty-five (45) days from the end of the month when the samples were collected. **Task 9b: Toxics Analysis Laboratory.** SHL shall manage and operate the state's TO-11a air toxics analysis laboratory in support of the state toxics monitoring network. The laboratory shall provide support and analysis for toxic samplers operated by the Polk and Linn County Local Programs or by SHL, as directed by the DNR. The SHL toxics laboratory shall: - operate all laboratory equipment in accordance with EPA/DNR approved QAPP, SOPs, and manufacturer's operation manuals; - analyze cartridge samples as well as other appropriate samples as determined by the DNR; - conduct a method detection limit analysis for toxics at a minimum annual frequency; - provide shipping containers, coolers, thermometers, and ice substitute packs as needed to insure sample handling is conducted in accordance with the EPA/DNR approved QAPP and SOPs; and - maintain an inventory of supplies and consumables sufficient to support toxic monitoring efforts in the state.	SHL shall enter all non-zero values (even if less than the MDL or IDL) into the AQS database along with appropriate flags and the MDL for each concentration.
Task 10: $PM_{2.5}$ Speciation (CSN protocol) Network Operation Contractor shall operate the $PM_{2.5}$ speciation monitoring network described in Appendix A. The DNR $PM_{2.5}$ speciation site shall be operated according to the Chemical Speciation Network (CSN) protocol at the NCore site as listed in Appendix A. The site collects samples on a 1 in 3-day schedule year-round.	These responsibilities shall be conducted throughout the term of the Contract.

Obligation	Task Milestone Date
Task 10a: Contractor shall operate the $PM_{2.5}$ Speciation network consistent with 40 CFR, Part 58 and perform all quality assurance and data management activities according to Tasks 17 and 18 and EPA CSN network guidance. **Task 10b: $PM_{2.5}$ Speciation Activities.** SHL shall perform all of the following activities in support of the $PM_{2.5}$ speciation network: – Field Activities. SHL shall perform all field activities at speciation sites specified in this agreement including transmission of sampler performance data to EPA's National Speciation Laboratory. In addition, SHL shall be responsible for the performance of all calibrations, audits, and routine maintenance for all $PM_{2.5}$ speciation monitors. Data validation and AQS maintenance. SHL shall be responsible for setting up or shutting down speciation sites in AQS and shall validate speciated $PM_{2.5}$ data in cooperation with EPA's National Speciation Laboratory.	
Task 11: Low Cost Sensor (Purple Air) Network Operation **Sensor testing.** As directed by DNR, SHL shall test sensors for comparability with regulatory monitors. SHL shall: – insure that these comparability studies do not compromise the data quality from SHL's regulatory monitors; – monitor sensor data on a daily basis and promptly replace or repair malfunctioning sensors; – stock adequate backup sensors in order to promptly replace malfunctioning sensors; – provide monthly and quarterly reports to DNR containing data capture rates, installation, repair and removal dates and other data quality metrics for all sensors; – utilize the Google Big Query data warehouse, the low-cost sensors' API, or equivalent, to gather and provide access to its citizen science data. SHL shall archive hourly average sensor data; and – coordinate any sensor deployments with DNR to ensure that appropriate data quality objectives (including calibration requirements) for sensors have been established before public reporting of the data has been initiated.	These responsibilities shall be conducted throughout the term of the Contract.
Task 12: Network Site Modifications SHL shall operate the monitoring network indicated in Appendix A with modifications as listed below and as necessary, as instructed by DNR. **Network Planning Report.** SHL shall submit a proposal for additional equipment for the next contract by February 15.	SHL shall propose additional equipment by February 15, 2026, for the next contract period.
Task 13: Supplies & Storage SHL shall purchase supplies for the ambient monitoring network. Supplies shall include but are not limited to the following: calibration and associated shipping charges, cylinder rent, storage, BAM tape, digestion vessels, petri dishes, in-line	These responsibilities shall be conducted throughout the term of the Contract.

Obligation	Task Milestone Date
filters, and other monitoring consumables needed to support the ambient monitoring network.	
Task 14: Vendor Training SHL shall schedule and host ambient air monitor equipment vendor training and shall invite Polk and Linn County Local Program and DNR personnel to attend.	Vendor training shall be hosted by no later than June 30, 2026.
Task 15: Polk and Linn County Local Program Assistance **Task 15a: Technical Assistance to the Polk and Linn County Local Programs.** SHL shall provide technical assistance to the Polk and Linn County Local Programs in matters related to the operation of the Local Program monitoring networks. **Task 15b: Polk and Linn County Local Program Quality Assurance Audits.** SHL shall perform quality assurance reviews of the Polk and Linn County Local Programs' air quality laboratories and monitoring programs using the forms and procedures found in Volume II, Appendix H, of the Quality Assurance Handbook for Air Pollution Measurement Systems.	These responsibilities shall be conducted throughout the term of the Contract. SHL shall perform a quality assurance review for each Local Program during the term of the contract.
Task 16: Additional Duties **Task 16a: Change in Sampling Frequency.** SHL shall change sampling frequency at a monitor site within thirty (30) days of written notice by the DNR. **Task 16b: Annual Review of Computer Security.** SHL shall submit an annual review of its computer security plan to the DNR by August 1. This plan shall indicate the strategy by which SHL shall insure the security of all data gathered under the terms of this Contract. This review shall include a review of remote computers and data acquisition systems. The plan shall be reviewed and signed by SHL's computer services supervisor.	SHL shall change sampling frequency within 30 days of written notice. SHL shall submit an annual review of its computer security plan to the DNR by August 1.
Task 17: Quality Assurance **Task 17a: SHL Internal Quality Assurance Activities Quality System.** SHL shall implement a Quality System in accordance with EPA guidance in order to assure the quality of its air monitoring activities. The Quality System developed by SHL shall insure that the environmental data generated by SHL meets the requirements of EPA and DNR. This shall include development and implementation of a Quality Management Plan (QMP) according to EPA guidance document QA/R-2, development and implementation of Quality Assurance Project Plans (QAPP's) consistent with EPA guidance document QA/R-5, and development and implementation of Standard Operating Procedures (SOP's) for operation of air monitoring equipment, data handling, laboratory analyses, and other repetitive procedures. The QAPP/SOP's shall be reviewed and revised as necessary to remain current with EPA requirements outlined in 40 CFR Part 58, guidance in the current edition of EPA's Quality Assurance Handbook for Air Pollution Measurement Systems ("the Redbook 2017"), and applicable EPA guidance or DNR written requests. EPA guidance for preparing SOP's is found at https://www.epa.gov/quality/guidance-preparing-standard-operating-procedures-epa-qag-6-march-2001. A complete set of QMP/QAPP's/SOP's for all air monitoring activities shall be submitted to the DNR electronically in PDF format as a component of the annual review of air monitoring activities.	Electronic copies of all proposed revisions to quality assurance documents shall be provided to the DNR at least thirty (30) days prior to compliance monitoring data generation. QAPP/SOP revisions shall be submitted to EPA/DNR within thirty (30) days following either the promulgation of new monitoring rules or procedures by EPA as requested in writing (email) from the DNR, or by written notification of a

Obligation	Task Milestone Date
Task 17b: Revision of Quality Assurance Documents. Substantive revisions of SHL's QMP/QAPP's/SOP's require approval of the DNR and EPA. Electronic copies of all proposed revisions to quality assurance documents shall be provided to the DNR at least thirty (30) days prior to compliance monitoring data generation. QAPP/SOP revisions shall be submitted to EPA/DNR within thirty (30) days following: (1) promulgation of new monitoring rules or procedures by EPA as requested in writing (email) from the DNR, or (2) written notification of a deficiency in procedures by EPA/DNR. Upon receipt of new equipment for which no QAPP/SOP exists, SHL shall develop a new SOP for operation of the equipment within sixty (60) days of equipment receipt. SHL shall not deploy monitoring equipment for compliance monitoring without an associated approved QAPP/SOP.	deficiency in procedures by EPA or DNR. Electronic copies of new SOP to quality assurance documents shall be provided to the DNR at least sixty (60) days following receipt and before deployment unless an alternative date or timeline is agreed to by DNR.
Task 17c: EPA Audit programs. SHL shall participate in EPA's National Performance Audit Program (NPAP) and the performance evaluation program (PEP) (Performance Evaluation Program) for PM_{10} and $PM_{2.5}$ monitoring, and EPA-conducted technical systems audits (TSA's). SHL shall schedule at least one annual NPAP audit for all monitors for which NPAP audit devices are available, pursuant to 40 CFR, Part 58, Section 2.4. At the request of DNR, SHL shall conduct additional audits including but not limited to performance audits, systems audits, and review of quality assurance documents (e.g. QMP's, QAPP's or SOP's).	SHL shall schedule at least one annual NPAP audit for all monitors for which NPAP audit devices are available.
Task 17d: Annual Network/Quality Assurance Review. By March 15, SHL shall demonstrate that its quality system is sufficiently developed, and that its monitors are appropriately sited according to the provisions of 40 CFR, Part 58, Appendix E. In addition, SHL shall review its Air Quality System (AQS)/ Precision and Accuracy Reporting System (PARS) data and site/monitor parameters in the AQS database for errors during the previous calendar year, and then generate graphical and statistical summaries of the data. SHL shall evaluate the data relative to EPA acceptance criteria for data completeness, precision and accuracy. On the basis of this review, SHL shall submit its annual State and Local Air Monitoring Stations (SLAMS) certification letter to DNR in hard copy and electronic formats for DNR review. The Annual Network/Quality Assurance review shall contain all of the following components: – a complete, current set of Quality assurance documentation (QMP/QAPP's/SOP's) submitted to the DNR in electronic format (PDF); – AQS/PARS raw data listings generated from the AQS system (AQS AMP251 and AMP350 reports) in electronic format for all monitors operated by SHL for the calendar year under review; – graphs of concentration vs. time submitted in electronic format for all monitors operated by SHL for the calendar year under review; – completed current National Ambient Air Monitoring Technical Systems Audit Form in electronic format; – completed annual systems audit forms of the toxics, lead and filter weighing laboratories using a protocol approved by the DNR and consistent with EPA Guidance (EPA QA/G7), which shall be submitted to DNR in writing;	The draft Annual Network/Quality Assurance Review shall be submitted to the DNR by March 15 for DNR review. Upon DNR review, changes shall be made and the final annual review shall be submitted no later than April 15.

Obligation	Task Milestone Date
– a completed BAM TSA checklist (last updated 5/12/15) for each BAM monitor operated in the SHL network; – an annual quality assurance report following the example contained in Volume II, Appendix I, of EPA's Quality Assurance Handbook for Air Pollution Measurement Systems in electronic format and written (hard copy) reports of findings with recommendations based on the annual review; and – an annual SLAMS report (AQS AMP 450NC), a summary report of precision and accuracy data (AMP600), additional reports as specified by EPA for data certification in electronic format, as well as a letter certifying the accuracy of the reports based on a review of all materials contained in the annual review in hard copy and electronic formats.	
Task 18: Data Management. **Task 18a: Data Validation.** Data obtained from ambient monitors shall be validated as specified in the DNR-approved QAPP dated 9-26-22 and in this Statement of work. **Task 18b: Data Validation for Continuous Monitors.** SHL shall store short term (5 minute) monitoring data for the purpose of validation of all hourly continuous monitoring data. This data may be captured either by daily polling of all monitors, or by on site storage of short-term data using data logging software at the site. **Task 18c: Real-time monitoring.** SHL shall display hourly real-time monitoring data in graphical formats as well as current and predicted AQI on its web site. SHL shall post data to EPA's AirNow server to SHL's website within twenty-five (25) minutes after the end of each hour. SHL shall ensure that continuous data is being transmitted successfully to the EPA AirNow website and the SHL real-time website. Procedures and frequencies for polling and posting data shall be as indicated in SHL's real-time monitoring QAPP/SOP. SHL shall upload all non-continuous data to the SHL real-time website on the same schedule contained in the AQS/PARS Data Submission instructions found below. By May 15, SHL shall provide charts of FRM versus real time (continuous-derived) concentrations for all continuous PM monitoring sites on the SHL website. Upon DNR approval, SHL may send preliminary data via email to interested third parties. **Task 18d: Site Setup and Closure in AQS.** SHL shall be responsible for opening and closing sites and monitors in the AQS database for the SHL reporting organization, and for the SHL monthly data uploads. SHL shall contact the DNR in order to confirm that new site or monitor setup parameters are accurate before uploading the new parameters to the database. SHL shall not close sites or monitors in the AQS database without approval from the DNR. SHL shall inform the DNR via email whenever modifications to the AQS database are made, including AQS/PARS Data Submission. This notification shall contain a note of explanation of the modifications made and the rationale for the modifications. **Task 18e: AQS/PARS Data Submission.** Validated monitoring data (AQS data) and precision and accuracy data (PARS data) for all continuous monitors shall be	SHL shall store short term (5 minute) monitoring data for the purpose of validation of all hourly continuous monitoring data. SHL shall display hourly real-time monitoring data in graphical formats as well as current and predicted AQI on its web site. SHL shall post data to EPA's AirNow server within twenty-five (25) minutes after the end of each hour. SHL shall upload all non-continuous data to the SHL real-time website on the same schedule that the data is submitted to the AQS database. By May 15, SHL shall provide charts of FRM versus real time (continuous-derived) concentrations for all continuous PM monitoring sites on its website.

Obligation	Task Milestone Date
uploaded by SHL to the AQS system by the 15th of the month following the month in which it is collected. Validated monitoring data and precision and accuracy (PARS) data for all gravimetric filter samplers shall be uploaded to AQS within 30 days of the end of the month in which it is collected. Data from samplers requiring laboratory analysis for toxics shall be uploaded to the AQS database within 45 days from the end of the month in which it is collected. Data from samplers requiring laboratory analysis for lead shall be uploaded to the AQS database within 45 days from the end of the month in which it is collected. SHL shall inform the DNR via email after completing its monthly data uploads. This report shall include a copy of the final version of the screening file, and copies of the edit and scan checks. In the event that the monthly data upload is not complete, this report shall indicate the reason for the backlog and the anticipated date when the backlogged data will be uploaded. **Task 18f: Data Screening.** SHL shall archive an AQS AMP450 to document the data uploaded immediately after each data file is loaded into the system. **Task 18g: Monthly AQS Record keeping Requirements.** On a monthly basis, SHL shall: - run and review the AQS AMP251 and AQS AMP350 monitor reports to determine the completeness and accuracy of the AQS and PARS data uploaded by SHL to the AQS system. **Task 18h: Quarterly AQS Record keeping Requirements.** On a quarterly basis, SHL shall: - run and review the AQS AMP251 report to evaluate the PARS data uploaded by SHL; - run and review two AQS AMP256 reports, one for the current quarter, and a cumulative AMP256 report for the year through the end of the quarter being summarized; - run and review the AQS AMP430 report in order to evaluate the quarterly data completeness of the monitors operated by SHL; and - run and review the AQS AMP380 report in order to evaluate the accuracy and completeness of the site setup parameters of the monitors operated by SHL.	SHL shall inform the DNR via email within one week of making modifications to the AQS database. Modifications shall include, but are not limited to, site setup and closure in AQS, equipment/monitor changes, and AQS/PARS data submission. AQS/PARS data for continuous monitors shall be uploaded by the 15th of the month following the month of data collection. AQS/PARS data for gravimetric filter samplers shall be uploaded by the 30th of the month following the month of data collection. AQS/PARS data for air toxics and lead shall be uploaded by the 45th of the month following the month of data collection.
Task 19: Equipment Inventory and Inventory Management. **Inventory.** SHL shall maintain a complete and current list of all DNR-owned equipment which is part of the air monitoring system in the State of Iowa, including the location, description of equipment type, model number, serial number, ownership agency, and DNR and/or SHL inventory tag number. SHL shall record in the equipment inventory the installation date for any equipment newly installed in the air monitoring network. SHL shall work with DNR to complete and maintain EPA's Asset Management Template and incorporate changes to equipment tracking as needed to comply with EPA's Asset Management Framework. This agreement shall supersede any and all contracts by and between the DNR and SHL with respect to equipment. Equipment purchased under previous DNR/SHL agreements or purchased through amendments to this Contract shall be listed on	SHL shall submit to the DNR an annual inventory of DNR equipment within seven days of a request by the DNR. SHL shall submit the EPA Asset Management template report to DNR by June 1.

Obligation	Task Milestone Date
the joint DNR/SHL equipment inventory. SHL shall ensure through the University of Iowa equipment inventory process that all equipment listed on the joint DNR/SHL inventory has been marked with University of Iowa property tags. Equipment listed in the DNR/SHL Equipment Inventory shall include equipment that was obtained in part from federal grant funds. In accordance with Title 40 Code of Federal Regulations, Part 30, the DNR retains title to all equipment listed on the DNR/SHL Inventory and may require its return upon 30 days written notice. SHL shall account for all equipment on the DNR/SHL equipment inventory in the event of damage, loss or theft incurred through normal usage. SHL shall use the equipment in a careful and proper manner and provide routine repairs, service and supplies required for the normal operation of the equipment. Proceeds from the sale of UI tagged surplus equipment by SHL, in accordance with UI Surplus reimbursement policy, shall be returned to the contract funds through a credit on the monthly billing report. The DNR shall have the right to enter the premises where the equipment is located for the purpose of inspecting the equipment at any reasonable time. SHL shall submit to the DNR an annual inventory of joint DNR/SHL equipment. The following shall be included as part of such inventory: – DNR or UI property tag number. – Equipment description. – Equipment serial number. – UI purchase order number. – UI purchase order date. – Equipment cost as shown on invoice. – A list of additions to the previous year's inventory including the cost for each item and the total cost. – A list of deletions from the previous year's inventory including the cost of each item, total cost and reason for deletion. – An inventory balance sheet including totals as follows: • Previous years inventory total; • Current years deletions total; • Current years additions total; • Current years inventory total. – Signed certification that the inventory as presented is true and correct to the best of SHL knowledge. Equipment costs shall not change once listed on the DNR/SHL joint property inventory. Equipment parts that are added to or removed from existing equipment shall be handled in the following manner: – Parts that do not fit the definition of equipment used in this agreement shall not be accounted for on the joint property inventory; and – Parts that do fit the definition of equipment used in this agreement shall be tagged and listed individually on the joint inventory.	

Obligation	Task Milestone Date
These provisions do not apply to integral component parts utilized in the repair of equipment and necessary to continued operation of the equipment. SHL shall supply to the DNR a copy of the complete up to date equipment inventory within seven days of a request by the DNR during the agreement period.	
Task 20: Teflon Filter Weighing Laboratory. SHL shall operate a Teflon filter weighing laboratory to support the Teflon filter monitors run by filter sampler contractors, the Polk and Linn County Local Programs, or by SHL, as directed by the DNR. SHL shall perform all of the following activities: - operate in accordance with DNR/EPA approved QAPP's and associated SOP's for all Teflon filter weighing laboratory operations; - order filters and manage the Teflon filter inventory so that sufficient filters are available in order to meet the sampling needs of its customers; - pre-weigh the filters, load them into clean filter holders, and load the filter holders into clean filter magazines within the laboratory; - provide shipping containers to mail the filter magazines to the field operators; - provide coolant and thermometers to ensure that the loaded filters are adequately cooled in transport from the field back to the weighing laboratory; - equilibrate and weigh the loaded filters, and provide the results of the gravimetric analysis along with all other laboratory data required for upload to the AQS system to its customers in a format that can be directly uploaded to AQS. The data shall be sent by email to all customers and Polk and Linn County Local Program contacts within 30 days of the end of the month in which the data was collected; and - archive all Teflon filters, as well as filters from portable samplers where directed by the DNR, in refrigerated storage for a minimum of 1 year in accordance with EPA guidance.	SHL shall send the data by email within 30 days of the end of the month in which the data was collected. SHL shall archive all Teflon filters, as well as filters from portable samplers where directed by the DNR, in refrigerated storage for a minimum of 1 year in accordance with EPA guidance.
Task 21: Asbestos Analysis. **Task 21a: Asbestos Samples Submitted by the DNR.** SHL shall analyze all samples submitted by departmental DNR staff as described in the second paragraph of this section. Sample containers for sample transport shall be provided by SHL. The results of the tests shall be forwarded to the Air Quality Section within fifteen (15) calendar days of receipt. Extra time for analysis may be allowed in cases when the analytical work warrants. A notification to the submitter, stating that analytical results from a sample may be delayed and the reason for the delay shall be communicated to DNR in writing within fifteen (15) calendar days of receipt of the sample if extra time is required for analysis. **Task 21b: Asbestos Sample Analysis.** SHL shall analyze samples for asbestos submitted by DNR staff. These samples will be collected during NESHAP compliance evaluation inspections of building demolitions, renovations and asbestos abatement contractor work and are referred to as bulk samples. Unless otherwise directed, the analysis shall use the published polarized light microscopy (PLM) method from 40 CFR Part 763, Appendix E to Subpart E. SHL shall point	SHL shall analyze all samples submitted by departmental DNR staff as described in the second paragraph of this section. Sample containers for sample transport shall be provided by SHL. The results of the tests shall be forwarded to the DNR within fifteen (15) calendar days of receipt.

Obligation	Task Milestone Date
count bulk samples that are determined to be less than 10% asbestos. Samples collected for this activity shall be coded as AQ-AB. The asbestos bulk samples shall be held for a period of three years. When requested by DNR, SHL shall analyze asbestos "wipe samples" using gravimetric reduction and PLM and report results as asbestos detected or not detected.	
Task 22: Filter Collection. SHL shall retain, train and manage subcontractors to collect filters and provide local support at remote monitoring sites as necessary and directed by DNR. SHL's duties include: - directly contracting with qualified subcontractors to perform filter collection and other specified activities; - selecting, hiring, and payment of wages for subcontractors; - training these individuals to perform tasks in accordance with the applicable QAPP, SOPs, and manufacturer's operation manuals; - regularly evaluating the performance of these subcontractors and initiating corrective action (including termination of contracts) as needed to address deficiencies. Where subcontractors filter collectors are used to gather Lead, PM_{10}, and $PM_{2.5}$ filters within the SHL reporting organization, SHL shall perform all operations except for filter collection, and transmission of sampler performance data to SHL. SHL's duties shall include, but shall not be limited to, the performance of all calibrations, audits, and routine maintenance for all Lead, PM_{10}, and $PM_{2.5}$ within SHL's reporting organization. For new sites where subcontractors are to be employed, SHL shall locate qualified subcontractors and SHL shall train them to operate samplers in accordance with the SHL's standard operating procedures developed for subcontractors. SHL shall manage subcontractors to ensure that the data generated meets DNR goals for completeness and data quality.	Subcontractors shall be retained, trained, and managed in accordance with the standard operating procedures. These responsibilities shall be conducted throughout the term of the Contract

Budget & Submission of Invoices. The budget and submission of invoices for this Contract shall be as follows:

Task	Total Amount of compensation allotted to Task (Variable/Fixed Payment)	Invoice Due No Later Than:
Task 1: Task 1: Particulate Filter Sampling Network Operation	Variable payment not to exceed $600,507 annually. Monthly payment not to exceed $50,042.25.	By the thirtieth (30th) day after the end of a calendar month
Task 2: Ozone Network Operation	Variable payment not to exceed $233,764 annually. Monthly payment not to exceed $19,480.31.	By the thirtieth (30th) day after the end of a calendar month
Task 3: Sulfur Dioxide (SO2) Network Operation	Variable payment not to exceed $95,185 annually. Monthly payment not to exceed $7,932.10.	By the thirtieth (30th) day after the end of a calendar month
Task 4: BAM Continuous Network Operation	Variable payment not to exceed $221,166 annually. Monthly payment not to exceed $18,430.47.	By the thirtieth (30th) day after the end of a calendar month
Task 5: PM2.5 Teledyne T640 Continuous Network Operation	Variable payment not to exceed $113,382 annually. Monthly payment not to exceed $9,448.53.	By the thirtieth (30th) day after the end of a calendar month
Task 6: Nitrogen Dioxide (NO2) Network Operation	Variable payment not to exceed $41,993 annually. Monthly payment not to exceed $3,499.46.	By the thirtieth (30th) day after the end of a calendar month
Task 7: Carbon Monoxide (CO) Network Operation	Variable payment not to exceed $23,796 annually. Monthly payment not to exceed $1,983.03.	By the thirtieth (30th) day after the end of a calendar month
Task 8: Lead (Pb) Network Operation	N/A	By the thirtieth (30th) day after the end of a calendar month
Task 9: Toxics (TO-11a parameters) Network Operation	Toxics analysis (TO-11A) costs for the Contract period shall be $220.00 per sample. Variable payment not to exceed $40,000 annually. Monthly payment not to exceed $3,333.33.	By the thirtieth (30th) day after the end of a calendar month
Task 10: PM2.5 Speciation (CSN protocol) Network Operation	Variable payment not to exceed $55,991 annually. Monthly payment not to exceed $4,665.95.	By the thirtieth (30th) day after the end of a calendar month
Task 11: Low Cost Sensor (Purple Air) Network Operation	Variable payment not to exceed $13,998 annually. Monthly payment not to exceed $1,166.49.	By the thirtieth (30th) day after the end of a calendar month
Task 12: Network Site Modification	N/A	By the thirtieth (30th) day after the end of a calendar month
Task 13: Supplies & Storage	Variable payment not to exceed $265,500 annually.	By the thirtieth (30th) day after the end of a calendar month
Task 14: Vendor Training	Variable payment not to exceed $1,146 annually.	By the thirtieth (30th) day after the end of a calendar month

Task	Total Amount of compensation allotted to Task (Variable/Fixed Payment)	Invoice Due No Later Than:
Task 15: Polk and Linn County Local Program Assistance	N/A	N/A
Task 16: Additional Duties	N/A	N/A
Task 17: Quality Assurance	N/A	N/A
Task 18: Data Management	N/A	N/A
Task 19: Equipment Inventory and Inventory Management	N/A	N/A
Task 20: Teflon Filter Weighing Laboratory	N/A	N/A
Task 21: Asbestos Analysis	The costs for the Contract period shall be $48.00 per sample and shall not exceed $10,000 annually.	By the thirtieth (30th) day after the end of a calendar month
Task 22: Filter Collection	Variable payment not to exceed $40,000 annually.	By the thirtieth (30th) day after the end of a calendar month
Sub-totals	**$1,756,428**	
Facilities and Administrative Costs @ 8%	**$140,514**	
Total	**$1,896,942**	

APPENDIX A EXISTING AMBIENT AIR MONITORING NETWORK (7/1/25)

AQS ID	Site	Parameter	Sampling Frequency
190130009	Waterloo-Water Tower	PM2.5 (FRM) PM2.5 BAM - Primary PM2.5 BAM - Secondary PurpleAir - Primary PurpleAir - Secondary MET*	Every 3rd Day Continuous Continuous Continuous Continuous Continuous
190170011	Waverly-Waverly Airport	Ozone - Primary Ozone - Secondary MET	Continuous Continuous Continuous
190450019	Clinton-Chancy Park	PM2.5 (FRM) Toxics (TO-11A) SO2 PM2.5 T640 - Primary PM2.5 T640 - Secondary PurpleAir - Primary PurpleAir - Secondary MET**	Daily Every 12th Day Continuous Continuous Continuous Continuous Continuous Continuous
190450021	Clinton-Rainbow Park	PM2.5 (FRM) Ozone – Primary Ozone – Secondary MET*	Every 3rd Day Continuous Continuous Continuous
190850007	Pisgah-Forestry Office	Ozone - Primary Ozone – Secondary MET	Continuous Continuous Continuous
191032001	Iowa City-Hoover School	PM2.5 (FRM) PM2.5 T640 - Primary PM2.5 T640 - Secondary PurpleAir - Primary PurpleAir - Secondary MET**	Daily Continuous Continuous Continuous Continuous Continuous
191370002	Viking Lake State Park	PM2.5 (FRM) PM2.5 BAM - Primary PM2.5 BAM - Secondary PurpleAir - Primary PurpleAir - Secondary Ozone - Primary Ozone - Secondary MET**	Every 3rd Day Continuous Continuous Continuous Continuous Continuous Continuous Continuous
191390015	Muscatine-Muscatine HS E. Campus Rooftop	PM2.5 (FRM) - Primary PM2.5 (FRM) – Secondary PurpleAir - Primary PurpleAir - Secondary	Daily Every 6th Day Continuous Continuous
191390016	Muscatine-Greenwood Cemetery	PM2.5 (FRM)	Every 3rd Day

AQS ID	Site	Parameter	Sampling Frequency
191390019	Muscatine-Muscatine HS E. Campus Trailer	PM2.5 BAM - Primary PM2.5 BAM - Secondary SO2 MET*	Continuous Continuous Continuous Continuous
191390020	Muscatine-Musser Park	PM2.5 (FRM) SO2 MET	Every 3rd Day Continuous Continuous
191471002	Emmetsburg-Iowa Lakes Community College	PM2.5 (FRM) PM2.5 BAM - Primary PM2.5 BAM - Secondary PurpleAir – Primary PurpleAir - Secondary Ozone - Primary Ozone - Secondary MET*	Every 3rd Day Continuous Continuous Continuous Continuous Continuous Continuous Continuous
191550009	Council Bluffs-Franklin School	PM2.5 (FRM) - Primary PM2.5 (FRM) - Secondary PurpleAir - Primary PurpleAir - Secondary	Every 3rd Day Every 6th Day Continuous Continuous
191550011	Council Bluffs-Griffin Pipe	Lead -TSP (FRM) - Primary Lead-TSP (FRM) - Secondary	Every 6th Day Every 6th Day
191630014	Scott County Park	Ozone - Primary Ozone - Secondary MET	Continuous Continuous Continuous
191630015	Davenport-Jefferson School	PM2.5 (FRM) - Primary PM2.5 (FRM) - Secondary PM10 (FRM) - Primary PM10 (FRM) - Secondary PM2.5 Speciation Ozone - Primary Ozone – Secondary SO2 CO NO2 PM2.5 T640 - Primary PM2.5 T640 - Secondary PurpleAir - Primary PurpleAir - Secondary MET**	Daily Every 6th Day Every 3rd Day Every 6th Day Every 3rd Day Continuous Continuous Continuous Continuous Continuous Continuous Continuous Continuous Continuous
191630017	Buffalo-Linwood Mining	PM10 (FRM) PM10 BAM - Primary PM10 BAM - Secondary MET*	Daily Continuous Continuous Continuous
191630020	Davenport-Hayes Elementary	PM2.5 (FRM) PurpleAir - Primary PurpleAir - Secondary	Every 3rd Day Continuous Continuous

AQS ID	Site	Parameter	Sampling Frequency
191770006	Lake Sugema	PM2.5 (FRM)	Every 3rd Day
		PM10 (FRM)	Every 3rd Day
		PM2.5 BAM - Primary	Continuous
		PM2.5 BAM - Secondary	Continuous
		PurpleAir - Primary	Continuous
		PurpleAir - Secondary	Continuous
		Ozone - Primary	Continuous
		Ozone - Secondary	Continuous
		SO2	Continuous
		NO2	Continuous
		MET**	Continuous
191930021	Sioux City-Irving School	PM2.5 (FRM)	Every 3rd Day
		PurpleAir - Primary	Continuous
		PurpleAir - Secondary	Continuous
191930022	Stone State Park, Sioux City	Ozone - Primary	Continuous
		Ozone - Secondary	Continuous

MET indicates wind speed and direction, as well as ambient temperature, pressure, and relative humidity MET* indicates wind speed and direction as well as ambient temperature, and pressure**

MET indicates wind speed and direction only

Iowa Department of Natural Resources
Environmental Protection Commission

ITEM #13 **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 $374,291.92
Dates: July 1, 2025 – June 30, 2027
Funding Sources: The fees paid by laboratories and the Public Water Supply Supervision Grant Program will be used to pay the cost of the Contract.
Statutory Authority: Iowa Code Section 455B.103(3).

Contract Background: The parties have entered into this Contract to retain the Contractor to review the qualifications of laboratories requesting environmental laboratory certification for the analysis of compliance samples required by the DNR and make recommendations to DNR regarding certification. This Contract is entered into according to the provisions of Iowa Code Section 455B.103(3), and the provisions of 567 IAC Chapter 83 – Laboratory Certification.

Contract Purpose: The DNR is entering into this Contract with SHL to perform the duties specified in 567 IAC Chapter 83. SHL is the state environmental and public health laboratory, and possesses the required expertise to conduct these activities. At the direction of DNR, SHL will be responsible for conducting on-site audits, reviewing required documents from laboratories, preparing audit documents for DNR review, providing technical assistance to laboratories at the direction of DNR, and conducting an annual laboratory symposium.

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

Contract History:

Contract	Amount
21ESDWQBKLee-0001	$363,355.20
23ESDWQBKLee-0002	$318,979.80
24ESDWQBKLEE-0001	$576,872.32
26ESDWQBKLEE-0001	$374,291.92
Total	**$1,633,499.24**

The cost of this two-year contract has decreased in excess of $200,000. The previous contract allowed for the phased retirement of the lead auditor, and hiring and training of a new auditor. The majority of the administrative functions formally performed by SHL will be transitioned to the DNR, thus resulting in substantial reduction of costs for this Contract.

Tasks & Milestones:

Task	Compensation	Task Milestone Date
Task 1: Certification of the State Hygienic Laboratory	N/C	Every two years based on the Iowa certification date.[1]
Task 2: Administrative Functions	N/C	Final item due five business days following the quarterly meeting.
Task 3: On-site Audits & Recommendations	Variable – SFY 26 $43,577.97 per quarter SFY 27 $49,995.01 per quarter	Conduct On-site audit within 90 days after receipt of a complete application and payment of fees.
Task 4: Annual Symposium	N/C	Annually
Task 5: Laboratory Investigations	N/C	As needed
Task 6: Communication	N/C	As needed/Ongoing

Quarterly Cost Summary:

Task Number & Description	SFY 26	SFY 27
3 – Onsite Audits & Recommendations	Fixed Cost: $37,726.47	Fixed Cost: $43,589.82
3 – Onsite Audits& Recommendations (Contract with retired auditor)	Variable Cost: Actual hours@$38.16/hr. Estimate $2,623.5/Quarter	Variable Cost: Actual hours @$39.30/hr. Estimate $2,701.86/Quarter
Task Totals	$40,349.97	$46,291.68
SHL Facilities and Administrative Costs @ 8%	$3,228.00	$3,703.33
Total Quarterly Cost	**$43,577.97**	**$49,995.01**

[1.] SHL is audited by the Kansas National Environmental Laboratory Accreditation Program and EPA observes the audit. Iowa issues a reciprocal certification based on the Kansas audit.

Kathleen Lee, Senior Environmental Specialist, Water Quality Bureau
Environmental Services Division
June 17, 2025

Iowa Department of Natural Resources
Environmental Protection Commission

ITEM #14 **DECISION**

Contract with Iowa Department of Agriculture and Land Stewardship

Recommendation:
Commission approval is requested for a service contract with Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation and Water Quality (IDALS-DSCWQ) (26ESDWQBTENRI-0001).

Contract Terms:

Amount: Not to exceed $1,202,342
Dates: July 1, 2025 to August 31, 2028.
Funding Source(s): This Contract will be funded through administrative funds of the Clean Water State Revolving Fund (CWSRF).
Statutory Authority: Iowa Administrative Code 567 Chapter 93 provides the authority for the DNR to establish nonpoint source loan programs.

Contract Background: The parties propose to enter into this Contract to retain the IDALS-DSCWQ to provide administration of the Livestock Water Quality Program, the Local Water Protection Program, and the Stormwater Management Program (hereafter referred to collectively as the Linked Deposit Programs); technical assistance for the General Nonpoint Source (GNS) and Sponsored Project (SP) Programs; and development/updates to the Iowa Stormwater Management Manual (ISWMM). CWSRF funding provides for a program administrator, urban conservationist staff time, support staff, travel, supplies, and indirect costs. All other program costs are covered by IDALS-DSCWQ and the Natural Resources Conservation Service through existing staffing in the local soil and water conservation districts (SWCDs).

For all but the GNS and SP Programs, project applications are initiated, reviewed, and approved at the SWCDs, with oversight and technical assistance from IDALS-DSCWQ. DNR anticipates funding over $100 million worth of projects during the term of the Contract. The cost of administration will be approximately one percent of the loan amount.

Contract Purpose: The parties propose to enter into this Contract to retain the IDALS-DSCWQ to provide administration of the Linked Deposit Programs; technical assistance for the GNS and SP Programs; and development/updates to the ISWMM.

Contract History:
DNR has contracted with IDALS since 2004, with the following agreements and amendments from then until now:

May 17, 2004 – June 30, 2007	Original agreement (covered soil erosion loans only)
July 1, 2007 – June 30, 2010	Amendments to original agreement to extend contract for three additional years and add duties for storm water loans and manure management loans
July 1, 2010 – June 30, 2013	New agreement (term cannot exceed six years) which included soil erosion, manure management, and storm water loans ($505,000)
July 1, 2013 – June 30, 2016	Amendments to agreement to extend contract for three years and add duties for water resource restoration sponsored projects ($543,000)
July 1, 2016 – June 30, 2019	New agreement to cover soil erosion, manure management, storm water, and sponsored project loans ($758,000)
July 1, 2019 – June 30, 2022	New agreement to cover soil erosion, manure management, storm water, and sponsored project loans ($790,000)
Jan 7, 2022 – June 30, 2022	Amendment to agreement to allow contractor to subcontract the tasks of the original contract. This amendment did not provide additional funding or extend the performance time of the original contract.
July 1, 2022 – June 30, 2025	New agreement to cover soil erosion, manure management, storm water, and sponsored project loans ($792,000)

Theresa Enright, State Revolving Fund Coordinator, Water Quality Bureau
Environmental Services Division
June 17, 2025

Attachment 1: Contract Statement of Work

Section 5 STATEMENT OF WORK

5.1 Statement of Work. The Contractor commits to staffing the Linked Deposit Administrator and Urban Conservationist positions. The Contractor may subcontract work under this Contract in accordance with Section 28, General Conditions of this Contract, to perform any work required by the Tasks that will not be handled by the Linked Deposit Administrator. Contractor shall perform the following Tasks by the Task Milestone Dates set out in the following table:

Obligation	Task Milestone Date
Task 1: Program Administration of Linked Deposit Programs **Description-Applicable to all Linked-Deposit Programs:** • Linked Deposit Administrator: Provide DNR with a single point of contact for coordination of activities in relation to the Linked Deposit Programs. • Provide written guidance to administrative partners as to the amount of funds available each year. • Maintain application forms for the Linked Deposit Programs. 1. Application forms shall include critical information to assist determination of eligibility, initial approval, final inspection and reporting. 2. Application forms shall be formatted to be compatible with electronic filing and reporting. • Coordinate with DNR field office staff on determination of eligibility of applicants and practices in accordance with established Iowa SRF Linked-Deposit Program rules and guidelines. • Cooperate with DNR and IFA in developing all promotional materials. All promotional materials shall include a statement that the source of Linked Deposit Programs funding is the CWSRF Program. • Coordinate with the participating lenders and IFA to resolve problems, improve loan processing, answer questions, improve reporting to DNR, and improve transfer of funds. • Maintain a computerized reporting process with all SWCDs. **Description-Applicable to Livestock Water Quality (LWQ) Program:** • Promote the use of the LWQ Program in all ninety-nine counties and with all 100 SWCDs. 1. Inform SWCDs that the Linked Deposit Programs are to be used for projects that protect or improve water quality. 2. Provide education and information to all SWCDs as to how Linked Deposit Programs work. 3. Specifically promote the use of State Revolving Fund (SRF) funds in watersheds where Total Maximum Daily Load (TMDL) plans have been developed. • Maintain promotional material that: 1. Explains the LWQ Program 2. Explains how animal feeding operation, dairies and other livestock operations needing water pollution control facilities can use the LWQ Program; and 3. Provides examples of the practices and uses that can be implemented. • Provide assistance to all SWCDs in determining eligibility of applicants, practices, and project expenditures in accordance with established Iowa SRF Linked-Deposit Program rules and guidelines. **Description-Applicable to Local Water Protection (LWP) Program:** • Promote the use of the LWP Program in all ninety-nine counties and with all 100 SWCDs. 1. Inform SWCDs that the Linked Deposit Programs are to be used for projects that protect or improve water quality. 2. Provide education and information to all SWCDs as to how Linked Deposit Programs work.	Ongoing

3. Specifically promote the use of SRF funds in watersheds where TMDL plans have been developed. • Maintain promotional material that: 1. Explains the LWP Program 2. Explains how animal feeding operation, dairies and other livestock operations needing water pollution control facilities can use the LWP Program; and 3. Provides examples of the practices and uses that can be implemented; • Provide assistance to all SWCDs in determining eligibility of applicants, practices, and project expenditures in accordance with established Iowa SRF Linked-Deposit Program rules and guidelines. **Description-Applicable to Stormwater Management Programs (SMP):** • Promote the use of the SMP in all ninety-nine counties. 1. Specifically promote the use of SRF funds in watersheds where TMDL plans have been developed. 2. Specifically promote the use of SRF funds in cities with MS4 Permits 3. Provide education and information to all SWCD's as to how SMP assistance works. • Maintain promotional material that: 1. Explains the SMP 2. Explains how urban watershed projects can use storm water best management practice (BMP) assistance; and 3. Provides examples of the practices and uses that can be implemented. • Provide assistance to all SWCDs in determining eligibility of applicants, practices, and project expenditures in accordance with established Iowa SRF Linked-Deposit Program rules and guidelines. • Provide direct technical and educational assistance to promote and implement stormwater management practices for homeowners, businesses, organizations, and others throughout the Des Moines metro area.	
Task 2: Provide Technical Assistance for SP and GNS Program Projects **Description:** • Provide technical oversight, consultation, and review for SP and GNS Program Projects, as assigned by DNR. 1. Consult with applicants, upon request, to assist in the development of the project design concept and application materials. a. Contractor shall conduct a site visit and provide recommendations for potential BMPs. b. Contractor may provide a letter of support if the project concept is eligible. 2. Participate in a pre-application conference call. a. Contractor shall participate in a conference call with SRF staff, potential applicant, consulting engineer, and others to explain the application process and program requirements. 3. Review project application materials. 4. Attend project initiation meeting in-person or participate by conference phone/video conference. a. Contractor shall review the project application prior to project initiation meeting to become familiar with the project conceptual plan. b. Contractor shall participate in discussion with the applicant about technical requirements and standards for the project, including schedules, SRF requirements, any permitting requirements (e.g. flood plain, storm water, NPDES), the necessity and creation of any Iowa Code Chapter 28E agreements, and any other project issues.	Per item, as detailed below - Ongoing 1. Upon request of the applicant at least one month prior to the application deadline. 2. Date of the pre-application conference call 3. Prior to the project initiation meeting. 4. Date of the project initiation meeting.

c. Contractor shall provide suggestions on possible improvements to water quality outcomes.	
5. Conduct additional site(s) visit as needed to assess local conditions and appropriateness of project plans and specifications. a. Contractor shall travel to the project site to meet with applicant and other partners to observe the unique demographic, topographic, hydrologic, and other characteristics of the planning area.	5. Scheduled as needed.
6. Consult with applicant to discuss alternative practices or methods to reach project goals. a. Contractor shall participate in technical assistance discussions with the applicant and/or their consultants to suggest alternative practices or methods to those proposed. b. Consultation discussions will provide a context for decision making including pertinent literature, research findings, and examples from other projects.	6. Scheduled with applicant.
7. Review project plans and specifications for compliance with ISWMM or other design standards a. Review and approve Water Quality Checklists. • Contractor shall review the following types of nonpoint source projects according to the appropriate design standards: o Stormwater quality management and green infrastructure: *All projects must meet the standards published in the ISWMM*. o Manure management and livestock water quality facilities: *All practices must comply with 567 IAC chapter 65 and shall be constructed to applicable USDA Natural Resource Conservation Service (NRCS) standards*. o Soil erosion and sediment control practices: *All practices shall be constructed to meet NRCS standards and specifications or design guidelines in Chapter 7 of the SUDAS manual*. b. Provide written comments. • Contractor shall confirm that the applicant is demonstrating sound engineering principles and practices if an NRCS or ISWMM standard is not available.	7. In approximately 15 business days of receiving the plans and specifications from DNR.
8. Review project bidding documents for eligibility of proposed costs and provide written comments. a. Contractor shall review as-bid plans and specifications, bid tabs, detailed bids and other documents as needed to assist DNR in determining which items are eligible for CWSRF reimbursement.	8. In approximately 15 business days of receiving the bidding documents from DNR.
9. Review change orders and provide written comments during construction. a. Contractor shall review change orders for necessity and compatibility with the water quality purposes of the practice(s) to meet required project outcomes.	9. In approximately 10 business days of receiving the change order from DNR.
10. Conduct site visit during construction and provide written comments. a. Contractor shall travel to the project construction site to observe and to evaluate whether construction techniques are following plans and specifications and design standards.	10. At a time to be determined by DNR or the applicant.
11. Conduct final inspection. a. Contractor shall travel to the project site to evaluate project construction. b. Contractor shall determine if the project practices were completed according to plans and specifications. c. Contractor shall determine if water quality objectives have been met. d. Contractor shall provide final inspection comments and determinations to DNR, in writing.	11. Schedule final inspection within approximately 15 business days of being notified by DNR or the applicant that construction is complete. - Contract as needed.

• Enter into a contractual agreement for the purposes of supporting review of engineering plans and specifications, as needed.	
Task 3: Update/develop chapters in the ISWMM **Description:** • Enter into a contractual agreement for the purposes of supporting the development and/or updating of chapter material in the ISWMM as needed.	
Task 4: Reporting Description: Linked Deposit Programs • Submit Status Reports on Linked Deposit Program's performance including, but not limited to: 1. Number of projects approved during the previous quarter; 2. Total dollar amount of loans approved during the previous quarter; 3. Number of projects that have been constructed and received final inspection during the previous quarter; 4. Number of projects needing final inspection; 5. Category of projects approved during the previous quarter; and 6. Amount of pollutants projects have kept from reaching Iowa waters. Reported by projects constructed, projects implemented, and projects certified during the previous quarter. • Submit Annual Status Reports on Linked Deposit Program's performance. *All activities conducted between July 1 to June 30 for each state fiscal year, according to the provisions of Task 1 under this Contract*. 1. Annual Reports shall contain, at minimum, the following information for each Linked Deposit Program: a. Number of total projects that SWCDs have approved for set-aside use during the previous quarter; b. Total dollar amount of loans approved during the previous quarter; c. Number of projects that have been constructed and received final inspection during the previous quarter; d. Number of projects needing final inspection; e. Category of projects approved during the previous quarter; and f. Amount of pollutants projects have kept from reaching Iowa waters by projects constructed, implemented, and certified during the previous quarter. • Submit Annual Report on status of each of the Contractor's responsibilities listed below: 1. An evaluation of the CWSRF linked deposit program a. Identify the aspects of the program that are accomplishing the purposes of the program; b. Identify aspects of the program that are not successful and include information regarding the lack of success; and c. Make suggestions for improving the CWSRF linked deposit program and its administration. • Submit Annual Recommendation for Linked Deposit Funding Estimates for the next fiscal year 1. Provide to DNR an estimate and recommendation for an amount of funds that should be placed in each of the three Linked Deposit Programs of the CWSRF Intended Use Plan. The estimate shall be based on reasonable expectations of the number of projects and the interest of the SWCDs • Provide project-specific documentation to DNR to support annual EPA Program Evaluation Review.	Per item, as detailed below: -Upon request Annual reports shall be submitted no later than August 15, 2025, August 15, 2026 and August 15, 2027, and August 15, 2028 Set-Aside Funding Estimates shall be submitted no later than March 15, 2025, March 15, 2026, and March 15, 2027

Description: Urban Conservationist • Submit Annual Status Reports on Contractor Deliverables. **Description: ISWMM New Chapter Development and Updates** • Submit Annual Status Reports on Contractor Deliverables.	Annual reports shall be submitted no later than August 15, 2025, August 15, 2026 and August 15, 2027, and August 15, 2028

7.1 Budget. The following is the anticipated budget for this Contract. Contractor shall provide notice to the DNR during quarterly reviews or annual reports, whichever is soonest, if the yearly salaries or support staff values in this budget will deviate significantly from the budget. Funding not utilized in one state fiscal year (SFY) may be used in subsequent years without an amendment to this Contract.

	SFY 2026	SFY 2027	SFY 2028	**TOTAL**
Linked Deposit Administrator (salary & benefits)	$122,700.00	$128,800.00	$133,500.00	**$385,000.00**
Urban Conservationist (salary & benefits)	$60,100.00	$62,300.00	$64,500.00	**$186,900.00**
Support Staff (Admin)	$36,900.00	$38,800.00	$40,200.00	**$115,900.00**
Support Staff (Supervisor)	$17,400.00	$18,300.00	$18,900.00	**$54,600.00**
Sub-contract Services-Urban Conservationist	$74,400.00	$79,900.00	$84,700.00	**$239,000.00**
Sub-contract Services-Engineering Assistance	$6,500.00	$6,500.00	$6,500.00	**$19,500.00**
Sub-contract Services-ISWMM updates	$10,000.00	$10,000.00	$10,000.00	**$30,000.00**
Travel and Training	$3,000.00	$3,000.00	$3,000.00	**$9,000.00**
Supplies	$3,000.00	$3,000.00	$3,000.00	**$9,000.00**
Indirect Costs (17.34% of eligible direct costs)	$49,350.00	$51,274.00	$52,818.00	**$153,442.00**
TOTAL	**$383,350.00**	**$401,874.00**	**$417,118.00**	**$1,202,342.00**

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 at the University of Iowa.

Contract Terms:
Amount: Not to exceed $38,588.94
Dates: July 1, 2025 to October 31, 2026.
Funding Source(s): EPA Region VII Grant No. 00793521-0, Clean Water Act section 106 Special Monitoring Funds.
Statutory Authority: Iowa Code section 455B.103(3).

Contract Background: The Upper Mississippi River Clean Water Act Recommended Monitoring Plan (UMR CWA Monitoring Plan; UMRBA 2014) was developed by the interagency Upper Mississippi River Basin Association (UMRBA) Water Quality Task Force (WQTF) to address the lack of a coordinated, comprehensive Clean Water Act (CWA) monitoring approach on the Upper Mississippi River (UMR). The UMR CWA Monitoring Plan was adopted by the UMRBA Board in February 2014 and is structured as a series of networks designed to uniquely and comprehensively support assessment of aquatic life, fish consumption, recreation, and drinking water use attainment on the UMR.

Following the development of the UMR CWA Monitoring Plan and the UMRBA Board's approval, UMR states opted to test the effectiveness and feasibility of the plan on a smaller scale. From May 2016 to April 2017, a pilot was conducted in Assessment Reaches 0-3, which is the area of the Mississippi River that spans from the Twin Cities Metro Area, Minnesota to La Crosse, Wisconsin (herein called "Reaches 0-3 pilot"). The Reaches 0-3 pilot focused on the implementation of the probabilistic and fixed site components of the Monitoring Plan. During 2020-2021, the plan was piloted with Iowa, Missouri, and Illinois state agencies in Reaches 8-9 (herein called "Reaches 8-9 pilot"), which is the area of the Mississippi River from the confluence of the Iowa River and the Mississippi River to Lock and Dam 21. The Reaches 8-9 pilot, although similar in scope and focus to the Reaches 0-3 pilot, included additional PFAS, cyanobacteria toxin, and fish tissue monitoring.

After the conclusion of two successful pilot projects, the WQTF and the Water Quality Executive Committee (WQEC) determined the next steps were to continue to implement portions of the UMR CWA Monitoring Plan as state agency resources allow. The Interstate Water Quality Monitoring – Fixed Site Network Implementation is the next iteration of the UMR CWA Monitoring Plan. The Water Quality Monitoring for a suite of parameters (Table 1) was planned to be conducted at twelve Fixed Site locations along the extent of the UMR from Lock and Dam 2 to Thebes, Illinois. Implementation of the fixed site network was proposed to occur monthly from October 2025 through September 2026 at 12 sites (Table 2) and complement existing state agency monitoring locations and sampling frequency. Each state agency is responsible for the sites color coded in Table 2.

Contract Purpose: The parties propose to enter into this contract to retain the Contractor to provide assistance to DNR in the analysis of samples collected by the DNR as a part of the Interstate Water Quality Monitoring – Fixed Site Network Implementation Project. Samples will be collected by DNR Fisheries staff in July of 2025 and then monthly for a full year starting in October on 2025.

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

Contract History:
This is the first contract that DNR is entering into with SHL for this specific purpose.

Daniel Kendall, Environmental Specialist Senior, Water Quality Bureau
Environmental Services Division
June 17, 2025

5.1 Statement of Work. Contractor shall perform the following Tasks. Contractor shall complete its obligations under this Contract by the Task Milestone Dates set out in the following table.

Obligation	Task Milestone Date
Task 1: Water Sample Analysis **Description:** SHL shall provide chemical analysis of Mississippi River water samples provided by DNR staff. Samples for this activity shall be coded as (IDNR-UMBRA). SHL shall provide sample containers and chain of custody forms for water samples to be collected by DNR staff during the Contract period. The number of analytes to be sampled is provided in Table 1. These samples shall be analyzed for the analytes shown in Table 1 or as modified on the chain of custody form submitted with the samples.	Samples shall be analyzed no later than holding times established by SHL (Table 1) unless authorized in writing by the DNR.
Task 2: Data Transfer **Description:** SHL shall make the data generated pursuant to this Contract available to DNR electronically through the State Hygienic Laboratory OpenELIS database web portal. Data shall be available for download by DNR staff in a mutually agreeable format. The available sample information shall include the STORET station identification number (aka AQuIA SiteID), which will be provided by DNR for all station locations. Data shall be retrievable via the web portal by DNR staff. Analytical reports may be retrieved electronically by DNR staff having the appropriate authorization. SHL shall assist DNR staff in obtaining appropriate authorization when requested. When accessing electronic data, the following information is required: • SHL OpenELIS/Telcor Organization ID number: (24871 IDNR UMBRA MISSISSIPPI RIVER MONITORING) ● SHL Project Code: (IDNR-UMBRA)	SHL shall make completed data and results available to DNR via the SHL OpenELIS web portal not later than 15 calendar days after the end of each month. If SHL determines that extra time for analysis should be allowed in specific cases, then a written notification shall be made to the DNR Project Manager, stating that analytical results from a sample will be delayed and the reasons for the delay. This notification shall occur as soon as possible but not later than 15 days following receipt of the sample.

7.1 Budget & Submission of Invoices. The budget and submission of invoices for this Contract shall be as follows:

Task*	Total Amount of compensation allotted to Task** (VariablePayment)	Task Milestone Date	Invoice Due No Later Than:
Task 1: Water Sample Analysis	No greater than $35,730.50, at the cost per sample rates contained in Table 1.	Samples shall be analyzed no later than holding times established by SHL contained in Table 1 unless authorized in writing by the DNR.	30 days following the end of each month
Task 2: Data Transfer	N/A	SHL shall make completed data and results available to DNR via the SHL OpenELIS web portal not later than 15 calendar days after the end of each month. If SHL determines that extra time for analysis should be allowed in specific cases, then a written notification shall be made to the DNR Project Manager, stating that analytical results from a sample	N/A

		will be delayed and the reasons for the delay. This notification shall occur as soon as possible but not later than 15 days following receipt of the sample.	
Sub-totals	$35,730.50		
Facilities and Administrative Costs @ 8%	$2,858.44		
Total	$38,588.94		

*Payment for completion of Tasks where specific payment is allotted shall be dependent upon the timely completion of corresponding items required by Tasks where no specific payment is allotted.

**Payment also shall conform to any pricing Tables contained in this Contract and referenced in the Budget Table above; or to the relevant SHL Pricing Table. Tables contained in this Contract shall take precedence, in the event of any inconsistency.

***Variable payment" shall mean that the number of specific analyses per Task may vary, and the Contractor shall be paid only for the number of specific analyses performed per Task. "Fixed payment" shall mean that the Contractor shall be paid an amount that is fixed in the Contract, with no variations based on analyses per Task actually performed.

Table 1. Water quality sampling parameters, frequency and fee for Task 1.

SHL Bottle #[1]	Parameter	Analytical Method	Reporting Limit[2]	Holding Time	Sample Handling	Test Fee	# of Samples	Total Fee
2	Nitrite + Nitrate as N	EPA 353.2	0.1 mg/L	28 days	On ice, acid preserved[3]	$17.00	27	$459.00
2	Total Kjeldahl Nitrogen	EPA 351.2	0.5 mg/L	28 days	On ice, acid preserved[3]	$42.50	27	$1,147.50
2	Ammonia Nitrogen as N	EPA 350.1	0.05 mg/L	28 days	On ice, acid preserved[3]	$17.00	26	$442.00
2	Total Phosphorus as P	EPA 365.1	0.02 mg/L	28 days	On ice, acid preserved[3]	$17.00	27	$459.00
New	Total Dissolved Phosphorus as P	EPA 365.1	0.02 mg/L	28 days	Field Filtered, on ice, acid preserved[3]	$17.00	27	$459.00
34	Chlorophyll Analysis of Water (Chlorophyll a, b, c, corrected a, and pheophytin)	SM 10200 h	1 ug/L	24 hours to filter, 21 days frozen filter	On ice	$49.00	26	$1,274.00
81	*E. coli* in water	SM 9223 B	<1 MPN/100ml[4]	8 hours	Sodium thiosulfate, on ice	$21.00	26	$546.00
2 x 14	Microcystin[5]	EPA 546 abraxis	0.30 µg/L	14 days	On ice	$109.50	26	$2,847.00
2 x 14	Cylindrospermopsin[5]	Abraxis Eurofins Immunoassay	0.05 µg/l	5 days, indefinite frozen	On ice	$213.00	26	$5,538.00
2 x New	Anatoxin-a[5]	Abraxis Eurofins Immunoassay	0.16 µg/l	28 days, indefinite frozen	Abraxis 10X Sample Diluent, On ice	$205.00	26	$5,330.00
9	Chloride	EPA 300.0	0.2 mg/L	28 days	On ice	$17.00	26	$442.00
9	Sulfate	EPA 300.0	0.2 mg/L	28 days	On ice	$17.00	26	$442.00
10	Total Suspended Solids	USGS I-3765-85	1 mg/L	7 days	On ice	$17.00	27	$459.00
9	Dissolved Organic Carbon	SM 5310 B	0.5 mg/L	48 hours to filter, 28 days	On ice	$42.50	26	$1,105.00
NA	Prep- DOC Filter	NA	NA	NA	NA	$16.00	26	$416.00
9	Total Hardness as $CaCO_3$	SM 2340 C	1 mg/L	28 days	On ice	$17.00	26	$442.00
9	Total Alkalinity as $CaCO_3$	SM 2320 B	1 mg/L	28 days	On ice	$17.00	26	$442.00
NA	Metals – Dissolved Prep	Filtering Fee	NA	NA	NA	$16.00	26	$416.00
34	Metal - Dissolved - Aluminum (Al)	EPA 200.8	0.1 mg/L	48 hours to filter, 6 months	On ice	$17.00	26	$442.00
34	Metal - Dissolved - Calcium (Ca)	EPA 200.7	1.0 mg/L	48 hours to filter, 6 months	On ice	$17.00	26	$442.00
34	Metal - Dissolved - Cadmium (Cd)	EPA 200.8	0.001 mg/L	48 hours to filter, 6 months	On ice	$17.00	26	$442.00
34	Metal - Dissolved - Chromium (Cr)	EPA 200.8	0.01mg/L	48 hours to filter, 6 months	On ice	$17.00	26	$442.00
34	Metal - Dissolved - Copper (Cu)	EPA 200.8	0.01mg/L	48 hours to filter, 6 months	On ice	$17.00	26	$442.00

34	Metal - Dissolved - Iron (Fe)	EPA 200.7	0.02 mg/L	48 hours to filter, 6 months	On ice	$17.00	26	$442.00
34	Metal - Dissolved - Lead (Pb)	EPA 200.8	0.001 mg/L	48 hours to filter, 6 months	On ice	$17.00	26	$442.00
34	Metal - Dissolved - Manganese (Mn)	EPA 200.8	0.02 mg/L	48 hours to filter, 6 months	On ice	$17.00	26	$442.00
34	Metal - Dissolved - Magnesium (Mg)	EPA 200.7	0.5 mg/L	48 hours to filter, 6 months	On ice	$17.00	26	$442.00
34	Metal - Dissolved - Potassium (K)	EPA 200.7	1.0 mg/L	48 hours to filter, 6 months	On ice	$17.00	26	$442.00
34	Metal - Dissolved - Sodium (Na)	EPA 200.7	0.5 mg/L	48 hours to filter, 6 months	On ice	$17.00	26	$442.00
34	Metal - Dissolved - Zinc (Zn)	EPA 200.8	0.02 mg/L	48 hours to filter, 6 months	On ice	$17.00	26	$442.00
34	Metal - Dissolved - Arsenic (As)	EPA 200.8	0.001 mg/L	48 hours to filter, 6 months	On ice	$17.00	26	$442.00
34	Metal - Dissolved - Selenium (Se)	EPA 200.8	0.01 mg/L	48 hours to filter, 6 months	On ice	$17.00	26	$442.00
7	Metal - Total Recoverable - Aluminum (Al)	EPA 200.8	0.1 mg/L	6 months	On ice, acid preserved[3]	$17.00	26	$442.00
7	Metal - Total Recoverable - Calcium (Ca)	EPA 200.7	1.0 mg/L	6 months	On ice, acid preserved[3]	$17.00	26	$442.00
7	Metal - Total Recoverable - Cadmium (Cd)	EPA 200.8	0.02 mg/L	6 months	On ice, acid preserved[3]	$17.00	26	$442.00
7	Metal - Total Recoverable - Chromium (Cr)	EPA 200.8	0.02 mg/L	6 months	On ice, acid preserved[3]	$17.00	26	$442.00
7	Metal - Total Recoverable - Copper (Cu)	EPA 200.8	0.01 mg/L	6 months	On ice, acid preserved[3]	$17.00	26	$442.00
7	Metal - Total Recoverable - Iron (Fe)	EPA 200.7	0.02 mg/L	6 months	On ice, acid preserved[3]	$17.00	26	$442.00
7	Metal - Total Recoverable - Lead (Pb)	EPA 200.8	0.1 mg/L	6 months	On ice, acid preserved[3]	$17.00	26	$442.00
7	Metal - Total Recoverable - Manganese (Mn)	EPA 200.8	0.02 mg/L	6 months	On ice, acid preserved[3]	$17.00	26	$442.00
7	Metal - Total Recoverable - Magnesium (Mg)	EPA 200.7	0.5 mg/L	6 months	On ice, acid preserved[3]	$17.00	26	$442.00
7	Metal - Total Recoverable - Potassium (K)	EPA 200.7	1.0 mg/L	6 months	On ice, acid preserved[3]	$17.00	26	$442.00
7	Metal - Total Recoverable - Sodium (Na)	EPA 200.7	0.5 mg/L	6 months	On ice, acid preserved[3]	$17.00	26	$442.00
7	Metal - Total Recoverable - Zinc (Zn)	EPA 200.8	0.02 mg/L	6 months	On ice, acid preserved[3]	$17.00	26	$442.00

7	Metal - Total Recoverable - Arsenic (As)	EPA 200.8	0.01 mg/L	6 months	On ice, acid preserved[3]	$17.00	26	$442.00
7	Metal - Total Recoverable - Mercury (Hg)	EPA 245.2	0.0002 mg/L	28 days	On ice, acid preserved[3]	$26.50	26	$689.00
7	Metal - Total Recoverable - Selenium (Se)	EPA 200.8	0.01 mg/L	6 months	On ice, acid preserved[3]	$17.00	26	$442.00
							Overall Total Cost	$35,730.50

[1]Final type and quantity of bottles will be specified in the bottle order and on the test request form (TRF).

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

[3]All bottles provided by SHL that contain acid preservative must be leak proof.

[4]Result may be reported as greater than the maximum measurable value (e. g. >24,000).

[5]A minimum of 2 samples will be delivered on each sampling date.

Table 2: Fixed site network monitoring implementation timeline. The responsible agency for sampling at a particular site is color-coded and labeled accordingly.

Sampling Timeframe	2025			2026								
Site Name	**October**	**November**	**December**	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**
L&D 2	Met Council	Met Council	Met Council	Met Council	Met Council	Met Council	Met Council	Met Council	Met Council	Met Council	Met Council	Met Council
L&D 3	Met Council	Met Council	Met Council	Met* Council	Met Council	Met Council	Met* Council	Met Council	Met Council	Met Council	Met Council	Met Council
Winona	MNPCA	MNPCA	MNPCA	MNPCA	MNPCA	MNPCA	MNPCA	MNPCA	MNPCA	MNPCA	MNPCA	MNPCA
L&D 9	WIDNR	WIDNR	WIDNR	WIDNR	WIDNR	WIDNR	WIDNR	WIDNR	WIDNR	WIDNR	WIDNR	WIDNR
Clinton	IADNR	IADNR	IADNR	IADNR	IADNR	IADNR	IADNR	IADNR	IADNR	IADNR	IADNR	IADNR
L&D 15	IADNR	IADNR	IADNR	IADNR	IADNR	IADNR	IADNR	IADNR	IADNR	IADNR	IADNR	IADNR
L&D 19	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA
L&D 24	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA
Alton	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA	ILEPA
St. Louis	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR
Chester	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR
Thebes	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR	MODNR

Iowa Department of Natural Resources
Environmental Protection Commission

Item #16

Decision Item

Contract Amendment #3 to the original contract with Iowa Department of Agriculture and Land Stewardship (IDALS).

Commission approval is requested for a contract amendment with IDALS, of Des Moines, Iowa.

Amendment #3 Terms
Amendment Amount: $199,624
Amendment Dates: June 20, 2025 to June 30, 2027
Funding Source(s): U.S. EPA Clean Water Act Section 319 grant to DNR (Grant Number 00740431)
Statutory Authority: Funds are administered by DNR under statutory authority granted by Iowa Code section 455B.103 and a U.S. EPA Grant Agreement.

Amendment Purpose: The purpose of the Contract Amendment is to add money to the Original Contract and Amendments #1 and #2 to complete the tasks identified in the Original Contract and Amendment #2, and extend the time of performance previously allowed.

Original Contract Purpose: The purpose of this Contract is to designate Section 319 funding to support implementation of best management practices, as well as educational efforts, in targeted watersheds in Palo Alto County and Clay County. In August 2022 Palo Alto SWCD hired a Palo Alto Shallow Lakes Watershed Coordinator, who is overseeing these activities. Targeted watersheds include Five Island Lake, Lost Island Lake, and Silver Lake. This Contract places an emphasis on load reductions from rural inputs as well as urban demonstration projects.

Original Selection Process Summary: Intergovernmental contracting with IDALS is authorized under 11 IAC 118.4.

Amendment Links to the Nonpoint Source Management Plan:
Goal 1: Improving Iowa's Surface Water and Groundwater Quality
Goal 2: Improving Waters that Affect Public Health
Goal 3: Improving Iowa's Waters for Native Wildlife and Fish, and Recreation
Goal 4: Reducing Excess Nutrient Delivery to Iowa Waters

Portion of the Watershed Management Plan being Implemented:
All three (Lost Island, Five Island, Silver Lake) of the targeted lakes for the Palo Alto Shallow Lakes project now have approved, lake-specific watershed management plans. Within the overall project timeline, this Contract Amendment represents years 4-5 of the project. Each lake is in Phase 1 of their respective watershed management plan.

Focus Practice Types (all lakes): No till/strip till, cover crops, grassed waterways, conservation cover (CRP), wetland restorations, and urban practices in the residential areas (rain barrels, rain gardens, etc.).

Monitoring Summary: In 2024, monitoring was done to prepare for the assessment of future practices implemented by the watershed project to address the impairments, and to help prioritize potential project sites. Project monitoring of tile and storm drain outflows measured total phosphorus and sediment delivery to Five Island Lake. DNR Ambient Lake Monitoring Data was utilized for all lakes.

Proposed Budget	**Amendment Amount (DNR 319 Costs)**	Match Funding Share (State/Local)	Leveraged Funds (Non-Match)
Staffing/Admin Support (Top Line Costs)	**$51,974**	$39,973	$0
Watershed Practice Support (Bottom Line Costs)	**$147,650**	$72,226	$33,300
Totals	**$199,624**	$112,199	$33,300

Partnerships Summary:
The DNR's primary partnerships for this Contract Amendment include:

Partner	**Nature of Partnership**	**Match Committed and Type**
EPA	Primary Grantor	$199,624 (this Amendment)
USDA	Funding and Technical Assistance	$33,300 Federal Funds (Leveraged)
IDALS	Funding and Technical Assistance	$49,973 State Funds (Cash Match)
Palo Alto County SWCD	Technical Assistance, Oversight, and Project Host	In-Kind (uncalculated)
Palo Alto County CCB	Technical Assistance and Outreach	In-Kind (uncalculated)
Cities of Emmetsburg, Ruthven	Implementation Partner and Technical Assistance	In-Kind (uncalculated)
Local Clubs and Lake Associations	Outreach and Resident Contact Lists	In-Kind (uncalculated)
Landowners	Funding and Practice Installation	$62,225 Local Funds (Cash Match)

Contract History

Original Contract Terms: Amount $77,638; Timeframe: May 1, 2023 to June 30, 2024; Purpose: Annual funding allotment for existing watershed project. Projects last up to 15-20 years depending on size of the watershed area.

Amendment #1 Terms: Amount: No change; Timeframe: June 30, 2024 to June 30, 2025; Purpose: extend contract for one year.

Amendment #2 Terms: Amount: $110,000; Timeframe: June 30, 2024 to June 30, 2025; Purpose: add one year of funds to the terms of the previous time extension to cover project costs during FY25 prior to new grant funding availability (this Amendment).

Ginger Murphy, Western Iowa Basin Coordinator, Water Quality Bureau
Environmental Services Division
June 17, 2025

Iowa Department of Natural Resources
Environmental Protection Commission

ITEM **#17** **DECISION**

TOPIC **Clean Water and Drinking Water State Revolving Loan Fund – FY 2026 Intended Use Plans**

Commission approval is requested for the Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Fund (DWSRF) Intended Use Plans (IUP) for State Fiscal Year 2026 (July 1, 2025 – June 30, 2026).

The DWSRF Program provides loans to public water supply systems for treatment, storage, distribution and transmission projects. The CWSRF Program finances publicly owned wastewater and sewer facilities, storm water management projects and nonpoint source control practices for water quality.

Federal regulations require the State to prepare a plan identifying the intended uses of the funds in the SRF and describing how those uses support the goals of the SRF. The SFY 2026 DWSRF IUP contains planned uses of the DWSRF Base Program and also includes planned uses for the Infrastructure Investment and Jobs Act (IIJA) funding *formerly referred to as the Bipartisan Infrastructure Law (BIL)*. This includes IIJA General Supplemental (GS), IIJA PFAS/Emerging Contaminants (EC), and IIJA Lead Service Line (LSL) Replacement Funds. The SFY 2026 CWSRF IUP contains planned uses of the CWSRF Base Program and also includes planned uses for the IIJA PFAS/EC Fund.

These IUPs are published annually and also include project priority lists (PPL), financial management strategies, discussion of set-aside programs and efforts, and planned uses for administrative accounts. These IUPs are then updated quarterly and include an analysis of current and projected finances, new projects and changes to loan status on the PPLs, and any other necessary programmatic or financial updates.

Attachment 1 to the CWSRF IUP and DWSRF IUP serves as the PPL for the SRF Base Program Funds and the IIJA GS, PFAS/EC, and LSL Replacement Funds.

Each draft IUP is released for public comment and review, and then presented for approval to the Commission. A public meeting was held via conference call on May 29, 2025 to highlight changes to the plan and to receive comments. There were attendees but no public comments were collected. The written comment period closed on June 5, 2025 and no comments were received.

This SFY the SRF Program will continue to offer a special purpose financing option for nonpoint source projects (See CWSRF IUP Section E- Program Activities to be Supported and Appendix I); the Base and IIJA GS loan forgiveness criteria will continue to use the set scale award method based on Disadvantaged Community (DAC) scores; DW IIJA PFAS/EC funding maximum award amounts have increased; loan initiation fees will not be assessed on loans to any DAC borrowers;

and budget amounts for Linked-Deposit Programs have increased to accommodate current demand.

A summary of the new projects added to the PPLs for the first quarter of SFY 2026 are as follows:

(9) CWSRF Planning & Design Loan applications	(totaling $20,472,041)
(7) CWSRF IUP applications for construction projects	(totaling $19,115,000)
(10) DWSRF Planning & Design Loan applications	(totaling $30,408,441)
(11) DWSRF IUP applications for construction projects	(totaling $58,032,000)

Funds are available and/or obtainable to provide the anticipated disbursements for these projects.

Theresa Enright, SRF Coordinator
Department of Natural Resources
June 17, 2025

DRAFT

FY 2026 INTENDED USE PLAN

CLEAN WATER STATE REVOLVING FUND

IOWA™

State Revolving Fund

INVESTING IN IOWA'S WATER

Approval anticipated by the Environmental Protection Commission (EPC) on June 17, 2025.

Table of Contents

Introduction

Under the authority of Title VI of the Federal Water Pollution Control Act and Iowa Code Sections 455B.291-455B.299, the Clean Water State Revolving Fund (CWSRF) Program finances wastewater treatment, sewer rehabilitation, stormwater quality improvements, and nonpoint source (NPS) projects.

Iowa's CWSRF Programs have provided over ***$4 billion*** in financial assistance for wastewater infrastructure, agricultural best management practices, and other water quality projects since 1989. With the State Fiscal Year (SFY) 2026 Intended Use Plan (IUP) and future program plans, Iowa's SRF will continue to help Iowans protect public health and the environment through investing in Iowa's water.

A. Highlights and Changes

Since 2022, many exciting opportunities have developed to increase investment in water and wastewater infrastructure. Iowa is expanding and revising the SRF Program, as needed, to adapt to and take advantage of these new opportunities. Plans for implementing funding for the General Supplemental (GS), Lead Service Line (LSL), and PFAS/Emerging Contaminants (EC) funding awarded from the **Infrastructure Investment and Jobs Act (IIJA)**, *formerly referred to as* ***Bipartisan Infrastructure Law (BIL)****,* are included in this annual release of the IUP.

Highlighted below are some of the changes Iowa SRF is incorporating into SFY 2026 IUPs.

Loan Terms

- Loan initiation fees will not be assessed on loans to any DAC borrowers.

Disadvantaged Communities

- The **Socioeconomic Assessment (SA) Tool** used to establish affordability criteria and define a **Disadvantaged Community (DAC)** has been updated with current American Community Survey and will be referred to as the SFY 2026 SA Tool.
- **DAC eligibility will be evaluated at the time of IUP application**. All projects added to the Project Priority List (PPL) during SFY 2026 will receive a DAC score based on the SFY 2026 SA Tool and this score will not change with future SA Tool updates. All projects listed on the approved PPL *prior to SFY 2026* will continue to use the DAC score in accordance with the SFY 2024 and SFY2025 SA Tools.

Loan Forgiveness (LF)

- ~~The LF scale increased for Base Cap Grants and IIJA GS LF due to additional funding availability.~~
- Priority funding for Base Cap Grants and IIJA GS LF will be awarded to compliance projects.
- ~~LF maximum award amounts for IIJA PFAS/EC funds increased.~~

Nonpoint Source Programs (NPS)

- Budgets have increased for NPS Linked-Deposit Loan Programs due to high demand.
- Funding for new Water Resources Restoration projects (Sponsored Projects) is not available during SFY 2026.
- The SRF GNS Program will continue to offer "Special Funding Opportunity" to communities interested in constructing NPS practices to manage stormwater or other nonpoint pollutants. Applications will be scored and qualifying communities will receive up to $500,000 at 0% interest for General NPS direct loans.

B. SRF Program Overview

SRF PROGRAM ADMINISTRATION

The unique partnership between the Iowa Department of Natural Resources (DNR), Iowa Finance Authority (IFA), and the Iowa Department of Agriculture and Land Stewardship (IDALS) is the foundation for the success of the SRF programs. These agencies work together to deliver streamlined programs and good customer service:

- DNR-Administers the environmental, permitting, and regulatory compliance aspects of the program as well as project level approval, eligibility and compliance
- IFA-Administers the financial aspects of the program including fund management, bond issuance for state match and leveraging, loan approval, disbursement, and servicing.
- IDALS-Through a contractual agreement with DNR, IDALS administers three SRF NPS Linked Deposit Programs and provides technical assistance to the CWSRF NPS Programs.

Iowa's SRF also relies on partnerships with Soil and Water Conservation Districts, county public health agencies, watershed and land trust organizations, and lending institutions across the state to implement program and financial goals.

TYPES OF FINANCIAL ASSISTANCE

(See Appendix D - Interest Rates, Fees, and Loan Terms)

The Iowa CWSRF Program offers ***Planning & Design (P&D) Loans*** and ***Construction Loans***. Low-interest financing is provided
using one of three financing mechanisms:

- **Direct Loans** - CWSRF funds are used to purchase municipal bond debt, secured by utility system revenues or a general obligation pledge.
- **Loan Participation** - CWSRF funds are used to purchase an existing loan from a lender. These loans are not listed in the PPL but are identified in Appendix H - Funding Recommendations of the CWSRF IUP and are individually reported in the annual report.
- **Linked Deposit** - CWSRF funds are deposited with a participating lender and are used to fund the loan and reduce the interest rate. These loans are not listed in the PPL but are reported by total program usage in the annual report.

Direct Loans for ***P&D*** are available to eligible public and private borrowers to cover engineering and project development costs such as testing and scoping, preparing Facility Plans (FP), and project specifications that are directly related to the development of an eligible SRF treatment works or General NPS project.

Direct Loans for ***Section 212 Treatment Works Projects*** are available to Publicly Owned Treatment Works (POTW) to address new construction or improvements to existing wastewater treatment facilities, treatment techniques, transmission lines and collection systems.

Financial assistance for ***NPS Projects*** is available to public and private borrowers in the form of direct loans, loan participations or linked-deposit loans, depending on the borrower and project type. These projects address stormwater quality, inadequate septic systems, landfill closure, lake restoration, soil erosion control, brownfield cleanup, manure management and more (see SFY 2026 Program Activities to be Supported).

Current interest rates and fees are established in the IUP in Appendix D - Interest Rates, Fees, and Loan Terms and are published on the Loan Interest Rates[1] page of the SRF website.

LF criteria is established in the IUP in Appendix B - Additional Subsidization. Recipients of LF are publicly announced through listservs, news releases and published in the annual report.

CO-FUNDING

The SRF strives to assist communities with the most affordable financing for their water quality projects. SRF funding can be combined with several other funding sources to make costly infrastructure projects possible. Joint funding with other funding agencies is crucial to making wastewater infrastructure upgrade projects affordable for some communities.

Other state and federal funding sources may have funding requirements in addition to those required under the SRF Program. When projects are co-funded, borrowers are made aware that projects may be subject to compliance with other federal funding requirements that are not necessarily required by or are different from the SRF Program. Examples include, but may not be limited to, the Single Audit Act or Build America, Buy America (BABA) Act.

The Iowa SRF Program is committed to coordinating with other funding agencies to simplify the process of co-funding and to find an affordable solution to wastewater needs.

[1] https://www.iowasrf.com/loan-interest-rates/

EMERGENCY FUNDING

A Memorandum of Understanding (MOU) between EPA and the Federal Emergency Management Agency (FEMA) provides a framework for SRF programs to assist and collaborate with FEMA disaster assistance grant programs. The Iowa SRF Program will work with communities on a case-by-case basis to provide assistance addressing public health threats related to drinking water and wastewater resulting from a disaster. Some of the ways the SRF can help following a disaster include:

Use SRF loans as match for FEMA grants. FEMA funds will generally pay for a percentage of the repair or replacement costs for public water and wastewater systems damaged by natural disasters or projects to prevent or mitigate future disasters. The SRF can be used to finance the amount not covered by FEMA after all program requirements are met.

Use SRF funds as short-term loans to be repaid with FEMA grants. There may be times when a public facility has been approved for a FEMA grant but there is a delay in receiving the funds. In those situations, after all program requirements are met, an SRF loan may be used to finance the repairs and then be repaid with FEMA money. Emergency loans meeting these conditions may be executed and then reported in the next quarterly IUP update.

APPLICATION PROCESS

***Planning & Design Projects**:*

- New applications for **P&D** will be accepted on a quarterly basis the first working day of the months of April, July, October and January.
- Applications are available on the SRF website[2] and are submitted to IFA's SRF Program Staff at waterquality@iowafinance.com.

***Construction Projects**:*

- New applications for **construction projects, including General NPS projects,** will be accepted on a quarterly basis the first working day of the months of March, June, September and December.
- **Infrastructure/Point Source Construction Projects:** IUP applications can be found on the Clean Water Loan Program page of the SRF website[3] and are submitted to srf-iup@dnr.iowa.gov.
- **General Nonpoint Source (GNS) Projects:** IUP applications and instructions can be found on the SRF website[4], and submitted to srf-iup@dnr.iowa.gov.
- **Linked Deposit Programs:** Applications for these programs are accepted on a continuous basis. Instructions and applications for each program can be found on the SRF website[5].

Additional documents required for a construction project application include:

- Facility Plan
- Environmental Review Checklist
- Socioeconomic Assessment Tool Worksheet

Project applications eligible for SRF funding under the IIJA General Supplemental and IIJA PFAS/EC Fund will use the CWSRF IUP application and follow the same quarterly IUP application cycle as the CWSRF Base Program. Additional application information may be required for projects applying for IIJA Funds. The SRF Program will provide additional application materials and guidance for IIJA Funds directly to applicants, as applicable, and application materials will be available on the SRF website[6].

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[2] Planning & Design Loan Program page of https://www.iowasrf.com/planning-and-design-loans/

[3] Clean Water Loan Program page of https://www.iowasrf.com/clean-water-loan-program/

[4] NPS Water Quality Programs "Programs for Communities" page https://www.iowasrf.com/general-non-point-source/

[5] NPS Water Quality Programs, "Programs for Landowners" page of https://www.iowasrf.com/nonpoint-source-water-quality-programs/

[6] IIJA page of https://opportunityiowa.gov/community/water-quality/srf-resources/infrastructure-investment-and-jobs-act

C. Intended Use Plans

The State of Iowa IUP for the CWSRF is prepared annually in accordance with the provisions of Clean Water Act (CWA), 40 CFR Part 35 and Iowa Code Sections 455B.291-455B.299 and 567 Iowa Administrative Code (IAC) Chapter 90.

The IUP is developed annually in June and updated quarterly in September, December, and March (or more often as needed). This IUP covers activities during the SFY 2026, July 1, 2025 through June 30, 2026.

The IUP identifies the intended uses of funds available to the SRF including: the program's goals, information on the types of activities to be supported, program requirements, assurances and specific proposals on the manner by which the State intends to meet the requirements of the Operating Agreement with the U.S. Environmental Protection Agency (EPA), sources and uses of funds, criteria and method for distribution of funds, the loan rates, terms, and fees for the fiscal year, and includes a ranked listing of projects to be funded.

The IUP and PPL are submitted to the EPA as part of the application for a capitalization grant. The IUP and PPL are reviewed and approved quarterly by the Iowa Environmental Protection Commission (EPC). The EPC is a panel of nine citizens who provide policy oversight over Iowa's environmental protection efforts. EPC members are appointed by the Governor and confirmed by vote of the Senate for four-year terms. Federal and state law requires, and Iowa welcomes, public participation in the development of the IUP.

METHOD OF AMENDMENT OF THE IUP

The Iowa SRF Program will follow this IUP in administering CWSRF funds in SFY 2026. Any revisions of the goals, policies and method of distribution of funds shall be addressed by a revision of the IUP, including public participation. Minor adjustments in funding schedules and loan amounts are allowed without public notification by the procedures of this IUP and state rules for administration of the CWSRF. Public notice of amendments will be made if borrowers are added to or removed from the PPL.

PROJECT PRIORITY LIST (PPL)

(See Attachment 1 – CWSRF PPL)

Administration of the CWSRF Program includes developing a priority list of projects to receive loan assistance, in accordance with DNR rules 567 IAC Chapter 90 (455B). Attachment 1 constitutes the CWSRF PPL and is included as a separate, sortable Excel file. This PPL will be amended quarterly during SFY 2026 and includes projects funded by both CWSRF Base and IIJA Funds.

The PPL is a list of projects currently requesting funding from the SRF. This list provides the CWSRF Program with a projection of loan funding assistance needed for applications. Priority order is determined by point source rating criteria defined in 567 IAC Chapter 90 (455B). More information on priority ranking is available Appendix C – Project Ranking Criteria. Projects are listed on the PPL in ranking order by the IUP year and quarter the application was received. P&D loan applications are not ranked but appear at the beginning of the list for each new quarter.

Pursuant to Section 606(c) (3) of the CWA and 40 CFR Part 35, the PPL includes the following required items: name of the potential borrower; project description; National Pollutant Discharge Elimination System (NPDES) Permit Number (as applicable); SRF project number; projected amount of eligible assistance; and type of assistance. The PPL may also include project ranking, project status, DAC score or other information the program wishes to convey to the public.

The PPL (Attachment 1) includes funding for the following activities during SFY 2026:

- **P&D Loans.** These are loan requests that cover planning and engineering costs related to the design of an eligible CWSRF project and the development of a Facility Plan (FP).
- **New Section 212 Treatment Works Projects.** Projects are added to the PPL only after a complete IUP application is received, the project has passed a preliminary review of eligibility, and the project is scored.

- **Segments of Previously Funded Section 212 Treatment Works Projects.** Subsequent segments of a project which have previously received funding priority or assistance will be placed on the PPL and may carry over their original priority point total from the previous year.
- **New General Nonpoint Source Projects including Source Water Protection.** Projects are added to the PPL only after a complete IUP application is received, the project has passed a preliminary review of eligibility, and the project is scored (See also Appendix H – Funding Recommendations).
- **Unfunded Prior Years' Section 212 Treatment Works and General NPS Projects.** These are loan requests remaining on the PPL from previous years' IUPs. It is Iowa's intention to make CWSRF loans to these projects during SFY 2026 if they are ready for a binding loan commitment.
- **Supplemental Financing.** Supplemental financing provides additional funds for projects listed in previously approved IUPs. These funds will be used to cover cost overruns on previously approved scopes of work and are added to the IUP as they are requested.

Fundable projects are further identified as "P - in planning," "R - ready for loan" (indicating that the construction permit and environmental review have been completed), and "L - loan signed." IIJA PFAS/EC and LSL projects may be identified as "C - contingency status" (indicating that the project has not yet met all eligibility criteria to receive a specific funding source-see Section. E - SFY 2026 CWSRF Program Activities to be Supported).

PROJECT SCOPE

The scope of the project must be outlined in the IUP application and in the Facility Plan.

Scope Changes. Changes to the scope are allowed prior to executing an SRF loan. Significant changes in scope prior to a loan execution may cause project delays if additional work is required by the project manager and/or ER specialist. Once a loan is signed, only minor changes to the scope are allowed and only if the changes do not require additional public bidding, technical review or ER.

DROPPED PROJECTS/PROJECT WITHDRAWAL

If a project on the approved IUP list is not going to proceed or will not be utilizing SRF funds, the applicant should notify the SRF in writing that they wish to withdraw the IUP application from the PPL. For the purpose of program planning, applicants with projects on the PPL for longer than 3 years (and/or listed in Appendix H - Funding Recommendations of this IUP) will be required to evaluate their original IUP application to determine if the scope and cost of the project are still accurate and if they intend to proceed with the project. Applicants will be asked to provide an updated project schedule, scope and cost, as necessary. A notification may be sent to the SRF applicant that their project may be dropped if adequate progress toward a binding loan commitment is not demonstrated within six months following the notice. If a project is withdrawn or dropped from the PPL, the applicant may reapply when the project is ready to move ahead.

PUBLIC REVIEW AND COMMENT

(See Appendix I - Public Review and Comments Received)

The SRF Program accepts new IUP applications quarterly by the first business day in March, June, September, and December[7]. The DRAFT IUP and PPL are updated and available to the public for review about 60 days after the quarterly IUP application deadline. The IUP is posted on the Intended Use Plan webpage of the SRF Program's website[8] and public comments are accepted for approximately 30 days following the posting at srf-pc@dnr.iowa.gov.

Public Hearings are typically scheduled on the final Thursday of the months of May, August, November and February to highlight changes from the previous quarter, when applicable, and to collect public comments. Information on how to

[7] https://opportunityiowa.gov/community/water-quality/srf-programs/clean-water-loan-program
[8] https://opportunityiowa.gov/community/water-quality/srf-resources/intended-use-plan

participate in the public hearing is provided through listservs and on the SRF website[9]. A final draft version of the IUP, including all comments and SRF responses to the comments received, will be posted as part of the EPC Meeting and Agenda on the EPC webpage on the DNR's website[10].

An open forum client contact group meeting will be held on the Thursday prior to each EPC meeting to discuss agenda items. The IUP is approved quarterly by the EPC at regularly scheduled EPC meetings typically held the third Tuesday of the months of June, September, December and March. EPC meetings are open to the public, providing a final opportunity for public comment on each quarterly update of the IUP.

All of the opportunities mentioned above are open to the public. Meetings and hearing information are posted on the Water Quality News and IUP pages[11] of the SRF website, and announced through agency-managed listservs. Public comments are accepted at srf-pc@dnr.iowa.gov.

D. SFY 2026 CWSRF Program Goals

SHORT TERM GOALS

Goal: Maximize Funding Opportunities. *Apply for all available Federal Fiscal Year (FFY) 2025 Base and IIJA Capitalization Grants*

Goal: Maximize Loan Commitments. *Commit loan funds to as many recipients as possible in accordance with the state priority rating system, the IUP, staff resources, and available funding, to assist in the construction of projects with the highest water quality impacts.*

Goal: Expand Subsidization Opportunities. *Assign/reallocate LF funds from new and previous capitalization grants to fulfill additional subsidization requirements and reduce the financial burden on borrowers.*

Goal: Improve Program Efficiency. *Streamline administrative processes, including adoption of new software that improves communication and reduces the time from initial application to funding.*

Goal: Enhance Public Awareness*. Update marketing materials, program resources and website to increase outreach and education efforts that will inform communities about available funding and program benefits.*

Goal: Increase Funding Accessibility. *Continue the partnership with Environmental Finance Center's (EFC) Technical Assistance (TA) resources to assist the Iowa SRF Program to make funding more accessible to small and disadvantaged communities.*

Goal: Promote Green Infrastructure. *Continue outreach efforts to educate and encourage the implementation of green infrastructure projects that effectively address water quality needs and target appropriate audiences.*

LONG TERM GOALS

Goal: Minimize Barriers to Funding. *Apply program requirements that are simple and understandable and do not add unnecessary burdens to applicants or recipients.*

Goal: Expand Program Reach. *Increase the number of projects funded and expand the geographic reach of the program to benefit more communities. Endeavor to make the SRF Program the first choice for Iowa communities to finance a water infrastructure project.*

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[9] https://opportunityiowa.gov/community/water-quality/srf-resources/intended-use-plan
[10] https://www.iowadnr.gov/About-DNR/Boards-Commissions/Environmental-Protection-EPC
[11] https://www.iowasrf.com/intended-use-plan-public-hearings/ and https://opportunityiowa.gov/community/water-quality/srf-resources/water-quality-news

Goal: Enhance Collaboration. *Strengthen partnerships with federal, state, and local agencies, as well as private sector stakeholders, to maximize the impact of the CWSRF.*

Goal: Foster Innovation: *Encourage the development and implementation of innovative technologies and practices in wastewater treatment and pollution control.*

Goal: Maintain Financial Health of the Fund. *Ensure the long-term financial stability of the CWSRF through prudent financial management and strategic investments that will sustain the CWSRF Loan Program in perpetuity to assist POTW's in achieving compliance with public health objectives of the CWA.*

Goal: Achieve Sustainable Water Quality Improvements. *Provide innovative funding mechanisms for nonpoint source projects that promote sustainable practices and improve and/or protect the long-term water quality of Iowa's surface and groundwater for public health, native fish and wildlife.*

E. SFY 2026 Program Activities to be Supported

Iowa's CWSRF Program can fund a wide variety of water quality improvement and protection efforts. In 1987 when the program was established, there were three statutory eligibilities. The CWSRF Program eligibilities have since been expanded by the American Recovery and Reinvestment Act (ARRA) of 2009, the Water Resources Reform and Development Act (WRRDA) of 2014, and the America's Water Infrastructure Act (AWIA) of 2018 to incorporate twelve eligibilities. These eligibilities allow Iowa SRF to fund a variety of project types. Eligible projects exist under all of the following categories: Centralized Wastewater Treatment, Energy Conservation, Water Conservation, Stormwater, Agricultural Best Management Practices, Decentralized Wastewater Treatment, Resource Extraction, Contaminated Sites, Landfills, Habitat Protection and Restoration, Estuary Protection and Restoration, Silviculture, Desalination, Groundwater Protection and Restoration, Surface Water Protection and Restoration, Planning /Assessment, and Source Water Protection.[12]

CWSRF BASE PROGRAM

Allotments for the FFY 2025 EPA CWSRF Capitalization Grants (Cap Grants) have not been determined as of the publication of this DRAFT IUP. The Iowa SRF Program will apply for and/or receive FFY 2025 CWSRF Base Program Funding during the SFY 2026 once the allotments and funding become available.

FFY	Funding Source	Allocation Amount*
2025	CWSRF Base Cap Grant	$21,472,000

*This award is anticipated to be received by SFY 2026 but has not been applied for/received as of the publication of this DRAFT IUP.

POINT SOURCE ASSISTANCE-CWA 603 (C) 1 - SECTION 212

Eligible Borrowers: Any municipal, interstate, or state agency for the construction of publicly owned, centralized wastewater treatment projects.

Eligible Activities: Eligible projects address primary and secondary treatment, advanced treatment, sewer system repair and replacement, combined sewer operations (CSO) correction, resilience to extreme weather events, security and system consolidation/regionalization.[13]

Special Conditions: Projects selected as equivalency will comply with the federal requirements described in Section G. Financial Administration and Appendix H-SRF Assistance Recipient Federal Requirements.

NONPOINT SOURCE ASSISTANCE PROGRAMS

[12] https://www.epa.gov/cwsrf/clean-water-state-revolving-fund-cwsrf-factsheets

[13] https://www.epa.gov/sites/default/files/2016-07/documents/overview_of_cwsrf_eligibilities_may_2016.pdf

Iowa authorizing legislation allows the use of CWSRF Program funds for NPS pollution control projects. Iowa SRF is committed to funding projects that control NPS pollution. An annual budget is established for each program to ensure that funding is dedicated to these initiatives. During SFY 2026, budgets may be modified in future IUP updates, based on need.

Financial assistance for NPS assistance programs is provided through three funding mechanisms: loan participation, direct loan, or linked deposit (see Section B. SRF Program Overview, Types of Financial Assistance, for more details). Public entities are eligible for direct loans, private entities are eligible for loan participation, and private landowners are eligible for linked-deposit financing.

General Nonpoint Source Program-CWA Section 603(C)2-Section 319

Nonpoint Source Assistance Programs	Proposed SFY 2026 Budget
General NPS Program	$10,000,000*

*The SRF Program may adjust this amount in future updates based on project demand and funding availability.

Loan Participation Financing

Eligible Borrowers: Private entities

Eligible Activities: Eligible projects must implement NPS management programs established under Section 319 of the CWA. Projects must support Iowa's State NPS Management Plan[14] or a nine-element watershed-based plan and must be for the primary purpose of water quality improvement or protection. Projects primarily for the purchase of land must meet the definition of "projects" in IA Code 455B.291 and require separate approval by the EPC[15].

Applications and instructions for General NPS projects can be found on the NPS Water Quality Programs, "Programs for Communities" page of the SRF website.[16]

Projects funded as loan participation are listed in Appendix H - Funding Recommendations, and are not listed on the PPL. NPS assistance offered as loan participation is reported by project in the annual report.

Direct Loan Financing

Eligible Borrowers: Cities, counties, and other public entities with the ability to issue a bond or generate revenue to repay a CWSRF loan. Borrowers must be an owner of record or demonstrate long-term control of the project area.

Eligible Activities: Eligible projects must implement NPS management programs established under Section 319 of the CWA. Projects must support Iowa's State NPS Management Plan or a nine-element watershed-based plan and must be for the primary purpose of water quality improvement or protection.

Application Process: Applications and instructions for General NPS projects can be found on the NPS Water Quality Programs, "Programs for Communities" page of the SRF website.

General NPS direct loan project applications eligible for placement on the PPL will also be scored using the Special Purpose Scoring Criteria outlined in Appendix C – Project Ranking Criteria.

Projects funded as a direct loan under this program are listed in Attachment 1 – CWSRF PPL.

[14] https://www.iowadnr.gov/environmental-protection/water-quality/watershed-improvement/nonpoint-source-plan
[15] Iowa Administrative Code 567 - 93 (455B)
[16] Nonpoint Source Water Quality Programs "Programs for Communities" page https://www.iowasrf.com/general-non-point-source/

SPECIAL PURPOSE FUNDING OPPORTUNITY

During SFY 2026, the SRF Program will be offering a competitive NPS funding incentive to encourage implementation of locally directed, water quality improvement projects. This incentive intends to reward NPS projects that demonstrate high water quality benefits, sound design, and project readiness through special purpose financing.

Projects eligible for placement on the PPL will also be scored using the Special Purpose Scoring Criteria outlined in Appendix C – Project Ranking Criteria, specifically to determine eligibility for this special purpose financing opportunity.

Funding Opportunity: Direct loans will be offered to eligible applicants at 0% interest for up to $500,000 per General NPS project. Loan amounts can be up to 100% of the project costs with no limitation on total project amounts and project costs above $500,000 will be funded at the current SRF interest rate. This incentive will be available on a first come, first-funded basis until all available funding has been obligated.

Eligibility Requirements: Projects scoring a minimum of 10 points out of 20 qualify for, and may be offered special purpose funds.

Eligible Borrowers: Public entities with an established stormwater utility; or the ability to issue a bond; or another funding source available to repay a CWSRF loan. Borrowers must be an owner of record or demonstrate long-term control of the project area.

Eligible Activities: All General NPS project activities as described under the General NPS section above.

Timeline: Notices of application scores and funding approval will be available 4-6 weeks after each quarterly IUP submission deadline (quarterly the first working day of March, June, September and December, as funds are available).

Application Process: Details regarding the application submission, review and scoring process are available on the SRF NPS Water Quality Programs webpage https://iowasrf.com/general-non-point-source/.

NPS Assistance Programs	Proposed SFY 2026 Budget
General NPS Special Purpose Funding	$10,000,000*

*The SRF Program may adjust this amount in future updates based on project demand and funding availability.

Projects funded with Special Purpose Funding are listed in Appendix H - Funding Recommendations.

Linked Deposit Programs and Financing

Four NPS Assistance Programs have been established which target areas of need allowed under federal guidance and identified in the state NPS Water Quality Management Plan. Iowa SRF contracts with the IDALS to administer the Local Water Protection (LWPP), Livestock Water Quality Facilities (LWQ), and Stormwater Best Management Practices (SWP) programs through local Soil and Water Conservation Districts. The Onsite Wastewater Systems Assistance Program (OSWAP) is administered through cooperation between DNR and county sanitarians.

Nonpoint Source Linked-Deposit Assistance Programs	SFY 2026 Budget
SWP Practices Program	$1,000,000
LWQ Program	$12,000,000
LWP Program	$2,000,000
OSWAP	$2,000,000

Application Process:
Applications and instructions for Linked-Deposit Assistance Programs can be found on the NPS Water Quality Programs, "Programs for Landowners" page of the SRF website.[17]

Individual loan applicants are not identified in this IUP but loans are reported by program use in the annual report.

Onsite Wastewater Systems Assistance Program (OSWAP) provides loans to replace inadequate septic systems. New systems must be certified by county sanitarians.

Eligible Borrowers: Private homeowners in a location not served by public sewers.

Eligible Activities: Projects must include replacement of septic tank and secondary treatment system.

Local Water Protection (LWP) Program addresses soil, sediment, and nutrient control practices on agricultural land.

Eligible Borrowers: Private landowners.

Eligible Activities: May include but not limited to buffer strips, field borders or windbreaks, filter strips, grade stabilization structures, grassed waterways, sediment basins, terraces, wetlands and bioreactors.

Livestock Water Quality Facilities (LWQ) Program assists livestock producers with minimizing or eliminating NPS pollution from animal feeding operations.

Eligible Borrowers: Private livestock producers (only facilities with fewer than 1,000 animal unit capacity).

Eligible Activities: Improvements to existing animal feeding operations. May include but not limited to manure storage structures, including roofed buildings and solid settling basins, vegetative filters, manure management plans and prescribed grazing.

Stormwater Best Management Practices (SWP) offers financing for projects that address storm water quality and are designed to keep pollutants out of waterways.

Eligible Borrowers: Homeowners, developers and other private entities

Eligible Activities: May include but not limited to detention basins, grassed waterways, infiltration practices, pervious paving systems, ponds or wetland systems and soil quality restoration.

Sponsored Project Program

In SFY 2026 funding will not be made available for new sponsored projects. Funding for previously awarded sponsored projects remains unchanged. Program resources are available for ***current*** projects on the Water Resource Restoration Sponsored Projects webpage.[18]

The CWSRF Water Resource Restoration Sponsored Project Program or "Sponsored Projects" provides wastewater utilities with the opportunity to fund locally directed, watershed-based, NPS projects that address water quality issues. Iowa Code Section 384.84 authorizes these projects to be financed with sewer revenues. On a CWSRF loan with a sponsored project, the utility borrows for both the wastewater improvement project and the sponsored project.

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[17] NPS Water Quality Programs "Programs for Landowners" page https://www.iowasrf.com/general-non-point-source/
[18] NPS Water Quality Programs, Programs for Communities at https://www.iowasrf.com/water-resource-restoration-sponsored-projects/

However, the overall interest rate on the total amount of principal borrowed is reduced so that the utility's ratepayers do not pay any more than they would have for just the wastewater improvements.

NPS Assistance Programs	Proposed SFY 2026 Budget
Sponsored Project Program	$0

Loan Amendments. Beginning with projects awarded in SFY 2022, Sponsored Project loan amendments must be executed prior to the second principal payment on the sponsoring CWSRF loan or the Sponsored Project award may be withdrawn.

Scope Change. The waterbody, watershed, and water quality concern identified in the Water Resource Restoration Sponsored Project application cannot be changed after an application has been awarded funding.

Maintenance. Water quality practices funded through sponsored projects must be maintained for the useful design life of the practice. Sponsored Project recipients are required to develop and execute a maintenance plan for all practices, and agree to a Water Resource Restoration Sponsored Project Performance Agreement to ensure that the water quality practices being funded are constructed and maintained in a manner that will achieve, and continue to provide, the water quality improvement according to the approved design.

Nonpoint Source projects constructing qualified water quality practices may be funded through the General NPS loan program and may also qualify for "Special Purpose Funding."

CWSRF IIJA PROGRAMS

The IIJA, also known as the IIJA, provides CWSRF programs with two additional capitalization grants annually through FFY 2026. Allotments for the FFY 2025 EPA capitalization grants have been determined and the Iowa SRF Program will apply for and/or receive FFY 2024 and 2025 IIJA Funding during the SFY 2026.

Due to IIJA funding requirements, projects financed with IIJA PFAS/EC and General Supplemental funding should enter into a loan assistance agreement within one year of becoming eligible for the funds to avoid being bypassed. The CWSRF Program may bypass projects that have not signed a loan obligation within this timeframe. If an eligible project is bypassed, the applicant may be reconsidered when the project is ready to move ahead, as funding is available, or may be financed through CWSRF Base Funds.

CWSRF IIJA GENERAL SUPPLEMENTAL (GS) FUNDS

FFY	Funding Source	Allocation Amount*
2025	CWSRF IIJA GS Grant	$33,341,000

*This award amount is anticipated to be received in SFY 2026

Eligibility. Eligible borrowers and eligible activities for IIJA GS Funds are the same as the CWSRF Base Program.

Special Conditions. Projects selected as equivalency will comply with the federal requirements described in Section G. Financial Administration and Appendix H-SRF Assistance Recipient Federal Requirements.

IIJA PFAS/EMERGING CONTAMINANT (EC) FUND

FFY	Funding Source	Allocation Amount
2024	CWSRF IIJA PFAS/EC	$2,878,000*
2025	CWSRF IIJA PFAS/EC	$2,878,000*

*This award amount is anticipated to be applied for and/or received in SFY 2026 but has not been received as of the publication of this DRAFT IUP

Eligibility. Eligible borrowers and eligible activities are the same as the CWSRF Base Program. For a project or activity to be eligible under this funding source, it must be otherwise eligible under section 603(c) of the CWA and the ***primary purpose*** must be to address PFAS and/or EC.

As defined by EPA, EC refer to substances and microorganisms, including manufactured or naturally occurring physical, chemical, biological, radiological, or nuclear materials, which are known or anticipated in the environment, that may pose newly identified or re-emerging risks to human health, aquatic life, or the environment.[19]
The main categories of EC include but are not limited to:

- Perfluoroalkyl and polyfluoroalkyl substances (PFAS) and other persistent organic pollutants (POPs)
- Biological contaminants and microorganisms
- Some compounds of pharmaceuticals and personal care products (PPCPs)
- Nanomaterial

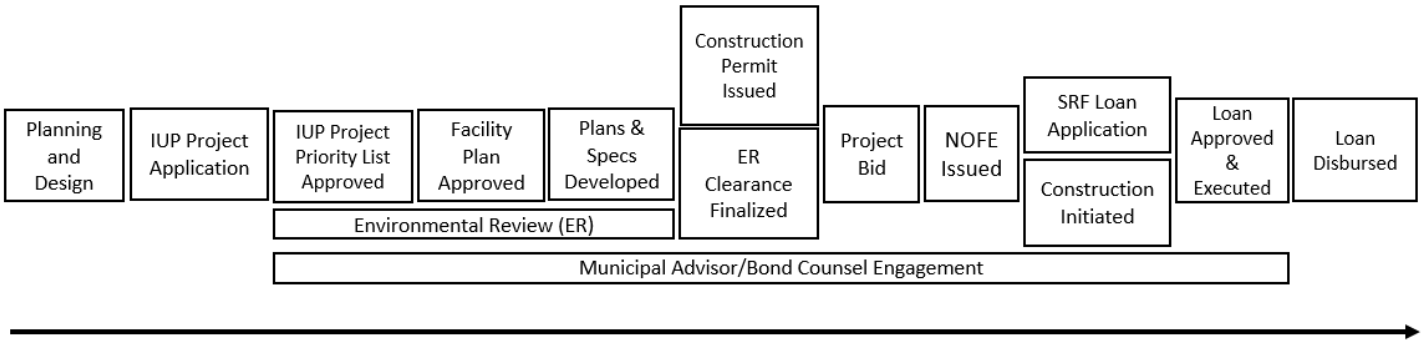
Special Conditions: Projects being funded with IIJA PFAS/EC are all considered equivalency projects and will comply with the federal requirements described in Section G. Financial Administration and Appendix H – SRF Assistance Recipient Federal Requirements.

The Iowa CWSRF Program reserves the right to request transfer of the unobligated portion of the FFY 2024 and/or FFY 2025 Cap Grant to the Drinking Water State Revolving Fund (DWSRF) IIJA PFAS/EC Fund.

F. Iowa Specific SRF Program Requirements

PROJECT SEQUENCE

In order to ensure that all program requirements are met before binding financial commitments are made, the Iowa SRF Program requires all SRF projects to follow the project sequence below. Following this project sequence keeps projects progressing toward construction; limits duplication of work; reduces risk of re-bidding projects; reduces risk of re-issuing construction permits or environmental clearances; and minimizes the risk of project cost not being eligible for reimbursement from an SRF loan.



ASSISTANCE RECIPIENT REQUIREMENTS

For more information on SRF Program federal requirements, see Appendix H – SRF Assistance Recipient Federal Requirements.

The Iowa SRF Program has developed specific requirements that apply to all Iowa SRF borrowers in order to ensure compliance with EPA program requirements and minimize risk to the program.

~~**VIALBILITY ASSESSMENT**~~

~~The Iowa SRF Program requires all borrowers to demonstrate Technical, Managerial and Financial (TMF) Capacity prior to executing an SRF loan. The SRF Program has chosen to use the DNR's Viability Self-Assessment Manual as a tool to~~

[19] https://www.epa.gov/system/files/documents/2022-03/combined_srf-implementation-memo_final_03.2022.pdf

~~demonstrate a system's T & M capacity. Financial capacity is determined through the use of a Municipal Advisor. A Viability Assessment is a required attachment to the IUP application.~~

MUNICIPAL ADVISOR

The Iowa SRF Program requires the use of a SEC-registered Municipal Advisor (MA). Borrowers must engage with a MA to perform pre-loan pro forma cash flow analysis on SRF construction loans to determine adequate revenue levels to repay a loan. If current user rates are not sufficient to meet the anticipated loan's debt coverage requirements, the MA will recommend the necessary rate increases to ensure adequate revenues. Borrowers are required to provide SRF an updated pro forma every five years while the loan is in repayment to demonstrate adequate debt coverage ratios. Municipal Advisor fees are eligible for reimbursement and can be capitalized as part of the SRF loan.

In 2015, to help communities adjust to the requirement that Iowa SRF borrowers engage a Municipal Advisor to perform pre-loan pro forma cash flow analysis, the Program began crediting SRF loans up to $4,000 to offset the cost (the "MA fee credit"). **Beginning with loans executed after July 1, 2025, Iowa SRF will no longer provide the $4,000 MA fee credit for SRF construction loans.** SRF borrowers are still required to engage a Municipal Advisor to complete the pro forma cash flow analysis on SRF construction loans, and Municipal Advisor fees will remain eligible for reimbursement.

BOND COUNSEL

The SRF Program provides loans through the purchase of local bond debt. As such, SRF borrowers must engage with their bond counsel to authorize and issue the debt, prepare documents for public hearings, and to prepare loan closing documents.

PROCUREMENT PROCEDURES

All SRF borrowers must follow Iowa procurement law, *Ch.26 – Public Construction Bidding*, when bidding SRF construction projects. If an SRF borrower is utilizing the Construction Manager at Risk (CMaR) delivery model, *Ch.26A – Guaranteed Maximum Price Contracts,* must also be adhered to. Borrowers will include a "Form of Bid Opinion" when submitting bid documents for review and prior to receiving a Notice of Funding Eligibility. A samples of the Form of Bid Opinion form can be found on the Documents and Guides page of the SRF website[20].

For borrowers utilizing the CMaR method, this process is also required when soliciting for a Construction Manager prior to construction.

Front-End Documents

All SRF borrowers must include SRF Front-End Documents as part of their bid package prior to soliciting bids. Some of these documents will be required for borrowers and/or primary contractors to sign when purchases of goods and services are done directly by the borrower and/or outside of a public bid package. SRF staff will inform each project which of the SRF Front-End Documents are required for each undertaking. These documents are also available on the Documents and Guides page of the SRF website[21].

Legal Opinion of Compliance

After construction contracts are executed and delivered, a "Form of Legal Opinion" by legal counsel certifying compliance with Ch.26 must be submitted to SRF prior to a loan application being considered ready to go before the IFA Board for approval. A samples of this opinion form can be found on the Documents and Guides page of the SRF website[22].

[20] https://opportunityiowa.gov/community/water-quality/srf-resources/documents-and-guides
[21] https://opportunityiowa.gov/community/water-quality/srf-resources/documents-and-guides
[22] https://opportunityiowa.gov/community/water-quality/srf-resources/documents-and-guides

Early Procurement
Occasionally, SRF borrowers find it necessary to procure construction-related equipment and services outside of and/or prior to a public request for bids. These activities are typically eligible for reimbursement under an SRF construction loan if SRF Front-End Documents are properly executed. Borrowers will need to contact SRF for guidance on proper documentation.

Some of these procurement activities may still require the compliance with Ch. 26 -Public Construction Bidding. Borrowers are encouraged to consult with their bond counsel prior to engaging in these activities to ensure that proper procedures are followed and/or bond documents are drawn up accurately to include these expenses.

Construction Manager at Risk (CMaR)
The CMaR construction delivery model allows for a construction manager to be hired early in the planning phase to assist with the planning and design of a project. The CMaR also offers borrowers more transparency in the bidding process and results in a Guaranteed Maximum Price (GMP) for constructing a project.

Although the CMaR delivery model is compatible with the Iowa SRF Program, there are limitations to its traditional use of "design-build" construction. Iowa SRF projects are more compatible with the "design-bid-build" construction model because all required permits must be issued and the entire scope of the project must have an environmental clearance issued prior to beginning construction.

Borrowers choosing to use the CMaR method must **contact SRF early in the planning phase of the project, prior to soliciting for qualifications for a CMaR**, and must follow Ch.26A procurement procedures. Legal opinions, Front-End Documents and Notice of Funding Eligibility are all required for selection of the Construction Manager.

NOTICE OF FUNDING ELIGIBLITY (NOFE)
The SRF Program reviews public bid documents, including schedule of values, and/or all procurement documents or purchase agreements for cost eligibility for the SRF Program. A *Form of Bid Opinion* must be submitted with the bid documents to demonstrate compliance with Iowa public bidding law. Following review of these documents, the SRF Program will issue a NOFE indicating the amount of construction costs eligible for a SRF construction loan. A NOFE also indicates a borrower's next steps and required documents needed before submitting a construction loan application.

SELF CERTIFICATIONS
The SRF Program utilizes a self-certification form for demonstrating compliance with select federal program requirements. Although some additional program oversight may also occur, self-certifications are collected for Architectural/Engineering Procurement Processes (when applicable to equivalency projects), Cost & Effectiveness Analysis, American Iron and Steel compliance, Build America, Buy American (BABA) compliance, Disadvantaged Business Enterprise (DBE) usage, and Davis-Bacon Act compliance.

G. Financial Administration

RATES, FEES AND LOAN TERMS & CONDITIONS

(See Appendix D - Interest Rates, Fees, and Loan Terms)

PROJECT READINESS FOR LOAN APPLICATION

SRF applicants are required to comply with Iowa public bidding laws Chapters 26 and 26A of the Code of Iowa to receive funding through the CWSRF Program. Applicants must demonstrate compliance through a "Form of Bid Opinion" submitted with the bid documents and a final "Legal Opinion of Compliance" following contract execution and delivery. Example templates of these documents are available on the SRF website.[23]

SRF Notice of Funding Eligibility (NOFE)
NOFE Letters will be issued ***only after*** the following program requirements are complete:

[23] Under "Program Information" on the Documents and Guides page https://www.iowasrf.com/documents-and-guides/

- Construction Permit(s) issued by DNR Project Manager for all project phases to be funded by the SRF loan
- Environmental Clearance issued by SRF ER staff
- Project Bid and Bid Documents (including signed SRF Front-End Documents) submitted to DNR
- Form of Bid Opinion

NOFE Letters will include "next steps" which, at minimum, include the collection of the following documents:

- Legal Opinion of Compliance – *An opinion by legal counsel certifying compliance with Chapter 26 and/or 26A*
- Executed contract(s)
- Notice to Proceed

A Construction Loan Application **will not be considered "complete" until SRF issues a NOFE Letter and the applicant submits an opinion of legal counsel to DNR certifying compliance with Iowa public bidding law**.

Prior to Approving a Construction Loan:

A complete SRF Construction application includes a proforma and proof of rate ordinance adoption. When the complete SRF construction loan application is accepted, the loan will be considered for IFA Board approval. Once the board approves the loan, the 90-day lock will be in effect.

- For revenue-backed loans, submit a pro-forma cash flow analysis prepared by a registered Municipal Advisor identifying all outstanding parity obligations and detailing the revenues, expenses, outstanding debt, and debt coverage ratios for the system. At a minimum, the pro-forma should show financial information based on actuals for the past two years, the current year, and projections for the next two years.
- If user rates must be increased to meet the loan's debt coverage requirements, provide documentation that action has been taken to implement the recommendation of the Municipal Advisor (adopted rate ordinance, public hearing notice, etc.).

AFFORDABILITY CRITERIA

(See Appendix A - Affordability Criteria)

The CWA requires Iowa to consider income, unemployment data, population trends, and other data determined to be relevant in establishing affordability criteria used to award certain additional subsidies under the SRF program.

The SA Tool and the metrics are discussed in Appendix A - Affordability Criteria, and they define the affordability criteria that will be used to evaluate the DAC status of a borrower for the purpose of SRF loan forgiveness eligibility. The SA Tool is updated with new census data each year and will become effective, with the IUP, on the first day of the state fiscal year. Applicants will use the SA Tool in effect for the state fiscal year of their project application to determine DAC score. ***DAC determinations are made at the time of IUP application. Once a DAC score is assigned to a project, it will not change for that project.***

ADDITIONAL SUBSIDIZATION

(See Appendix B - Additional Subsidization)

Iowa applies additional subsidization in the form of LF. Appendix B - Additional Subsidization, identifies the available funding and the criteria used to determine projects and borrowers eligible to receive additional subsidization. **Criteria for additional subsidization is established for each Cap Grant**. At the end of each fiscal year, unassigned or reallocated LF may remain available in subsequent years in accordance with its original criteria, or may be combined with the funds made available in accordance with the new Cap Grant criteria.

EQUIVALENCY

An *Equivalency Project* is a treatment works project (as defined in Section 212 of the CWA) that is constructed, in whole or in part, with funds equaling the amount of a federal capitalization grant awarded to a state. The Iowa CWSRF Program must designate a project or group of projects with loan amounts totaling the amount of each Cap Grant received, to comply with all federal funding requirements applicable to that Cap Grant.

Projects assigned as equivalency for SRF capitalization grants will have to comply with the following federal requirements:

- Disadvantaged Business Enterprise[24]
- Single Audit Act
- Procurement of Architecture/Engineering (A/E) services in accordance with the federal Brooks Act (Section 602(b)(14))[25]
- EPA signage requirements
- BABA (FFY 2022 and all future capitalization grants)[26]
- Federal environmental crosscutters (such as Endangered Species Act and National Historic Preservation Act)
- Federal Socioeconomic crosscutters[27] (such as Debarment & Suspension Executive Order and Prohibition on Certain Telecom and Video Surveillance Services/Equipment)

See Appendix G – Federal Assurance, Certifications and Proposals for program compliance requirements and Appendix H-SRF Assistance Recipient Federal Requirements.

PROJECT SELECTION FOR EQUIVALENCY

The Iowa SRF Program intends to select projects for equivalency that will impose the least amount of administrative or financial burden on a borrower. The evaluation is project-specific. Many factors are considered but, at minimum, the following factors are evaluated when making project selections for equivalency:

- Project type
- Project cost
- Project timeline
- Timing of loan execution
- Structure of loan(s)
- Federal co-funding (specifically, do other co-funding sources already require the same compliance?)
- Population of borrower
- Disadvantaged status of borrower
- Single audits (are they typically performed for the borrower?)
- Qualifications-based procurement (is this already a regular practice for the borrower when selecting architectural/engineering services?)

The SRF Program will coordinate with borrowers during project planning to identify and assign projects for equivalency. Because it is unknown which projects listed on the PPL will execute loan agreements in a fiscal year, the final equivalency loans selected for each year will not be listed in the IUP but will be identified in the annual report.

CRITERIA AND METHOD FOR DISTRIBUTION OF FUNDS

The cash draw procedure used is the direct loan method. The Iowa CWSRF Program uses its Equity Fund to originate loans. When enough loans have been made, the CWSRF Program issues bonds and uses the bond proceeds to replenish the Equity Fund. Iowa's bonds are cross-collateralized across both the Clean Water and Drinking Water SRF accounts, in a manner consistent with state and federal laws. State match bonds are issued along with leveraged bond issues for greater cost effectiveness. State match proceeds are fully disbursed prior to drawing Cap Grant funds. The Cap Grant funds will be drawn at a 100% proportionality ratio. Iowa expects to fully disburse the loan portion of the FFY 2025 CWSRF Base Capitalization Grant, FFY 2025 IIJA General Supplemental Fund, FFY 2022 IIJA PFAS/EC, and a portion of the FFY 2023 IIJA PFAS/EC during the program year.

Allocation of Funds Among Projects. All projects listed in the CWSRF PPL (see Attachment 1) may be funded from the CWSRF subject to available funds. All projects scheduled for funding with Iowa's CWSRF will be reviewed for consistency

[24] https://www.epa.gov/grants/disadvantaged-business-enterprise-program-under-epa-assistance-agreements-dbe-program
[25] https://www.epa.gov/sites/default/files/2021-03/documents/best-practice-guide-for-procuring-services-supplies-equipment.pdf
[26] https://www.epa.gov/cwsrf/build-america-buy-america-baba
[27] https://www.epa.gov/grants/epa-subaward-cross-cutter-requirements

with appropriate plans developed under section 205(j), 208, 303(d), and 603(c) of the CWA, as amended. Evidence of this review and finding of consistency will be documented in each CWSRF project file.

The following approach was used to develop Iowa's proposed distribution of CWSRF funds:

1. Analysis of the priority of communities applying and financial assistance needed;
2. Identification of the sources and spending limits of available funds;
3. Allocation of funds among projects;
4. Development of a payment schedule which will provide for making timely binding commitments to the projects selected for CWSRF assistance; and
5. Development of a disbursement schedule to reimburse the project costs as incurred.

Allocation of funds to eligible projects was based on a four-step process:

1. The amount of financial assistance needed for each application was estimated.
2. The sources and allowable uses of all CWSRF funds were identified.
3. The CWSRF funds were allocated among the projects, consistent with the amount available and the financial assistance needed.
4. A designated amount was reserved for each NPS Assistance Program based on past funding and expected future needs.

All projects listed in the CWSRF PPL may be funded from the CWSRF subject to available funds and eligibility. Information pertinent to each CWSRF project is contained in the attached PPL (Attachment 1).

Priority of Communities and Financial Assistance Needed. The state's priority rating system used to establish priorities for loan assistance is described in Appendix C - Project Ranking Criteria.

Capitalization (Cap) Grant Requirements. Cap Grants include requirements for minimum and maximum percentages of the funds to be allocated for additional subsidization and/or green project reserve (GPR). Iowa will identify projects meeting eligibility criteria during SFY 2026 and will report assignments of these funds in the annual report.

FUNDING SOURCES AND USES

(See Appendix E - Estimated Sources and Uses)

During SFY 2026, the Iowa SRF Program will apply for and/or receive the following Cap Grants and amounts:

FFY	Funding Source	Allocation Amount
2024	CWSRF IIJA PFAS/EC	$2,878,000
2025	CWSRF Base Cap Grant	$21,472,000
2025	CWSRF IIJA General Supplemental Grant	$33,341,000

During SFY 2026, the Iowa SRF Program will apply for (but may not receive the funds during SFY 2026) the following Cap Grants and amounts:

FFY	Funding Source	Allocation Amount
2025	CWSRF IIJA PFAS/EC	$2,878,000

Appendix E - Estimated Sources and Uses illustrates potential sources and uses of funds in the CWSRF for SFY 2026. As shown, all pending loan requests and program administration needs can be funded. To account for the fact that projects draw their funding at different intervals, Iowa SRF frequently analyzes program cash flows to ensure adequate funding is available. Appendix E - Estimated Sources and Uses may be updated, as appropriate, to provide an ongoing view of the financial plan for meeting loan requests.

Other uses for CWSRF program funds in SFY 2026 include $37 million ($10M General NPS, $10M General NPS Special Purpose Funding at 0% interest, and $17M Linked-Deposit Programs) reserved for the NPS Assistance Programs.

Current and Projected Financial Capacity of the CWSRF. The leveraging capacity of the CWSRF is robust due to the maturity of the fund and the current loan portfolio. SRF staff has analyzed the future financial capacity of the CWSRF in light of the discussion over water quality standards and other future wastewater needs. If Iowa SRF continues to receive Cap Grants and provides at least 20% of the Base Cap Grant and 49% of the IIJA Supplemental Cap Grant as LF, the CWSRF could loan approximately $300 million per year over the next 10 years, or a total of $3.0 billion. These figures would increase with an increase in interest rates.

STATE MATCH
(See Appendix F - State Match)
The Iowa SRF Program issues bonds for state match.

BONDS
Iowa's SRF program issues bonds as needed. These bond issues typically include the anticipated state match for the next federal Cap Grants.

SWIFIA
The Iowa SRF program was invited to apply for a loan through EPA's Water Infrastructure Finance and Innovation Act (WIFIA) program. The SRF Program is in the process of working through the underwriting process; the timeline for closing the loan is yet to be determined.

TRANSFERS BETWEEN FUNDS
The Iowa CWSRF reserves the right to transfer 33% of the amount of the Drinking Water capitalization grants from the Water Pollution Control Revolving Fund to the Public Water Supply Loan Fund in the future. The transferred funds will not be federal funds and will come from either bond proceeds, investment earnings, or recycled funds. This would help the DWSRF Program to meet loan demands in the future and should not impact the ability for the CWSRF to fund demand for projects.

PLAN FOR EFFICIENT AND TIMELY USE OF CWSRF FUNDS
The Iowa CWSRF has a string and sustained demand for loans and utilizes Federal Cap Grant funds as quickly as possible. After SRF bonds are issued, state match funds are used first, before drawing on Cap Grant funds. The Cap Grant funds are drawn at a 100% proportionality ratio. Loan disbursements requests are processed weekly.

Throughout the first 10 months of SFY 2025 (through April 2025), the CWSRF program disbursed an average of approximately $23.9 million per month. Since the program's inception, Iowa's CWSRF has provided more than $5.00 of assistance for every $1.00 of federal investment due to the revolving nature of the program, demonstrating SRF's efficiency and effectiveness in delivering water infrastructure funding to important projects.

OTHER PROGRAM USES

ADMINISTRATIVE ACCOUNTS
CWSRF administration expenses include the work of wastewater engineering section project managers, SRF ER Specialists, SRF Project Compliance Specialist, program coordinators, program admin, program managers, financial officers and loan coordinators. It also covers expenses for financial and legal advisors. These program expenses will first be paid out of Program Income and then Non-Program Income once Program Income has been fully expended.

There are three distinct funding sources for CWSRF administrative expenses: Cap Grant administrative set-aside, loan initiation fees, and loan servicing fees.

CWSRF Cap Grant Administrative Set-Aside. A total of 4% of the cumulative amount of Federal Cap Grants received may be used for program administration. Iowa will use all 4% of Admin.

Plan for Use of Administrative Accounts
Iowa intends to use this set-aside including loan administrative fees to pay the costs of administering the CWSRF Base, IIJA GS, and PFAS/EC Funds including:

- Portfolio management, debt issuance, and financial, management, and legal consulting fees
- Loan underwriting
- Project review and prioritization
- Project management
- Technical assistance to borrowers
- AIS/BABA site inspections
- Database development and implementation
- Contract services for a continuous improvement facilitator
- Program marketing and coordination
- ER services*

In order to keep **ER services available for all applicants, the SRF Program may establish funding limitations per project for archaeological and/or architectural contracted services necessary to complete a project's ER. If funding limitations are implemented, the applicant will be responsible for all related costs in excess of the funding limit.*

Program Income. A 0.50% ***loan initiation fee*** is charged on new CWSRF construction loans which is included in the loan principal. Iowa uses the initiation fee receipts for administration of the CWSRF Program. Program Income is earned throughout the fiscal year by funds received from loan initiation fees as described in Appendix D – Interest Rates, Fees, and Loan Terms.

Loan initiation fees will not be assessed on loans to any DAC borrowers.

Non-Program Income. An ***annual servicing fee*** of 0.25% is charged on the outstanding principal of CWSRF construction loans (see Appendix D – Interest Rates, Fees, and Loan Terms).

Iowa uses servicing fees collected throughout the fiscal year while the Cap Grant is open for administration of the CWSRF Program, and those fees are considered Program Income. Servicing fee receipts collected after the Cap Grant is closed are considered Non-Program Income and those fees are used for other water quality purposes or are reserved for future administrative expenses.

The CWSRF Program intends to use a portion of Non-Program Income funds during SFY 2026 to support DNR staffing to the Field Services Bureau for wastewater compliance activities including inspections, investigations and technical assistance and to support DNR staffing in the Water Quality Bureau for construction permitting, NPDES permitting, AIS/BABA Site Inspections, and other programmatic staffing needs.

SENIOR ENVIRONMENTAL EMPLOYEE (SEE) SALARY FUNDS DEDUCTED FROM CAPITALIZATION GRANT
The CWSRF Program may withhold funding from FFY 2025 CWSRF Base Cap Grant application for the SEE Program. These positions are filled by EPA Region 7 and assigned to the DNR's Wastewater Engineering section to provide technical and administrative assistance to the CWSRF projects and program. The SEE enrollees help provide staffing at DNR to maintain the CWSRF program and keep up with the increasing CWSRF project technical and administrative workload. Authorized under the Environmental Programs Assistance Act of 1984 (PL 98-313), the SEE program is intended "to utilize the talents of older Americans in programs authorized by other provisions of law administered by the Administrator in providing technical assistance to Federal, State, and local environmental agencies for projects of pollution prevention, abatement, and control."

WATER QUALITY MANAGEMENT PLANNING
A reserve for water quality management planning as required by Title VI of the CWA (Section 604(b)) will be set aside from Iowa's Title VI allotments and granted to the state for this purpose separately from the CWSRF. This reserve does not appear in this IUP as it has been already deducted from Iowa's allotment and considered in projecting Iowa's available Cap Grant.

H. Technical Assistance

States have the flexibility to use up to 2% of their annual CWSRF Cap Grants for the purpose of providing technical assistance to rural, small, and tribal publicly owned treatment works. The eligibility for this funding is very broad so ***Iowa CWSRF Program reserves the right to use 2% of each FFY 2025 CWSRF Cap Grant as TA.*** Iowa does not intend to duplicate the technical assistance efforts being provided by EPA and other organizations receiving EPA Technical Assistance grants. Planned uses include environmental review services provided by Iowa SRF staff on behalf of borrowers as well as contractual services provided by Secretary of Interior archeological and architectural consulting services in an effort to expedite the process for borrowers to close SRF loans. Additional planning and coordination may be needed to identify other activities for this funding. Activities completed with these funds will be described in the annual report.

Appendix A - Affordability Criteria

AFFORDABILITY CRITERIA USED TO DETERMINE DAC STATUS

The CWSRF Program historically focused on income, unemployment data, population trends, and other data to identify borrowers that would experience a significant hardship raising the revenue necessary to finance a wastewater project. In SFY 2023, the Iowa SRF Program began using a **SA Tool** with a broad range of metrics to evaluate a community or service area's underlying socioeconomic and demographic conditions in an effort to develop a more comprehensive definition of what it means to be a DAC. The SA Tool provides a comprehensive analysis of factors influencing whether a community is disadvantaged and can determine the affordability of wastewater infrastructure projects.

The Iowa CWSRF Program will use the results of the SA Tool, or "Socioeconomic Assessment (SA) Score," to determine the disadvantaged status of a borrower and/or ***eligibility to receive SRF LF*** (also referred to as additional subsidization) or other incentives offered by the CWSRF Program specifically for DAC.

The affordability criteria established in this IUP after public review and comment will be the criteria used to determine DAC status.[28] The amount of additional subsidization available to a DAC will be established annually in the IUP (see Appendix B – Additional Subsidization).

SA TOOL

The metrics (affordability criteria) used in the SA Tool was established using EPA guidance and was revised with public input. The SA Tool continues to be part of the annual IUP public review and comment process. The SA Tool data is updated annually with new census data and the SFY 2026 SA Tool will go into effect upon approval of this IUP by the EPC.

For SFY 2026, applicants with a SA Tool score of at least 11 points meet the affordability criteria of the CWSRF Program and are identified as a "Disadvantaged Community" for the Program purposes.

There are two versions of the SA Tool:

- **Service Area-Based** - Metrics results are for an entire community or service area
  - Standard by Place: Applicable to municipalities which serve populations within ***incorporated*** boundaries.
  - Standard for Large Service Areas: Applicable to municipalities which serve populations within more than 5 incorporated boundaries.
  - Standard for Rural Service Areas: Applicable to Sanitary Districts, Rural Water Associations and/or municipalities which serve populations in ***unincorporated*** boundaries.

- **Census Tract-Based** - Metrics results are for Census tracts or primary county
  - By Tract: Applicable to Homeowner Associations (HOA) and SRF borrowers for IIJA Lead Service Line projects. This tool will also be used when the primary purpose of a consolidation/regionalization project is to expand a system's service area.

Both versions of the SA Tool are available to the public on the SRF website[29].

The SA Tool assesses 10 datapoints from publicly available sources produced by the Census Bureau of the U.S. Department of Commerce. The SA Tool *is* ***updated annually*** with the release of new data from these sources. In SFY 2026, the SA Tool will use 2019-2023 (5-year) data from the American Community Survey. Figure 1 below provides a list of the metrics used in the SA Tool.

[28] IAC 265 Chapter 26.7 - Disadvantaged Community Status

[29] Documents and Guides page https://www.iowasrf.com/documents-and-guides/

To use the SA Tool, a borrower will select each community that makes up the utility's service area, along with the corresponding percent of population served. For each of the metrics evaluated, applicants will be given a score indicating the relative disadvantage to the other communities in the state (see Figure 1 and Figure 2)[30]. A weighted average for each metric will be calculated and assigned points. Scores for each metric are totaled to produce an overall assessment of the applicant's underlying social, economic, and demographic profile.

Example: An applicant with a poverty rate falling in the 73rd percentile (a high rate) would be one of the bottom 1/3 of communities and receive 2 points for that metric.

Points	0	1	2
1 Median Household Income	Top 1/3 (Highest MHI)	Middle 1/3	Bottom 1/3 (Lowest MHI)
2 Percent Below Poverty	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
3 Percent Receiving Public Assistance or Supplemental Nutrition Assistance Program (SNAP)	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
4 Percent Receiving Supplemental Security Income (SSI)	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
5 Unemployment Rate	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
6 Percent Not in Labor Force	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
7 Population Trend Between 2010 and 2020 Census*	Non-negative population growth	Declining growth up to -7.5%	Declining growth of more than 7.5%
8 Percent with Highschool Diploma or Less	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
9 Percent of Vacant Homes (excluding 2nd/Vacation dwellings)	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
10 Percent of Cost Burdened Housing (>= 30% of Income spent on owner- and renter-occupied housing)	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
Relative Disadvantage:	**Low**	**Moderate**	**High**

Figure 1

Percentile Rank	Relative Disadvantage	Points
Top 1/3	Low	0
Middle 1/3	Moderate	1
Bottom 1/3	High	2

Figure 2

NOTE: In prior years, population growth for both the service area-based and Census tract-based SA Tool was measured at the County level. The service area-based SA Tool now uses Census Place data to measure population growth. Projects that use the tract-based version of the SA tool will continue to use County level data for population growth.

USING THE SA SCORE TO DETERMINE DAC STATUS

The following information applies to CWSRF Base and IIJA Capitalization Grant Funds (General Supplemental, PFAS/EC and LSL):

- DAC status for the purposes of the CWSRF Program will be determined by completing the SA Tool worksheet to produce a SA score.
- With 10 total metrics, equally weighted, the maximum number of points will be 20. Communities or service areas with a cumulative score of 11 and up (e.g., falling in the top 1/2 of the total possible cumulative score) indicates that the community or service area is socially, economically, and/or demographically disadvantaged

[30] The only exception is Population Trend. For the service area-based SA-Tool, no points are given for positive or 0% growth, 1 point for negative growth up to -7.5%, 2 points for more than -7.5% population growth.

relative to the other communities in the state. Conversely, applicants who score in the bottom 1/2 of total cumulative points (e.g., 10 total points or less), will not be considered disadvantaged for SRF Program purposes.

- All projects added to the PPL during SFY 2026 will receive a DAC score based on the SFY 2026 SA Tool and this score will not change with future SFY SA Tool updates. ***All projects listed on the approved PPL prior to SFY 2026 will continue to use the DAC score assigned in accordance with the SFY 2025 or SFY 2024 SA Tools, as applicable.***

Borrowers with a total SA score of at least 11 points meet the CWSRF Program's definition of DAC.

	Point Range	Disadvantaged Community
Low	0-10	No
Moderate	11-15	Yes
High	16-20	Yes

NOTE: Because DAC scores are determined at the time of IUP application, it is possible for a borrower with multiple projects listed on the approved PPL to have different DAC scores for each project, if the project IUP applications were submitted to SRF in different state fiscal years.

Appendix B - Additional Subsidization

The CWSRF Program will comply with the additional subsidization requirements of each Cap Grant and will identify recipients of available funds during the fiscal year. Criteria for additional subsidization eligibility is established with each Cap Grant (see below).

Iowa applies additional subsidization in the form of principal loan forgiveness (LF). LF is applied as principal forgiveness on the later of (1) the date of the final loan disbursement; or (2) the date of the loan's reissuance (if determined as necessary by the borrower's bond counsel).

The final amount disbursed on a loan is used to identify final LF amounts. In some cases, the actual amount of LF applied to a loan is less than the amount that SRF committed to a project, leaving a remaining balance of LF to be awarded to another project.

PREVIOUS LOAN FORGIVENESS OPPORTUNITIES

Unused portions of LF awards from previous LF opportunities may be reallocated to the next eligible borrower in accordance with its original criteria, or may be combined with other available Cap Grant LF funds and awarded in accordance with the LF criteria in effect for the current funding year.

LF awards were be made in SFY 2025 using all available LF funding to qualifying projects that executed loans through June 30, 2025. As of the publication of this draft IUP, final committed amounts and remaining LF balances are pending loans executed in May and June, 2025 and pending acceptance of LF terms and conditions.

SFY 2026 LF CRITERIA

The following criteria will apply to all LF funding available to award during SFY 2026:

GENERAL RESTRICTIONS AND/OR LIMITATIONS

- LF eligibility will be evaluated based on the current SA Tool in effect at the time the project is added to the PPL.
- Borrowers being offered additional subsidization will be asked to accept the award by signing an offer letter of LF terms and conditions.
- Time limits may be established for signing loan commitments in order to apply LF awards.
- Maximum time limits may also be established for commencing construction of an eligible project. If construction has not been initiated or a loan commitment has not been signed by the date indicated in the LF terms and conditions award letter, the LF offer may be withdrawn or reassigned.
- Beginning in SFY 2024, borrowers with a project that is eligible for LF and have previously received a Sponsored Project award for the same qualifying project will not be able to receive both subsidizations, but may choose one or the other.
- Taxable portions of SRF projects are not eligible for LF.
- Applicants who received a DAC determination from DNR prior to September 20, 2022 and are eligible for extended term financing (up to 30 years) at the 20-year interest rate, are not eligible for LF.
- Borrowers receiving EPA congressionally directed spending will not be eligible to receive subsequent LF from the Iowa SRF program for the same project.
- Borrowers receiving additional subsidization awards from a previous Cap Grant will not be eligible to receive subsequent LF from the Iowa SRF program for the same project.
- LF awards may consist of more than one funding source.

CWSRF BASE CAPITALIZATION GRANT AND IIJA GENERAL SUPPLEMENTAL FUND

FFY Fund	Award Amount	LF Required
2025 CWSRF Base Cap Grant	$21,472,000*	$4,294,000 *
2025 CWSRF IIJA General Supplemental (IIJA Year 4)	$33,341,000*	$16,337,090*

*This award amount is anticipated to be received during SFY 2026.

MAXIMUM AWARD AMOUNTS

LF awards will be issued as a not to exceed maximum award amount. Maximum amounts are based on a borrower's DAC score, in accordance with the SA Tool in effect at the time of IUP application (all borrowers listed on the approved PPL prior to SFY 2026 were assigned a DAC score in accordance with the SFY 2024 and SFY 2025 SA Tools).

LF awards from this funding source are applied only to the total eligible *construction costs* of the project.

Maximum award amounts based on DAC scores are identified below in Figure 3 - LF Award Scale.

DAC Score	Maximum LF Award Amount
20	$ 1,400,000
19	$ 1,300,000
18	$ 1,200,000
17	$ 1,100,000
16	$ 1,000,000
15	$ 900,000
14	$ 800,000
13	$ 700,000
12	$ 600,000
11	$ 500,000

Figure 3 - LF Award Scale

ELIGIBILITY CRITERIA

1. Compliance projects that result in the resolution of a system's Significant Non-Compliance (SNC) issue. SNC is determined by the DNR.
2. Existing PPL projects currently listed on the PPL that execute an SRF loan during SFY 2026.

METHOD OF AWARD

Projects that meet compliance requirements listed above will be committed LF upon approval of the PPL. LF will be committed to all other projects currently listed on the PPL that execute an SRF loan during SFY 2026, based on highest to lowest ranking order, in accordance with the SFY 2026 LF method described below. ***It is the intent of the SRF Program to issue LF award letters to these recipients at the end of the 2nd and 4th quarters of the state fiscal year.***

First, all available reallocated or new LF funds will be used to award LF to any remaining eligible projects that executed loans between January 1, 2025 -June 30, 2025, in accordance with the SFY 2025 LF criteria.

The remaining balance of LF will be committed in two rounds until all funding is obligated/awarded:

Round 1: Projects executing loans between July 1-December 31.
Round 2: Projects executing loans between January 1-June 30.

Each group will be ranked and LF assigned according to the following ranking criteria:
1. First, all projects (DAC scores 11-20) will be ranked **by DAC score** (highest to lowest).
2. Next, projects will be ranked **by project priority points** (highest to lowest).
3. If necessary, the date of loan execution will be used as a tiebreaker to determine final priority ranking.

The CWSRF Program reserves the right to modify the DAC level maximum LF award amounts and/or to withdraw the limitation to construction costs.

CWSRF IIJA PFAS/EC FUND

FFY IIJA Fund	LF Required	LF Committed	LF Available to Award
2024 CWSRF PFAS/EC (IIJA Year 3)	$2,878,000	$2,878,000	$0*

*This award amount is anticipated to be received during SFY 2026

MAXIMUM AWARD AMOUNTS
The CWSRF Program reserves the right to withdraw or modify the individual project cap and/or to withdraw the limitation to construction costs.

ELIGIBILITY CRITERIA
LF of up to 100% may be issued to any applicant addressing PFAS or an EC meeting the criteria described in SFY 2026 Program Activities to be Supported.

METHOD OF AWARD
LF will be awarded on a first ready, first-funded basis while funds are available. ***It is the intent of the SRF Program to issue LF award letters to these recipients at the end of the 2nd and 4th quarters of the state fiscal year.***

Appendix C - Project Ranking Criteria

Projects are added to the PPL to be funded based on the rules for the CWSRF Program in 567 IAC Chapter 90. Projects will be funded as they become ready to proceed to construction.

Iowa is currently able to fund all projects that are eligible, but the priority system will be available to use in the case the demand for CWSRF loans exceeds supply of funds. In the event that available funds are limited, funding shall be offered to the projects with highest rank on the PPL, subject to the project's readiness to proceed, and shall proceed from the highest project downward, subject to availability of funds.

PPL RANKING CRITERIA

P&D projects are not ranked.

Construction projects are ranked based on the DNR's scoring system, described in 567 IAC Chapter 90. Priority ranking for the projects is based on the total points awarded for all the categories; the greater the total number of points, the higher the ranking. The ranking will be done at the time the IUP is prepared and will not be updated during the year.

Subsequent segments of projects funded by CWSRF loan programs of previous years will be ranked at the top; projects ranked in the current year application group will follow.

According to 567 IA Chapter 90, loan assistance for General NPS projects is based on a first come, first-funded concept until 90 percent of the General NPS program budget is allocated. Once 90 percent of the budget is allocated, additional NPS project scoring criteria published in the IUP will be used to rank NPS projects for funding and placement on the PPL. The ranking will be done at the time the project application is received.

PPL SCORING CRITERIA

Eligible CWSRF treatment works projects will be scored in accordance with the scoring system described in 567 IAC Chapter 90.

The CWSRF treatment works project scoring system assigns points to projects in each of the following scoring criteria:

A. Use and classification of receiving waters (points range 20-50)
B. Water quality of the receiving waters (points range 5-15)
C. Protection of groundwater resources (points range 10-40)
D. Project purpose (points range 10-50)

All projects will be listed in descending order on the published PPL according to the number of total priority points assigned to each project. The tie breaker category (described in 567 IAC Chapter 90) will be used when necessary.

Eligible CWSRF NPS projects will be scored in accordance with the scoring system described in 567 IAC Chapter 90, assigning 5 points to NPS projects. Additional NPS project scoring criteria published in the IUP will be used for Special Purpose Funding and/or when 90 percent of all program funds are obligated.

SPECIAL PURPOSE FUNDS SCORING CRITERIA

When special financing or incentive offerings, referred to as "Special Purpose Funds," are available through the SRF program, General NPS projects listed on the PPL may be evaluated using additional scoring criteria. The SRF Program may offer funding incentives to reward project applications that demonstrate high water quality benefits, sound design and/or project readiness.

This additional General NPS scoring criteria assigns applications a score up to a total of 20 points based on the following evaluation factors:

A. Water quality impact
B. Viability of design, strong technical merit
C. Project readiness

D. Cost effectiveness
E. Demonstrated understanding of staff training and equipment maintenance needs
F. Stakeholder communication plan and stakeholder support
G. Intended evaluation/assessment of water quality outcomes
H. Public impact and demonstration value of the practice

The total score needed to qualify for Special Purpose Funds may vary between offerings and will be determined as part of the funding criteria.

Evaluation Factor (Points out of 20)	Description	Scoring Considerations
Water quality impact (4)	Extent to which the constructed practice will reduce or prevent pollution to a water body. e.g. reduces/prevents delivery of sediment, nutrients, heat or another identified pollutant. Constructed practice will directly address a water quality issue identified within the community.	Water quality issue identified and addressed directly with practice; Treatment volume; Drainage Area (DA); land use; greater than 1 water quality benefit per practice e.g. wetland reduces nutrient AND sediment. For stream stabilizations, design goes beyond stream armoring; e.g. use of vegetated buffers and/or instream structures to compliment bank protection. Calculated load reductions.
Viability of design, strong technical merit (4)	Practices are designed with strong technical merit and are based on previously used and approved manuals and/or design standards. If a current design standard does not exist for Iowa, the application can still score well for viability of design if the applicant has consulted with a TA and incorporated relevant design components from other standards.	Design standard cited or relevant methods/best practices cited (e.g. Iowa River Restoration Toolbox). Likelihood practice will fit in project area based on 5 lines of evidence: design concept, footprint/DA ratio, preliminary checklist calculations, discussions with TA and site visit.
Project readiness (4)	Demonstrated ability to implement the project/practices in an efficient manner; readiness to proceed quickly upon project approval. Readiness evaluated based on stage of design, realistic timeline, demonstrated legal control and understanding of permitting needs.	Stage of design (e.g. concept/30/60/90), design checklist started or complete, realistic timeline, demonstrated legal control, and permitting needs understood and in progress if needed.
Cost effectiveness ($ per water quality impact) (3)	Project maximizes the volume of water treated or pollutant load reduced by the practice relative to the total cost of the project.	Co-funders either in-kind or monetary, >1 practice within project footprint, extent of impervious surfaces.
Demonstrated understanding of staff training and equipment maintenance needs (2)	Discuss previous staff experience with maintenance of proposed practice or similar practices, or plans to address staff training needs. Discuss maintenance equipment needs.	Staff experience maintaining proposed practice or a similar practice, training needs.
Stakeholder communication plan and stakeholder support (1)	Neighbors and community members that will be directly impacted by the	Letters of support from partners who are directly impacted by the project

Evaluation Factor (Points out of 20)	Description	Scoring Considerations
	project are supportive of the project. Plan to engage with stakeholders prior to construction of the project.	e.g. landowner, monetary or in-kind support. Existing watershed plan if applicable.
Intended evaluation/assessment of water quality outcomes (1)	Application describes evaluation criteria or measures of success for the practice. e.g. clearer water, less sediment exported, lower temperatures etc. Post-construction water quality assessments should go beyond regular maintenance requirements. e.g. measuring or monitoring water quality via partnering with a monitoring program, citizen science, or school	Practice evaluation criteria or measures of success clearly stated. Discussion of plan to monitor and measure success post-construction.
Public impact and demonstration value of the practice (1)	Outreach and education activities planned to inform the general public about the water quality benefits of the practice, and/or activities planned to encourage surrounding communities to adopt similar practices	Planned signage, media coverage, community programs or field days relevant to constructed practice

Appendix D - Interest Rates, Fees, and Loan Terms

TYPES OF FINANCING

SRF P&D LOANS

Eligible entities may use SRF P&D Loans to reimburse costs incurred during the P&D phase of SRF-eligible proposed wastewater or stormwater project. Eligible costs include, but are not limited to, engineering fees, archaeological surveys, environmental studies, fees related to project plan preparation and submission, and other costs associated with project plan preparation.

P&D Loans have no interest or payments due for up to three years while the project is designed, and there are no minimum or maximum loan limits. These loans are not assessed initiation or servicing fees; however, borrowers must engage their Bond Counsel to authorize and issue the debt. P&D Loans will be rolled into an SRF Construction Loan or may be repaid when other permanent financing is secured.

SRF CONSTRUCTION LOANS

SRF Construction Loans provide low-cost financing for a variety of wastewater infrastructure projects. These loans feature below-market interest rates, low fees, and favorable terms including repayment terms up to 30 years. SRF Construction Loans require a first-lien pledge of either (1) a utility system's net revenues (equal to 10% of aggregate annual debt service for all parity obligations); (2) ad valorem taxes levied against all taxable property (general obligation); or (3) a combination of both. Additionally, the SRF Program reserves the right, on a case-by-case basis, to require that borrowers establish and maintain debt service reserve fund (DSRF) equal to the lesser of (1) 10% of the par amount of the loan; (2) 100% of the Maximum Annual Debt Service; or (3) 125% of the Average Annual Debt Service. A DSRF may be funded with SRF funds.

TERMS OF FINANCING

STANDARD TERM LOANS (UP TO 20 YEARS)

Standard Term SRF Construction Loans are available for up to 20 years. Qualifying projects may request extended term financing for up to 30 years (not to exceed the average useful life of the project).

SRF Construction Loans also offer eligible entities low-cost financing for various NPS projects. These loans are offered for the duration of the NPS practice's useful life as determined by existing design standards (e.g. 10 or 20 years depending on the NPS practice).

EXTENDED TERM LOANS (21-30 YEARS)

Extended term loans of up to 30 years are available for qualifying projects. The SRF applicant's consulting design engineer and the DNR permitting engineer (project manager) will complete and sign the SRF Extended Financing Worksheet and submit it to the Iowa Finance Authority with their construction loan application. The interest rate for these projects will be:

Loan Term*	Interest Rate
21-30 years	Base Interest Rate + 1.00%

*Not to exceed the qualifying average useful life of the project

The CWSRF Extended Term Financing Worksheet can be found on the Documents and Guides page of the SRF website.[31]

INTEREST RATES

CWSRF Programs are responsible for providing communities with a low-cost, perpetual funding source for constructing infrastructure and implementing practices that deliver safe drinking water to citizens and treats water pollution to support a healthy environment.

[31] https://opportunityiowa.gov/community/water-quality/srf-resources/documents-and-guides

To carry out this mandate, Iowa's SRF Loan Programs utilize Base Interest Rates for Tax-Exempt and Taxable loans, which are re-calculated and published on the first business day each January, April, July, and October (the "Effective Date").

Current SRF loan interest rates are published on the SRF website.[32]

The Base Interest Rate for tax-exempt loans is calculated by taking 75 percent of the average daily Bloomberg BVAL General Obligation Municipal AAA 20-year yield ("BVAL") for the calendar month immediately preceding the Effective Date. For example, the Base Interest Rate effective July 1 will be calculated using the average 20-year BVAL yield for the month of June.

Similarly, the Base Interest Rate for the taxable portions of SRF projects is calculated by taking 75 percent of the average Bloomberg BVAL Taxable General Obligation Municipal AAA 20-year yield for the calendar month immediately preceding the Effective Date.

About BVAL

BVAL use real-time trades and contributed sources to signal movement in the municipal market as it is happening. Iowa SRF has chosen BVAL's AAA Municipal Curves as the benchmark indices because they are widely used, objective, transparent, and publicly available through the Municipal Securities Rulemaking Board to anyone who wishes to track the market independently.

SPECIAL PURPOSE FUND LOANS

General NPS projects: The interest rate for qualifying General NPS projects will be 0% up to the first $500,000 of NPS project costs. Projects must qualify in accordance with the scoring criteria described in Appendix C – Project Ranking Criteria for "Special Purpose Funds." Loan servicing fees will still apply (see Fees section below).

INTEREST RATE LOCK

Applicants should work with their Bond Counsel, Municipal Advisor, and other members of their financing team to complete the loan issuance process (e.g., submit a complete SRF Construction Loan Application: NOFE letter, legal opinion on bidding procedures, hold public hearing and authorize debt, complete proforma financial analysis, pass rate ordinance if required, etc.).

After receiving an acceptable construction application, the loan will be presented for IFA Board approval. Once approved, applicants will receive a notification from IFA that includes an interest rate lock for 90 days. If the Program's loan interest rates decrease before signing a loan agreement, applicants will automatically receive the more favorable rate at loan closing while remaining within the 90-day rate lock period. If the 90-day rate lock period expires, the loan will be executed using the current interest rates (which are set quarterly).[33]

FEES

Fee income is considered both Program Income and Non-Program Income, depending on when it is collected and if it is capitalized as part of the SRF loan. Program Income may only be used for purposes of administering the SRF Program or for making new loans. Non-Program Income can be used to administer the program or for other water quality purposes. The uses of Program Income and Non-Program Income are discussed in this IUP under Section. G. Financial Administration-Other Program Uses.

LOAN INITIATION FEES

New SRF Construction Loans are assessed a loan initiation fee of 0.50% of the full loan commitment amount, not to exceed $100,000, paid upon closing. Since Iowa's loan initiation fees are capitalized, the fee income is considered Program Income.

Initiation fees will not be assessed on loans to any borrower that meets the Program's affordability criteria as a DAC.

LOAN SERVICING FEES

[32] https://iowasrf.com/loan-interest-rates

[33] https://www.iowasrf.com/loan-interest-rates/

An annual loan servicing fee equal to 0.25% of the outstanding loan balance is charged on SRF Construction Loans. Iowa's servicing fees are capitalized and are calculated based on the outstanding principal balance. Payment of the loan servicing fee is made semiannually along with scheduled interest payments. Loan servicing fees are considered both Program Income and Non-Program Income.

Appendix E - Estimated Sources and Uses

Estimated Sources and Uses of Funds

CWSRF - SFY 2026

Rounded to the nearest $1,000 as of April 30, 2025

SOURCES OF FUNDS		
Federal Capitalization Grants:		
FFY 2022 Grant(s):		
IIJA Emerging Contaminants (undrawn amount)	*$1,250,000*	
Total FFY 2022 Capitalization Grants Available		$1,250,000
FFY 2023 Grant(s):		
IIJA Emerging Contaminants (undrawn amount)	*$1,800,000*	
Total FFY 2023 Capitalization Grants Available		$1,800,000
FFY 2024 Grant(s):		
IIJA Supplemental (undrawn amount)	*$630,000*	
IIJA Emerging Contaminants (application forthcoming)	*$2,878,000*	
Total FFY 2024 Capitalization Grants Available		$3,508,000
FFY 2025 Grant(s):		
Base Program (application forthcoming, less anticipated set-asides)	*$21,505,000*	
IIJA Supplemental (application forthcoming, less anticipated set-asides)	*$31,341,000*	
Total FFY 2025 Capitalization Grants Available		$52,846,000
Estimated Loan Repayments (P&I)		$161,197,000
Estimated Fee Income		$6,931,000
Funds Available in Equity and Program Accounts		$308,406,000
Estimated Investment Earnings on Funds		$11,070,000
Estimated Bond Proceeds:		
Leveraged/Reimbursement		$150,000,000
New State Match		$12,000,000
TOTAL SOURCES		**$709,008,000**
ANTICIPATED USES OF FUNDS		
SRF Program Administration		$6,269,000
Other Eligible Administrative Uses		$2,000,000
Project Funding:		
Disbursements to Existing Loan Commitments[1]		$212,338,000
Disbursements to Future Loan Commitments:		
Planning & Design Requests from IUP[2]		$14,274,000
Additional CWSRF Project Requests[3]		$73,388,000
Debt Service:		
Principal Payments on Outstanding Revenue Bonds		$64,440,000
Interest Payments on Outstanding Revenue Bonds		$79,363,000
Retained Equity[4]		$256,936,000
TOTAL USES		**$709,008,000**
NET AVAILABLE FUNDS		**$0**

Notes:

1. *Assumes 60% disbursement rate.*
2. *Assumes 50% disbursement rate.*
3. *Additional projects from IUP (up to the budgeted disbursement total for SFY 2026).*
4. *Includes accumulated undrawn cap grants, investment interest, and loan repayments available for future project funding and/or debt service.*

Appendix F - State Match

Clean Water SRF

Federal Fiscal Year 2023

Sources of State Match

Surplus State Match from Prior Year(s)	$3,355,600
State Match Bonds Issued in June 2023	$1,500,000
Total CW State Match Available	$4,855,600

Application of State Match

	Cap Grant ($)	Match Required (%)	Match Required ($)
FFY 2023 Base Cap Grant	$10,152,000	20%	$2,030,400
FFY 2023 IIJA Supplemental Cap Grant	$28,210,000	10%	$2,821,000
Total CW State Match Required			$4,851,400

CW State Match Surplus (Deficit) **$4,200**

Federal Fiscal Year 2024

Sources of State Match

Surplus State Match from Prior Year(s)	$4,200
State Match Bonds Issued in June 2024	$9,000,000
Total CW State Match Available	$9,004,200

Application of State Match

	Cap Grant ($)	Match Required (%)	Match Required ($)
FFY 2024 Base Cap Grant	$11,048,000	20%	$2,209,600
FFY 2024 IIJA Supplemental Cap Grant	$30,779,000	20%	$6,155,800
Total CW State Match Required			$8,365,400

CW State Match Surplus (Deficit) **$638,800**

Federal Fiscal Year 2025

Sources of State Match

Surplus State Match from Prior Year(s)	$638,800
State Match Bonds to be Issued in July 2025	$12,000,000
Total CW State Match Available	$12,638,800

Application of State Match

	Cap Grant ($)	Match Required (%)	Match Required ($)
FFY 2025 Base Cap Grant (estimated)	$21,505,000	20%	$4,301,000
FFY 2025 IIJA Supplemental Cap Grant	$33,341,000	20%	$6,668,200
Total CW State Match Required			$10,969,200

CW State Match Surplus (Deficit) **$1,669,600**

Appendix G - Federal Assurances, Certifications and Proposals

Iowa will provide the necessary assurances and certifications according to the Operating Agreement between the State of Iowa and the EPA, the grant terms and conditions, and the proposals listed within this Appendix.

SPECIFIC PROPOSALS AND CERTIFICATIONS

PROGRAM BENEFITS REPORTING

The Iowa CWSRF Program plans to enter data into the EPA reporting database for the Office of Water State Revolving Funds (OWSRF) not less than quarterly and enter data into the National Information Management System (NIMS) annually.

SIGNAGE

SRF staff and recipients will notify the public in the most effective ways possible about assistance agreements and benefits of the CWSRF program in order to enhance public awareness of EPA assistance agreements nationwide. The Iowa SRF program issues periodic announcements of all executed CWSRF loans. Each SRF funded project is also required to provide public notice of their SRF Project as part of the ER process.

COST EFFECTIVENESS ANALYSIS

To comply with EPA guidance on cost and effectiveness requirements under Section 602(b)(13) of the CWA, Iowa will require applicants to submit a self-certification form indicating compliance with this requirement.

GREEN PROJECT RESERVE (GPR)

Congressional Appropriations require 10% of CWSRF Cap Grant amounts be used to fund projects that qualify under the EPA's GPR, if such applications are submitted. GPR projects address green infrastructure, water and energy efficiency, and/or other environmentally innovative activities. Iowa's NPS Programs, including the Sponsored Project Program and General Nonpoint Source Projects, finance several projects annually which meet this criterion. The specific projects identified as GPR will be listed in the annual report.

ADDITIONAL SUBSIDIZATION

CWSRF Base Program funding, provided through the Consolidated Appropriations Act, includes two different additional subsidization authorities (Congressional and CWA). Additional subsidy authority also exists under the IIJA. Iowa has established criteria in Appendix B - Additional Subsidization to comply with these authorities and will document recipients of these funds in the annual report.

AMERICAN IRON AND STEEL

CWSRF assistance recipients are required to use iron and steel products produced in the United States for projects for constructing, altering, maintaining, or repairing public water systems[34]. Iowa CWSRF Program conducts oversight of this requirement by verification of bid documents, selective review of product certification documentation, and on-site inspections and/or desk reviews. SRF staff will provide technical assistance to help applicants determine eligibility for the exemptions and waivers provided for in the Act and EPA guidance. All recipients will be required to sign a self-certification of compliance at completion of the project.

Forms and guidance for compliance will be provided to SRF borrowers and/or made available on the SRF website.

BUILD AMERICAN, BUY AMERICA ACT (BABA)

On November 15, 2021, President Joseph R. Biden Jr. signed into law IIJA, Pub. L. No. 117-58, which includes the BABA that strengthens the Made in America Laws.[35] Infrastructure projects funded by federal financial assistance must ensure that the ***iron, steel, manufactured products, and construction materials*** used in the project are produced in the U.S.[36]

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[34] https://www.epa.gov/cwsrf/state-revolving-fund-american-iron-and-steel-ais-requirement

[35] Build America, Buy America Act, https://www.epa.gov/baba

[36] https://www.epa.gov/cwsrf/build-america-buy-america-baba

Since not all funds available through the Iowa CWSRF Program are considered federal financial assistance, SRF will provide information to those applicants required to comply with necessary documentation and inspection procedures. Iowa conducts oversight of this requirement by verification of bid documents, selective review of product certification documentation, and on-site inspections and/or desk reviews. SRF staff will provide technical assistance to help applicants determine eligibility for the exemptions and waivers provided for in BABA and EPA guidance[37]. All recipients will be required to sign a self-certification of compliance at completion of the project.

Forms and guidance for compliance will be provided to SRF borrowers and/or made available on the SRF website.

ENVIRONMENTAL REVIEW

Projects receiving assistance from the CWSRF must conduct ER of the potential environmental and historical impacts of projects and associated activities. To reduce costs and barriers to participating in the SRF loan program, Iowa SRF ER staff conduct NEPA-like environmental review services on behalf of CWSRF applicants in accordance with the federal assurances below.

Projects receiving assistance from the CWSRF as equivalency projects will also undergo a review for compliance with the National Historic Preservation Act (NHPA) and certain environmental authority crosscutters. SRF staff will facilitate consultation with State Historic Preservation Office (SHPO) and other consulting agencies, as necessary, on behalf of SRF borrowers (see Appendix H-SRF Assistance Recipient Federal Requirements).

In order to keep these services available for all applicants, the SRF Program may establish funding limitations per project for archaeological and/or architectural contracted services necessary to complete a project's ER. If funding limitations are implemented, the applicant will be responsible for all related costs in excess of the funding limit.

DAVIS-BACON

The Davis Bacon Act requires that all contractors and subcontractors performing construction, alteration and repair (including painting and decorating) work under federal contracts in excess of $2,000 pay their laborers and mechanics not less than the prevailing wage and fringe benefits for the geographic location.[38] Iowa's oversight of this requirement is conducted by verification of bid documents and wage determinations, and will require applicants to submit a self-certification form at completion of the project indicating compliance with this requirement.

FEDERAL ASSURANCES

Instrumentality of the State. See language in current Operating Agreement.

Binding Commitments. The State will enter into binding commitments with recipients to provide assistance in accordance with the requirements of the CWA, in an amount equal to 120 percent of the amount of each grant payment, within one year after receipt of such grant payment.

Expeditious and Timely Expenditure. All monies in the fund will be committed and expended in an expeditious and timely manner.

State Laws and Procedures. The state will commit or expend each quarterly capitalization grant payment in accordance with laws and procedures applicable to the commitment or expenditure of revenues of the State.

State Accounting and Auditing Procedures. In carrying out the fiscal control and auditing requirements of the CWA, the state will report to EPA in accordance with Generally Accepted Accounting Principles (GAAP) as promulgated by the Government Accounting Standards Board.

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[37] https://www.epa.gov/system/files/documents/2022-11/OW-BABA-Implementation-Procedures-Final-November-2022.pdf
[38] https://www.epa.gov/grants/davis-bacon-and-related-acts-dbra

Assistance Recipient Accounting and Auditing Procedures. The state will require as a condition of making a loan or providing other assistance from the fund that the recipient of such assistance provide an annual audit of project accounts in accordance with GAAP.

Annual Reports. As required, the state agrees to report to EPA on the actual use of funds and how the state has met the goals and objectives for the previous fiscal year as identified in that year's IUP.

Environmental Review. The State will assure compliance through the procedures described in State Rules and 40 CFR 35.3140, in effect at the time of execution of this agreement, and any future amendments which are reviewed and approved by EPA. A NEPA-like (40 CFR Part 6) review will be completed for all CWSRF Treatment works projects, as defined by Section 212 of the CWA, receiving assistance. Projects identified as equivalency projects will also undergo a review for compliance with the National Historic Preservation Act (NHPA) and applicable environmental authority crosscutters (see Appendix H-SRF Assistance Recipient Federal Requirements).

Types of Financial Assistance. The State certifies that only the types of assistance authorized under Section 603 of the CWA, as amended, and the State's enabling legislation, will be awarded.

PROCESS (APPLICATION/PAYMENT/DISBURSEMENT)

Application. Properly executed, completed grant applications with supporting documentation meeting 2 CFR Part 200 requirements will be submitted to the Regional Administrator at least 90 days prior to the target grant award date. The State and EPA agree to negotiate promptly, cooperatively, and in good faith to clarify or resolve questions which may arise during the 60-day application review time period.

Grant Payments. After the award of a capitalization grant, the state will begin receiving quarterly grant payments according to the schedule in the grant award. The quarterly payments, up to the full amount of the grant, must be made in no more than eight quarters following grant award or 12 quarters after funds are allotted.

Cash Draws/Disbursements. Cash draws will be made as costs are incurred. Disbursements will be made from state monies first, then federal monies.

Annual Report, Review and Audit. State will follow requirements in 40 CFR 35.3165.

Corrective Action. State will follow requirements addressed in 40 CFR 35.3170.

Disputes. Dispute provisions of 2 CFR Part 1500 Subpart E shall be used for disputes involving EPA disapproval of an application or a capitalization grant, as well as disputes arising under a capitalization grant including suspension or termination of grant assistance.

Records, Retention and Access. Records will be retained according to 2 CFR 200.333. Federal access to records will be according to 2 CFR 200.336a. The State will establish and maintain program and project files as required to:

1. Document compliance with the CWA, other federal regulations, and any general and special grant conditions;
2. Produce the required report;
3. Document technical and financial review and project decisions;
4. Support audits; and
5. Provide effective and efficient program management.

Congressional and Public Inquiries. Responses to Congressional and public inquiries will be made by the State and coordinated with EPA as necessary. The State will address project-level and most program inquiries and provide EPA a copy of all Congressional inquiries and responses. If EPA is responsible for any program inquiries, the State will provide background information in a timely manner and EPA will provide a copy of the inquiry and response in a timely manner.

Appendix H – SRF Assistance Recipient Federal Requirements

PROGRAM SPECIFIC REQUIREMENTS—ALL SRF PROJECTS

The following federal program requirements are specifically identified in the CWA, SDWA, SRF Program regulations, and/or EPA policy and they apply to all SRF borrowers. These requirements are beyond basic borrower eligibility and basic project/activity requirements.

Requirement	Authorizing Statute	How IA SRF borrowers comply
American Iron and Steel	33 U.S.C. 1388 and 42 U.S.C. 300j-12(a)(4)	SRF Front-End Document #9; SRF Staff perform on-site inspection and desk review of certification letters; and BABA Self-Certification form signed at completion of project.
Cost and Effectiveness, (CWSRF Only)	33 U.S.C. 1382(b)(13)	Self-Certification
Davis-Bacon Wages	33 U.S.C. 1382(b)(6) and 42 U.S.C. 300j12(a)(5	Self-Certification
Environmental Review	40 CFR 35.3140; 40 CFR 35.3580	Iowa SRF Environmental Review staff perform a NEPA-like investigation and/or consult with federal authorities on behalf of the SRF borrower to gain the necessary technical assistance and/or concurrence to issue a Categorical Exclusion (CX) or Finding of No Significant Impact (FNSI) clearance.
Generally Accepted Accounting Principles (GAAP)	33 U.S.C. 1382(b)(9) and 42 U.S.C. 300j-12(g)(3)	Loan documents

ADDITIONAL PROGRAM SPECIFIC REQUIREMENTS—EQUIVALENCY PROJECTS ONLY

Requirement	Authorizing Statute	How IA SRF borrowers comply
Architecture and Engineering Procurement (Brooks Act) (CWSRF Only)	33 U.S.C. 1382(b)(14)	Self-Certification
Single Audit	2 CFR part 200, Subpart F	Submit Single Audit; Corrective Actions
Signage	EPA Guidance for Enhancing Public Awareness of SRF Assistance Agreements (2015)	SRF Program issues a media release quarterly listing all SRF executed loans. Projects issue public notification of their project through social media, customer mailings, or other public notification methods.

REQUIRED CROSS-CUTTERS—ALL SRF PROJECTS

Federal cross-cutter authorities are requirements established by other federal laws and Executive Orders that apply to federal financial assistance programs. These requirements are not cited in the SRF Programs' authorizing statutes or

regulations but apply broadly by their own terms in federal statutes, regulations, or executive orders to a wide range of federal financial assistance programs, including SRF.

Authority	Crosscutter	How IA SRF borrowers comply
Social Policy Authorities	Civil Rights Laws - The Age Discrimination Act of 1975, 42 U.S.C. 6102 et seq. - Section 13 of the Federal Water Pollution Control Act Amendments of 1972, (CWSRF only) 33 U.S.C. 1251 et seq. Civil Rights Laws October 2003.pdf October 2003 - Section 504 of the Rehabilitation Act of 1973, 29 U.S.C. 794 - Title VI of the Civil Rights Act of 1964, 42 U.S.C. 2000d et seq.	SRF Front-End Documents #1&7, IUP application and loan documents

ADDITIONAL REQUIRED CROSS-CUTTERS—EQUIVALENCY PROJECTS ONLY*

Authority	Crosscutter	How IA borrowers comply
Social Policy Authorities	Participation by Disadvantaged Business Enterprises in United States Environmental Protection Agency Programs	SRF Front-End Documents #3-6, as applicable **This requirement is applied to all Iowa SRF projects*
Environmental Authorities	Archaeological and Historic Preservation Act, 16 U.S.C. 469 et seq.	Iowa SRF Environmental Review staff perform a NEPA-like investigation and/or consult with federal authorities on behalf of the SRF borrower to gain the necessary concurrence or clearances for these crosscutter requirements. **Investigation and/or consultation for these environmental authorities may be conducted for non-equivalency Iowa SRF projects, however, the consultation is for the technical assistance rather than concurrence or clearance purposes.*
	Clean Air Act Conformity, 42 U.S.C. 7401 et seq	
	Coastal Barriers Resources Act, 16 U.S.C. 3501 et seq	
	Coastal Zone Management Act, 16 U.S.C. 1451 et seq.	
	Endangered Species Act, 16 U.S.C. 1531 et seq.	
	Farmland Protection Policy Act, 7 U.S.C. 4201 et seq.	
	Floodplain Management Executive Order No. 11988 (1977), as amended by Executive Order No. 12148 (1979)	
	Magnuson-Stevens Fishery Conservation Management Act, 16 U.S.C. 1801 et seq.	
	National Historic Preservation Act, 54 U.S.C. 300101 et seq.	
	Sole Source Aquifer, Section 1424(e) of Safe Drinking Water Act, 42 U.S.C. 300h-3e	
	Wetlands Protection - Executive Order No. 11990 (1997), as amended by Executive Order No. 12608 (1997)	
	Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq.	

Economic and Miscellaneous Authorities	Administration of the Clean Air Act and the Federal Water Pollution Control Act with respect to Federal contracts, grants, or loans, Executive Order No. 11738 (1973) -Section 306 of the Clean Air Act, 42 U.S.C. 7606 et seq. -Section 508 of the Clean Water Act, 33 U.S.C. 1368 et seq.	SRF Environmental Review staff perform investigation and/or consult with federal authorities on behalf of the SRF borrower to gain the necessary concurrence or clearances for this crosscutter requirement.
	Build America, Buy America Act, Pub. L. 117-58, Sections 70901-70927	SRF Front-End Document #9; SRF Staff perform on-site inspection and desk review of certification letters; and BABA Self-Certification form signed at completion of project.
	Prohibition on Certain Telecom and Video Surveillance Services/Equipment, 2 CFR 200.216	SRF Front-End Document #10 **This requirement is applied to all Iowa SRF projects*
	Suspension and Debarment, Executive Order 12549 (1986), 2 CFR Part 180, 2 CFR Part 1532	SRF Front-End Documents #2; SRF staff verifying SAMS.gov for all selected bidders/procurement contracts **This requirement is applied to all Iowa SRF projects*
	Uniform Relocation and Real Property Acquisition Policies Act, 42 U.S.C 4601 et seq., 40 CFR Part 4, 49 CFR Part 24	Signature on Section 6 (final page) of IUP Application **This requirement is applied to all Iowa SRF projects*
	Federal Funding Accountability and Transparency Act (FFATA), Public Law 109-282	SRF Program staff file a FFATA report through SAM.gov following an SRF loan execution, as applicable, for projects selected as equivalency.

Appendix I - Funding Recommendations

GENERAL NPS ASSISTANCE PROJECTS FOR APPROVAL OF LAND PURCHASE

Iowa Code Sections 455B.291 and 455B.295 set forth the conditions by which land acquisition is eligible under this NPS Assistance Program. Per 567 IAC Ch. 90, costs for the purchase of land are not eligible costs unless specifically approved by the EPC.

Applicant	Project Description (Proposed watershed, land use, transfer of ownership)	Acres	Purchase Price

GENERAL NPS ASSISTANCE PROJECTS RECEIVING SPECIAL PURPOSE FUNDING

GNS project applications received during the SFY 2026 will be scored to determine if the project qualifies for incentive funding. Applications will be evaluated using the additional scoring criteria located in the "Special Purpose Funds" section of Appendix C – Project Ranking Criteria, to determine if the project demonstrates high water quality benefits, sound design, and project readiness.

The projects listed below received an application score of 10 or higher and qualify to receive incentive funding. As long as these projects are issued an Eligibility Letter within 18 months of project approval by EPC, the SRF applicant will receive incentive funds when they lock their interest rate.

Applicant	IUP Quarter	SRF Project #	Project Description (Proposed practice, watershed, transfer of ownership)	Application Score	Total Project Cost
City of Algona	1	GNS 26-01	Downtown Cultural District Improvements Phase 1: Installation of permeable pavers, bioretention cells and tree wells throughout the downtown streetscape.	15	$769,300.00

Appendix J - Public Review and Comments Received

A public meeting to allow input to Iowa's SFY 2026 IUP and PPL will be held May 29, 2025, 10:00 a.m. via video conference call. This meeting was announced in a notice provided to stakeholder organizations representing city officials, consulting engineers, county governments, councils of government, area planning agencies, and other groups which might have an interest. Public notice announcements were also posted on the Water Quality News[39] and the IUP Intended Use Plan[40] pages of the SRF website. Written comments may be submitted to srf-pc@dnr.iowa.gov and will be accepted through June 5, 2025.

Comments Received:
Comment: EPA Region 7 provided technical review comments on the DRAFT IUP and identified areas that needed clarification or correction.
Response: *SRF added additional clarification language and/or corrected information in Appendix H and the Equivalency section of page 15. This review also resulted in the identification of information that was relevant to the DW program and not the CW program so corrections were made to remove DW program information previously listed on pages 3 and 12.*

During the public comment period, SRF received the FFY 2025 Cap Grant allocations so those amounts were updated throughout the document.

Second Quarter Update:

Comments Received:

Third Quarter Update:

Comments Received:

Fourth Quarter Update:

Comments Received:

[39] https://opportunityiowa.gov/community/water-quality/srf-resources/water-quality-news
[40] https://opportunityiowa.gov/community/water-quality/srf-resources/intended-use-plan

Appendix K – IUP Acronyms

Acronym	Description
A/E	Architectural and Engineering
AIS	American Iron and Steel
ARRA	American Recovery and Reinvestment Act of 2009
AWIA	America's Water Infrastructure Act of 2018
AWOP	Area Wide Optimization Program
BABA	Build America, Buy America
BIL	Bipartisan Infrastructure Law
BVAL	Bloomberg Value - General Obligation Municipal AAA 20-year yield
CFR	Code of Federal Regulation
CMaR	Construction Manager at Risk
CSO	Combined Sewer Operations
CWA	Clean Water Act
CWSRF	Clean Water State Revolving Fund
DAC	Disadvantaged Community
DNR	Iowa Department of Natural Resources
DW	Drinking Water
DWSRF	Drinking Water State Revolving Fund
EC	Emerging Contaminants
EFC	Environmental Finance Center
EPA	U.S. Environmental Protection Agency
EPC	Environmental Protection Commission
ER	Environmental Review
FEMA	Federal Emergency Management Agency
FFATA	Federal Funding Accountability and Transparency Act
FFY	Federal Fiscal Year
FP	Facility Plan
FY	Fiscal Year
GAAP	Generally Accepted Accounting Principles

GMP	Guaranteed Maximum Price
GNS	General Nonpoint Source
GPR	Green Project Reserve
GS	General Supplemental
HOA	Homeowner's Association
IAC	Iowa Administrative Code
IDALS	Iowa Department of Agriculture and Land Stewardship
IFA	Iowa Finance Authority
IIJA	Infrastructure Investment and Jobs Act
IUP	Intended Use Plan
LF	Loan Forgiveness
LSL	Lead Service Line
LWPP	Local Water Protection Program
LWQP	Livestock Water Quality Program
MOU	Memorandum of Understanding
NEPA	National Environmental Protection Act
NHPA	National Historic Preservation Act
NIMS	National Information Management System
NOFE	Notice of Funding Eligibility
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
OMB	Office of Management and Budget
OSWAP	Onsite Wastewater Assistance Program
OWSRF	Office of Water State Revolving Fund
P&D	Planning & Design
PER	Preliminary Engineering Report
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances
POPs	Persistent Organic Pollutants
POTW	Publicly Owned Treatment Works
PPCPs	Pharmaceuticals and Personal Care Products
PPL	Project Priority List

PWS	Public Water Supply
PWSS	Public Water Supply Supervision
SA	Socioeconomic Assessment (Tool)
SDWA	Safe Drinking Water Act
SDWIS	Safe Drinking Water Information System
SEE	Senior Environmental Employee
SFY	State Fiscal Year
SWIFIA	State Infrastructure Financing Authority Water Infrastructure Finance and Innovation Act of 2014
SWP	Stormwater Best Management Practices Program
TA	Technical Assistance
WRRDA	Water Resources Reform and Development Act of 2014

Attachment 1 - CWSRF PPL

This is a separate, sortable Excel File

CWSRF Project Priority List (PPL)

Project Status	Abbreviations
Contingent -- C	BIL GS= Bipartisan Infrastructure Law General Supplemental Fund
Pending Drop -- PD	CWSRF No = Clean Water State Revolving Fund Project Number
Loan Signed -- L	NPDES No = National Pollutant Discharge Elimination System Permit Noumber
Planning Stage -- P	IUP YR = Intended Use Plan Year
Ready for Loan -- R	P&D = Planning and Design Loan
	PFAS/EC - PFAS Emerging Contaminates

DAC Level	Point Range	Disadvantaged Community (DAC)
Low	0-10	No
Moderate	11-15	Yes
High	16-20	Yes

Loan Forgiveness offered and accepted

Project Name	NPDES No.	CWSRF No.	Project Description	IUP Yr	Quarter	Priority Points	Project Status	Current Funding Request	Most Recent Loan	Total Loan Amount To Date	Remaining Amount on IUP	Funding Source: Base BIL GS	Funding Source: BIL PFAS/EC	Compliance Project	DAC Score
Letts	5847001	PD-CW-26-19	Dry well pumping system replacemnts/repairs	2026	1	P&D	P	$ 67,000.00				x			NA
Sabula	4975001	PD-CW-26-08	Sabula Sewage Treatment Plant Improvements	2026	1	P&D	P	$ 520,697.00				x			NA
Gilman	6436001	PD-CW-26-07	Rehabilitation and repairs to the City of Gilman's wastewater collection system.	2026	1	P&D	P	$ 283,000.00				x			NA
Dubuque	3126001	PD-CW-26-06	Upgrades to the Catfish Creek Sanitary Interceptor Sewer system along the South Fork Catfish creek (Old Mill Rd. Ph4)	2026	1	P&D	P	$ 3,400,000.00				x			NA
Dubuque	3126001	PD-CW-26-05	Phased relocation of 5,150 feet of the 12-inch diameter sanitary sewer from Hawthorne Street to Fengler Street	2026	1	P&D	P	$ 500,000.00				x			NA
Dubuque	3126001	PD-CW-26-04	Upgrades to the Catfish Creek Sanitary Interceptor Sewer system along the Middle Fork Catfish creek (Old Mill Rd. Ph3)	2026	1	P&D	P	$ 3,600,000.00				x			NA
Corydon	9334004	PD-CW-26-03	Sanitary sewer collection system rehabilitation	2026	1	P&D	P	$ 364,000.00				x			NA
Sioux City	9778001	PD-CW-26-02	Kiewit CMAR pre-construction services	2026	1	P&D	P	$ 3,237,344.00				x			NA
Spencer	2171004	PD-CW-26-01	WWTP, sanitary and storm collection systems, and lift station improvements	2026	1	P&D	P	$ 8,500,000.00				x			NA
Belmond	9905001	CS1921176 01	Wastewater Treatment Plant Improvements	2026	1	207	P	$ 5,706,000.00				x		Verify	10
Mediapolis	2948001	CS1921177 01	Wastewater Collection & Treatment System Improvements	2026	1	174	P	$ 1,378,000.00				x		Verify	8
Sabula	4975001	CS1921178 01	Sewage Treatment Plant Improvements	2026	1	155	P	$ 3,422,000.00				x			15
Sumner	0970001	CS1921179 01	Sumner Sanitary Sewer Rehabilitation	2026	1	129	P	$ 1,497,000.00				x			12
Albion	6403001	CS1921180 01	Wastewater Collection System Improvements	2026	1	129	P	$ 2,584,000.00				x			8
Twin Lakes Utilities	1300903	CS1921181 01	Utilities Wastewater Improvements	2026	1	264	P	$ 3,759,000.00				x			Verify
Algona	N/A	GNS 26-01	Downtown Cultural District Improvements Phase 1	2026	1	5	P	$ 769,000.00				x			NA
Clinton	N/A	PD-CW-25-50	Renewable Gas System upgrades	2025	4	P&D	P	$ 1,884,000.00							NA
Tama	8670002	PD-CW-25-49	Engineering study for CW compliance	2025	4	P&D	P	$ 500,000.00							NA
Albion	6403001	PD-CW-25-48	wastewater collection system	2025	4	P&D	P	$ 178,000.00							NA
Elgin	3338001	PD-CW-25-41	2,700 feet of CIPP lining	2025	4	P&D	P	$ 40,000.00							NA
Boone	0819001	PD-CW-25-40	WWTF Improvements	2025	4	P&D	P	$ 1,131,000.00							NA
Belmond	9905001	PD-CW-25-39	WWTF upgrades	2025	4	P&D	P	$ 740,000.00							NA
Riceville	6670001	PD-CW-25-36	Lagoon expansion project	2025	4	P&D	P	$ 828,500.00							NA
Osceola	2038002	CS1921166 01	Wastewater Treatment Facility Improvements Effluent Phase 1 - Chloride Removal Project	2025	4	209	P	$ 10,000,000.00							15
WRA	7727001	CS1921168 01	Common Joint Trunk Improvements Phase 2 – Joint Trunk East (Phase 14 Segment 3)	2025	4	152	P	$ 32,629,000.00							8
Muscatine	7048001	CS1921169 01	West Hill Area Sanitary and Storm Sewer Separation Phase 6E	2025	4	272	P	$ 10,433,000.00							14
Muscatine	7048001	CS1921170 01	WRRF & Lift Station Asset Replacement Project	2025	4	162	P	$ 6,830,000.00							14
Dubuque	3126001	CS1921171 01	WRRC Industrial Controls Upgrade	2025	4	159	P	$ 2,663,000.00							10
Letts	5847001	CS1921172 01	Main Liftstation renovations	2025	4	132	P	$ 330,000.00							11
Mason City	1750001	CS1921173 01	43rd Street SW Lift Station and Force Main	2025	4	150	P	$ 4,633,000.00							12
Homestead Sanitary District	4830901	CS1921174 01	WWTP Improvements/ UV Disinfection	2025	4	284	P	$ 191,000.00							5
Mason City	1750001	CS1921175 01	WRF Improvements	2025	4	290	P	$ 27,644,000.00							12
Defiance	8315001	PD-CW-25-33	Lagoon Improvements	2025	3	P&D	P	$ 170,000.00				x			NA
Rockford	3430001	CS1921160 01	Wastewater Treatment Facility Improvements	2025	3	295	P	$ 1,040,000.00				x			11
Terrace Hill Sanitary District	3500900	CS1921163 01	Treatment Plant Improvements	2025	3	264	P	$ 1,815,000.00				x			Verify
Elma	4525001	CS1921161 01	WWTF Facility Plan	2025	3	157	P	$ 1,111,000.00				x			19
Lovilia	6858001	CS1921164 01	Highway and Railroad Sanitary Sewer Crossing Improvements	2025	3	134	P	$ 915,000.00				x			12
Fairfax	5731001	CS1921165 01	Update Sanitary Sewer Main Located East of Highway 151	2025	3	127	P	$ 1,418,000.00				x			3
Hudson	N/A	GNS 25-01	Hudson Wetlands and Oxbow Restoration	2025	3	5	P	$ 268,000.00				x			NA
Duncombe	W2024-0372A	CS1921156 01	2025 WWTF Improvements Project	2025	2	254	R	$ 2,296,000.00				x		Verify	8
New Hampton	W2021-0327A	CS1921155 01	Wastewater Treatment Plant Improvements Project	2025	2	224	P	$ 28,083,000.00				x		Verify	9
Andover	W2023-153A	CS1921154 01	Wastewater Treatment Facility Improvements	2025	2	214	P	$ 667,000.00				x		Verify	11
Luana	W2024-0012A	CS1921151 01	Luana 3-Cell Controlled Discharge Lagoon System	2025	2	210	P	$ 2,000,000.00				x		Verify	10

Project Name	NPDES No.	CWSRF No.	Project Description	IUP Yr	Quarter	Priority Points	Project Status	Current Funding Request	Most Recent Loan	Total Loan Amount To Date	Remaining Amount on IUP	Funding Source		Compliance Project	DAC Score
												Base BIL GS	BIL PFAS/EC		
Clinton	W2024-0209A	CS1921157 01	Clinton RNG	2025	2	165	P	$ 25,628,000.00				x		Verify	19
Farmington	S2022-0314A	CS1921158 01	Farmington Sanitary Sewer Improvements	2025	2	162	P	$ 2,030,000.00				x		Verify	14
Brayton	S2024-0191A	CS1921152 01	2024 Brayton Lagoon Liner Improvements	2025	2	159	R	$ 271,000.00				x			5
McGregor	W2024-0064A	CS1921153 01	1st and A Street Reconstruction	2025	2	139	P	$ 735,000.00				x		Verify	18
Ely	Was initially part of S2023-0019A	CS1921159 01	Ely Downtown Sanitary Sewer Rehabilitation	2025	2	129	P	$ 573,000.00				x		Verify	5
Lovilia	N/A	PD-DW-25-01	Sanitary sewer collection system under highway and railroad	2025	1	P&D	P	$ 91,000.00				x			NA
Sioux City	52022-0277A	CS1921148 01	Digestion and High Strength Waste Receiving Improvement Project	2025	1	190	P	$ 20,707,000.00				x			12
Muscatine	W2024-0182A	CS1921145 01	Redundant Force Main Project	2025	1	187	P	$ 3,795,000.00				x			14
Dubuque	W2023-0293A	CS1921147 01	WRRC High Strength Waste (HSW) Receiving and Storage	2025	1	159	R	$ 7,646,000.00				x			10
Boone	W2024-0295A	CS1921149 01	Wastewater Treatment Facility Improvements and Roof Replacement Project	2025	1	149	L	$ 2,498,000.00	10/25/2024	$ 780,000	$ 1,718,000	x			10
Dubuque	W2024-0302A	CS1921150 01	Terminal Street Lift Station Phase I Improvements	2025	1	139	P	$ 2,542,000.00				x			10
Larrabee	W2022-0192A	CS1921143 01	Larrabee Wastewater Improvements	2025	1	139	R	$ 638,000.00				x			8
Osceola	N/A	PD-CW-24-70	Effluent wastewater reuse treatment, pumps, and pipeline	2024	4	P&D	P	$ 1,000,000				x			NA
Muscatine	S2022-036A	CS1921135 01	West Hill Area Sanitary and Storm Sewer Separation Phase 6D & 6E	2024	4	255	P	$ 14,064,000				x		Yes	14
Rock Rapids Municipal Utilites (PFAS/EC)	W2022-0424A	CS1921140EC	Wastewater Treatment Facility Improvements including microplastics removal	2024	4	222	P	$ 5,729,000					x	Yes	6
Decorah	W2022-0364A	CS1921132 01	Decorah Wastewater Plant Improvements	2024	4	200	P	$ 4,925,000				x			10
Manly	W2024-0086A	CS1921133 01	Sanitary Sewer Collection System I/I Reduction - Phase 1	2024	4	199	R	$ 1,494,000				x			8
Oxford Junction	W2024-0116A	CS1921134 01	Oxford Junction Synthetic Lagoon Liner Replacement	2024	4	192	R	$ 1,029,000				x			16
Iowa City	S2023-0308A	CS1921138 01	Digester Complex Rehabilitation	2024	4	182	R	$ 30,457,000				x			8
Underwood	W2021-0431A	CS1921137 01	Wastewater Treatment Facility Improvements	2024	4	167	R	$ 4,162,000				x			1
WRA	S2023-0397A	CS1921131 01	WRA New Common Trunk and Joint Trunk Sewer Improvements (Phase 1)	2024	4	150	P	$ 23,823,000				x		Yes	Verify
Eldora	S2024-0169A	CS1921139 01	WWTP System Upgrade	2024	4	145	P	$ 1,476,000				x			14
Fort Dodge	N/A	PD-CW-24-51	Supplemental to WWTP Facility Plan P&D	2024	3	P&D	P	$ 103,000				x			NA
Emmetsburg	S2021-0226B	CS1921124 01	Wastewater Treatment Facility Improvements	2024	3	264	P	$ 30,000,000				x		Yes	13
Bonaparte	S2024-011A	CS1921123 01	Bonaparte Sanitary Sewer Lining Phase 1	2024	3	255	R	$ 451,000				x			18
Creston	W2023-0400A	CS1921130 01	Wastewater Treatment Facility Improvements - Nutrient Reduction	2024	3	224	P	$ 6,804,000				x		Yes	18
Danville	W2020-0216A	CS1921121 01	Wastewater Treatment Facility Improvements	2024	3	224	R	$ 6,603,000				x		Yes	8
Goose Lake	W2022-0114A	CS1921122 01	WWTF Improvements	2024	3	224	P	$ 2,342,000				x		Yes	7
Sioux City	W2022-0376A	CS1921120 01	Wastewater Treatment Plant Facility Plan Improvements	2024	3	190	P	$ 486,510,000				x			11
Greenfield Plaza-Hills of Coventry Sanitary District (WRA)	W2024-0068A	CS1921127 01	Sanitary Sewer System Improvements	2024	3	160	R	$ 1,300,000				x			Verify
Greenfield	W2023-0194A	CS1921126 01	Phase 2 Collection System Improvements	2024	3	139	R	$ 2,111,000				x			16
Radcliffe	2024 0018A	CS1921125 01	Sanitary Sewer Collection System Improvements	2024	3	139	R	$ 987,000				x			15
Lansing	W2024-0107A	CS1921129 01	Platt, 4th & North Utility Improvements	2024	3	134	P	$ 534,000				x			16
Chelsea	W2021-0294A	CS1921119 01	New WWTP for ammonia and bacteria	2024	2	274	P	$ 2,311,000				x		Yes	20
Waterloo	W2023-0164A	CS1921114 01	CIPP Lining	2024	2	162	R	$ 2,500,000				x			15
Peosta	W2023-0401A	CS1921112 01	New Kapp Court Lift Station	2024	2	160	P	$ 600,000				x			5
State Center	W2019-0322A	CS1921113 01	Wastewater Treatment Improvements - New 2045 gpm main lift station	2024	2	139	P	$ 2,094,000				x			9
Bode	W2023-0292A	CS1921110 01	Phase 1 Sanitary Sewer Collection Rehab	2024	2	129	R	$ 970,000				x			16
Templeton	W2023-0405A	CS1921118 01	Sanitary Sewer Rehabilitation	2024	2	129	P	$ 337,000				x			6
Montour	S2021-0288A	CS1921105 01	Montour Wastewater Treatment Facility 2023 Upgrades	2024	1	345	P	$ 2,231,000				x			14
Holstein	W2020-0435A	CS1921104 01	Holstein Wastewater System Improvements	2024	1	314	P	$ 6,399,000				x			8
Schaller	W2023-0028A	CS1921106 01	Schaller WWTP Facility Plan	2024	1	297	P	$ 4,417,000				x			9
Oxford	W2021-0339A	CS1921101 01	Upgrade Sludge Treatment Process	2024	1	292	P	$ 2,402,000				x			2
Waterloo	W2023-0245A	CS1921107 01	Replace Lift Station and Force Main	2024	1	152	P	$ 3,692,000				x		Yes	15
Birmingham	W2023-0175A	CS1921100 01	Proposed Sanitary Sewer Improvements - Phase 1	2024	1	129	R	$ 417,000				x		Yes	19
Lime Springs	W2023-0150	CS1921102 01	2024 Street & Utility Improvements Project	2024	1	129	P	$ 5,507,000				x		Yes	9
Allerton	N/A	PD-CW-23-56	Improvements to South Wastewater Treatment Plant	2023	4	P&D	P	$ 545,000				x			NA
Webster City	S2017-0216A	CS1921085 01	Wastewater Treatment Facility Improvements	2023	4	314	P	$ 77,001,000				x			15
WRA	W2022-0186A	CS1921093 01	WRF Effluent Pumping Improvements	2023	4	180	L	$ 46,080,000	2/14/25	$ 11,800,000	$ 34,280,000	x		Yes	Verify
Cumming	W2023-0198A	CS1921098 01	Sanitary Sewer Collection System Improvements	2023	4	160	P	$ 4,226,000				x		Yes	2
WRA	S2019-0363A	CS1921094 01	WRA Sewer Lining Phase 3	2023	4	160	L	$ 16,735,000	12/20/24	$ 10,000,000	$ 6,735,000	x		Yes	Verify
Oskaloosa	W2022-0004A	CS1921088 01	Wastewater Treatment Facility Improvements	2023	3	327	P	$ 74,420,000				x			12
Laurel	S2015-0037A	CS1921073 01	Wastewater Treatment Facility Improvements	2023	3	264	R	$ 2,094,000				x			15
Swea City	W2020-0123A	CS1921087 01	Wastewater System Improvements	2023	3	264	R	$ 4,593,000				x			16
Crescent	W2022-0175A	CS1921081 01	Wastewater Facility Improvements	2023	3	229	P	$ 4,038,000				x			3
Eagle Grove	S2022-0384A	CS1921089 01	Highway 17 Lift Station & Collection System Improvements	2023	3	129	P	$ 525,537				x		Yes	15
Dubuque	N/A	PD-CW-23-14	P&D for Lift Station and Force Main Improvements	2023	2	P&D	P	$ 1,000,000				x			NA
Dubuque	N/A	PD-CW-23-15	P&D for Sanitary Sewer Improvements	2023	2	P&D	P	$ 430,000				x			NA
Cedar Rapids	S2021-0411A	CS1921069 01	WPC Solids Improvements (Contract 2)	2023	2	182	L	$ 250,000,000	12/20/24	$ 115,700,000	$ 134,300,000	x			9

Project Name	NPDES No.	CWSRF No.	Project Description	IUP Yr	Quarter	Priority Points	Project Status	Current Funding Request	Most Recent Loan	Total Loan Amount To Date	Remaining Amount on IUP	Funding Source: Base BIL GS	Funding Source: BIL PFAS/EC	Compliance Project	DAC Score
Eagle Grove	W2022-0328A	CS1921072 01	Wastewater Improvements 2022	2023	2	174	L	$ 5,715,000	5/5/23	$ 3,798,000	$ 1,917,000	x			15
Farley	W2022-0268A	CS1921077 01	3rd Avenue SW Water & Sewer Improvements	2023	2	129	P	$ 2,528,000				x			3
Dedham	N/A	PD-CW-23-06	P&D for Lagoon Improvements	2023	1	P&D	P	$ 326,500				x			NA
Dubuque	W2022-0320A	CS1921070 01	Auburn-Custer Sanitary Sewer Reconstruction	2023	1	139	P	$ 439,000				x		Yes	9
Earlham	W2020-0448A	CS1921055 01	Earlham Lagoon Upgrades	2022	4	264	L	$ 6,241,000	7/14/2023	$ 4,875,000	$ 1,366,000	x			3
Primghar	7155001	CS1921051 01	WWTF Improvements--supplemental loan	2022	4	224	L	$ 7,645,000	12/8/2023	$ 7,045,000	$ 600,000	x			12
Johnston	W2022-0196A	CS1921062 01	NW Area Sanitary Sewer Extension	2022	4	135	L	$ 17,620,735	11/8/24	$ 11,115,000	$ 6,505,735	x			4
Lake City	W2019-0385A	CS1921042 01	Phase 2 & 3 Lake City WWTF Improvements - Lift Station & Treatment Facility	2022	3	254	P	$ 8,234,000				x			12
Riceville	W2020-0317A	CS1921046 01	WWTF Improvements	2022	3	219	P	$ 3,412,096				x			13
Morning Sun	W2019-0130A	CS1921036 01	WWTP Improvements	2022	2	250	R	$ 1,972,500				x			12
WRA	W2020-0400A	CS1921032 01	WRF Phosphorus Recovery Facility	2022	2	205	P	$ 30,000,000				x			Verify
WRA	W2021-0366A	CS1921033 01	Southern Tier Interceptor Phase 10, Segments 23-24	2022	2	165	L	$ 25,600,000	12/16/2022	$ 3,600,000	$ 22,000,000	x			Verify
Nashua	W2021-0293A	CS1921027 01	Greeley Street Water & Sanitary Improvements	2022	2	139	P	$ 164,000				x		Yes	11
Dubuque	N/A	GNS 21-02	Bee Branch Creek Restoration-Ph 4 Detention Basin improvements-new pump station system with gates, pumps and electrical	2022	1	5	P	$ 1,048,000				x			NA
Fort Madison	W2021-0203A	CS1921017 01	10th Street Combined Sewer Separation	2022	1	224	P	$ 4,463,000				x		Yes	18
Marengo	W2017-0244A	CS1921008 01	Wastewater Facility Improvements-UV and discharge to larger stream	2021	4	249	R	$ 5,863,000				x			12
Lake City	W2019-0385A	CS1920986 01	Phase 1 Wastewater Treatment Facility Improvements - Flow Monitoring	2021	4	144	P	$ 163,000				x			12
Mount Ayr	W2020-0412A	CS1920984 01	WW System Improvements	2021	2	195	P	$ 412,000				x		Yes	13
Anamosa	W2020-0202A	CS1920985 01	WWTP Flow Equalization Basin	2021	2	155	R	$ 4,475,000				x			15
Dyersville	W2020-0384A	CS1920980 01	Westlinden Lift Station	2021	2	150	P	$ 3,145,000				x		Yes	7
Ottumwa	2019-0263A	CS1920972 01	Blake's Branch Sewer Separation Phase 8, Divisio 2, 3A, 3B, 3C, 3D	2021	1	205	R	$ 40,000,000				x		Yes	16
Lake Mills	S2017-0385	CS1920894 01	WWTF Improvements (SAGR)	2019	2	277	P	$ 1,799,000				x			11
Ames	S2013-0327	CS1920741 02	Address Infiltration and inflow into the City's sanitary sewer system utilizing a variety of rehabilitation techniques.	2016	4	145	L	$ 19,421,625	8/18/23	$ 14,578,000	$ 4,843,625	x		Yes	7
								$ 1,579,334,534							

PFAS/EC Projects -- information extracted from the Project Priority List above

Project Name	NPDES No.	CWSRF No.	Project Description	IUP Yr	Quarter	Priority Points	Project Status	Current Funding Request	Most Recent Loan	Total Loan Amount To Date	Remaining Amount on IUP	Funding Source: Base BIL GS	Funding Source: BIL PFAS/EC
Rock Rapids Municipal Utilites (PFAS/EC)	**W2022-0424A**	**CS1921140EC**	**Wastewater Treatment Facility Improvements including microplastics removal**	**2024**	**4**	**222**	**P**	**$ 5,729,000**					**x**
								$ 5,729,000					

DRAFT

FY 2026 INTENDED USE PLAN

DRINKING WATER STATE REVOLVING FUND

IOWA™

State Revolving Fund

INVESTING IN IOWA'S WATER

Approval anticipated by the Environmental Protection Commission (EPC) on June 17, 2025.

Table of Contents

Introduction

Under the authority of Section 1452 of the Safe Drinking Water Act (SDWA), the Drinking Water State Revolving Fund (DWSRF) Program finances water treatment plants or improvements to existing facilities, water line extensions to existing unserved properties, water storage facilities, wells, and source water protection efforts.

Iowa's DWSRF Program has provided more than ***$1 billion*** in financial assistance for water infrastructure projects since 1998. With the State Fiscal Year (SFY) 2026 Intended Use Plan (IUP) and future program plans, Iowa's SRF will continue to help Iowans protect public health and the environment through investing in Iowa's water.

A. Highlights and Changes

Since 2022, many exciting opportunities have developed to increase investment in water and wastewater infrastructure. Iowa is expanding and revising the SRF Program, as needed, to adapt to and take advantage of these new opportunities. Plans for implementing funding for the General Supplemental (GS), Lead Service Line (LSL), and PFAS/Emerging Contaminants (EC) funding awarded from the **Infrastructure Investment and Jobs Act (IIJA),** *formerly referred to as* ***Bipartisan Infrastructure Law (BIL)****,* are included in this annual release of the IUP.

Highlighted below are some of the changes Iowa SRF is incorporating into SFY 2026 IUPs.

Loan Terms

- Loan initiation fees will not be assessed on loans to any DAC borrowers.

Disadvantaged Communities

- The **Socioeconomic Assessment (SA) Tool** used to define a **Disadvantaged Community (DAC)** has been updated with current American Community Survey and will be referred to as the SFY 2026 SA Tool.
- **DAC eligibility will be evaluated at the time of IUP application**. All projects added to the Project Priority List (PPL) during SFY 2026 will receive a DAC score based on the SFY 2026 SA Tool and this score will not change with future SA Tool updates. All projects listed on the approved PPL *prior to SFY 2026* will continue to use the DAC score in accordance with the SFY 2024 and SFY2025 SA Tools.

Loan Forgiveness (LF)

- ~~The LF scale increased for Base Cap Grants and IIJA GS LF due to additional funding availability.~~
- Priority funding for Base Cap Grants and IIJA GS LF will be awarded compliance projects.
- LF for LSLR projects for DAC borrowers will now be based on the entire project amount, not just construction costs.
- PFAS/EC projects will now be based on the entire project amount, not just construction costs.
- LF maximum award amounts for IIJA PFAS/EC funds increased.

B. SRF Program Overview

SRF PROGRAM ADMINISTRATION

The unique partnership between the Iowa Department of Natural Resources (DNR) and the Iowa Finance Authority (IFA) is the foundation for the success of the SRF programs. These agencies work together to deliver streamlined programs and good customer service:

- DNR - Administers the environmental, permitting, and regulatory compliance aspects of the program as well as project level approval, eligibility and compliance.
- IFA - Administers the financial aspects of the program including fund management, bond issuance for state match and leveraging, loan approval, disbursement, and servicing.

TYPES OF FINANCIAL ASSISTANCE

(See Appendix D - Interest Rates, Fees and Loan Terms)

The Iowa DWSRF Program offers ***Planning & Design (P&D) Loans*** and ***Construction Loans***. Low-interest financing is provided through direct loans.

- **Direct Loans** - DWSRF funds are used to purchase municipal bond debt, secured by utility system revenues or a general obligation pledge.

Direct Loans for ***P&D*** are available to eligible public water supply systems to cover engineering and project development costs such as testing and scoping, preparing preliminary engineering report (PERs), and project specifications that are directly related to the development of an eligible SRF drinking water project.

Current interest rates and fees are established in the IUP in Appendix D- Interest Rates, Fees and Loans and are published on the Loan Interest Rates[1] page of the SRF website.

LF criteria is established in the IUP in Appendix B - Additional Subsidization. Recipients of LF are publicly announced through listservs, news releases and published in the annual report.

CO-FUNDING

The SRF strives to assist communities with the most affordable financing for their water quality projects. SRF funding can be combined with several other funding sources to make costly infrastructure projects possible. Joint funding with other funding agencies is crucial to making drinking water infrastructure projects affordable for some communities.

Other state and federal funding sources may have funding requirements in addition to those required under the SRF Program. When projects are co-funded, borrowers are made aware that projects may be subject to compliance with other federal funding requirements that are not necessarily required by or are different from the SRF Program. Examples include, but may not be limited to, the Single Audit Act or Build America, Buy America (BABA) Act.

The Iowa SRF Program is committed to coordinating with other funding agencies to simplify the process of co-funding and to find an affordable solution to drinking water needs.

EMERGENCY FUNDING

A Memorandum of Understanding (MOU) between EPA and the Federal Emergency Management Agency (FEMA) provides a framework for SRF programs to assist and collaborate with FEMA disaster assistance grant programs. The Iowa SRF Program will work with communities on a case-by-case basis to provide assistance addressing public health threats related to drinking water and wastewater resulting from a disaster. Some of the ways the SRF can help following a disaster include:

Use SRF loans as match for FEMA grants. FEMA funds will generally pay for a percentage of the repair or replacement costs for public water and wastewater systems damaged by natural disasters or projects to prevent or mitigate future disasters. The SRF can be used to finance the amount not covered by FEMA after program requirements are met.

Use SRF funds as short-term loans to be repaid with FEMA grants. There may be times when a public facility has been approved for a FEMA grant but there is a delay in receiving the funds. In those situations, when all program requirements are met, an SRF loan may be used to finance the repairs and then be repaid with FEMA money. Emergency loans meeting these conditions may be executed and then reported in the next quarterly IUP update.

APPLICATION PROCESS

Planning & Design Projects*:*

- New applications for **P&D** will be accepted on a quarterly basis the first working day of the months of April, July, October and January.
- Applications are available on the SRF website[2] and are submitted to IFA's SRF Program Staff at waterquality@iowafinance.com.

[1] https://opportunityiowa.gov/community/water-quality/srf-resources/loan-interest-rates

[2] Planning & Design Loan Program page of https://www.iowasrf.com/planning-and-design-loans/

***Construction Projects**:*

- New applications for **construction projects** will be accepted on a quarterly basis the first working day of the months of March, June, September and December.
- IUP applications are available on the SRF website[3] and are submitted to srf-iup@dnr.iowa.gov.

Additional documents required for a construction project application include:

- Preliminary Engineering Report (or for IIJA LSLR projects, a Lead Service Line Replacement Plan)
- Environmental Review Checklist
- Viability Assessment
- Socioeconomic Assessment Tool Worksheet

Project applications eligible for SRF funding under the IIJA General Supplemental, IIJA PFAS/Emerging Contaminants (EC) Fund, and the IIJA Lead Service Line Replacement Fund will use the DWSRF IUP application and follow the same quarterly IUP application cycle as the DWSRF Base Program. Additional application information may be required for projects applying for IIJA Funds. The SRF Program will provide additional application materials and guidance for IIJA Funds directly to borrowers, as applicable, and application materials will be available on the SRF website[4].

C. Intended Use Plans

The State of Iowa IUP for the DWSRF is prepared annually in accordance with the provisions of section 1452 of the SDWA, 40 CFR Part 35 and Iowa Code Sections 455B.291-455B.299 and 567 Iowa Administrative Code (IAC) Chapter 44.

The IUP is developed annually in June and updated quarterly in September, December, and March (or more often as needed). This IUP covers activities during the SFY 2026, July 1, 2025 through June 30, 2026.

The IUP identifies the intended uses of funds available to the SRF including: the program's goals, information on the types of activities to be supported, program requirements, assurances and specific proposals on the manner by which the State intends to meet the requirements of the Operating Agreement with the U.S. Environmental Protection Agency (EPA), sources and uses of funds, criteria and method for distribution of funds, the loan rates, terms, and fees for the fiscal year, and includes a ranked listing of projects to be funded.

The IUP and PPL are submitted to the EPA as part of the application for a capitalization grant. The IUP and PPL are reviewed and approved quarterly by the Iowa Environmental Protection Commission (EPC). The EPC is a panel of nine citizens who provide policy oversight over Iowa's environmental protection efforts. EPC members are appointed by the Governor and confirmed by vote of the Senate for four-year terms. Federal and state law requires, and Iowa welcomes, public participation in the development of the IUP.

METHOD OF AMENDMENT OF THE INTENDED USE PLAN

The Iowa SRF Program will follow this IUP in administering DWSRF funds in SFY 2026. Any revisions of the goals, policies and method of distribution of funds shall be addressed by a revision of the IUP, including public participation. Minor adjustments in funding schedules and loan amounts are allowed without public notification by the procedures of this IUP and state rules for administration of the DWSRF. Public notice of amendments will be made if borrowers are added to or removed from the PPL.

PROJECT PRIORITY LIST (PPL)

(See Attachment 1 – DWSRF PPL)

Administration of the DWSRF Program includes developing a priority list of projects to receive loan assistance, in accordance with DNR rules 567 IAC Chapter 44 (455B). Attachment 1 constitutes the DWSRF PPL and is included as a

[3] Drinking Water Loan Program page https://www.iowasrf.com/drinking-water-loan-program/

[4] IIJA page of https://opportunityiowa.gov/community/water-quality/srf-resources/infrastructure-investment-and-jobs-act

separate, sortable Excel file. This PPL will be amended quarterly during SFY 2026 and includes projects funded by both DWSRF Base and IIJA Funds.

The PPL is a list of projects currently requesting funding from the SRF. This list provides the DWSRF Program with a projection of loan funding assistance needed for applications. Priority order is determined by point source rating criteria defined in 567 IAC Chapter 44 (455B). More information on priority ranking is available in Appendix C – Project Ranking Criteria. Projects are listed on the PPL in ranking order by the IUP year and quarter the application was received. P&D loan applications are not ranked but appear at the beginning of the list for each new quarter.

Pursuant to Section 1452 of the SDWA and 40 CFR Part 35, the PPL includes the following required items: name of the public water supply (PWS) system, project description, the population of the system's service area, the priority assigned to the project, projected amount of eligible assistance, and type of assistance. The PPL may also include the SRF project number, project status, DAC score or other information the program wishes to convey to the public.

The PPL (Attachment 1) includes the following project categories for funding during SFY 2026:

- **P&D Loans.** These are loan requests that cover planning and engineering costs related to the design of an eligible DWSRF project and the development of a Preliminary Engineering Report (PER) or a Lead Service Line Replacement (LSLR) Project Plan.
- **New Infrastructure Projects.** Projects are added to the PPL only after a complete IUP application is received, the project has passed a preliminary review of eligibility, and the project is scored.
- **Segments of Previously Funded Infrastructure Projects.** Subsequent segments of a project which have previously received funding priority or assistance will be placed on the PPL and may carry over their original priority point total from the previous year.
- **Unfunded Prior Years' Infrastructure Projects.** These are loan requests remaining on the PPL from previous years' IUPs. It is Iowa's intention to make DWSRF loans to these projects during SFY 2026 if they are ready for a binding loan commitment.
- **Supplemental Financing.** Supplemental financing provides additional funds for projects listed in previously approved IUPs. These funds will be used to cover cost overruns on previously approved scopes of work and are added to the IUP as they are requested.

Fundable projects are further identified as "P - in planning," "R - ready for loan" (indicating that the construction permit and environmental review have been completed), and "L - loan signed." IIJA PFAS/EC and LSL projects may be identified as "C - contingency status" (indicating that the project has not yet met all eligibility criteria to receive a specific funding source-see Section E. - SFY 2026 Program Activities to be Supported).

PROJECT SCOPE

The scope of the project must be outlined in the IUP application and in the Preliminary Engineering Report.

Scope Changes. Changes to the scope are allowed prior to executing an SRF loan. Significant changes in scope prior to a loan execution may cause project delays if additional work is required by the project manager and/or ER specialist. Once a loan is signed, only minor changes to the scope are allowed and only if the changes do not require additional public bidding, technical review or ER.

DROPPED PROJECTS/PROJECT WITHDRAWAL

If a project on the approved IUP list is not going to proceed or will not be utilizing SRF funds, the applicant should notify the SRF in writing that they wish to withdraw the IUP application from the PPL. For the purpose of program planning, borrowers with projects on the PPL for longer than 3 years will be required to evaluate their original IUP application to determine if the scope and cost of the project are still accurate and if they intend to proceed with the project. Borrowers will be asked to provide an updated project schedule, scope and cost, as necessary. A notification may be sent to the SRF borrower that their project may be dropped if adequate progress toward a binding loan commitment is not demonstrated within six months following the notice. If a project is withdrawn or dropped from the PPL, the borrower may reapply when the project is ready to move ahead.

PUBLIC REVIEW AND COMMENTS

(See Appendix H - Public Review and Comments Received)

The SRF Program accepts new IUP applications quarterly by the first business day in March, June, September, and December[5]. The DRAFT IUP and PPL are updated and available to the public for review about 60 days after the quarterly IUP application deadline. The IUP is posted on the Intended Use Plan webpage of the SRF Program's website[6] and public comments are accepted for approximately 30 days following the posting at srf-pc@dnr.iowa.gov.

Public Hearings are typically scheduled on the final Thursday of the months of May, August, November and February to highlight changes from the previous quarter, when applicable, and to collect public comments. Information on how to participate in the public hearing is provided through listservs and on the SRF website[7]. A final draft version of the IUP, including all comments and SRF responses to the comments received, will be posted as part of the EPC Meeting and Agenda on the EPC webpage on the DNR's website[8].

An open forum client contact group meeting will be held on the Thursday prior to each EPC meeting to discuss agenda items. The IUP is approved quarterly by the EPC at regularly scheduled EPC meetings typically held the third Tuesday of the months of June, September, December and March. EPC meetings are open to the public, providing a final opportunity for public comment on each quarterly update of the IUP.

All of the opportunities mentioned above are open to the public. Meetings and hearing information are posted on the Water Quality News and IUP pages[9] of the SRF website and announced through agency-managed listservs. Public comments are accepted at srf-pc@dnr.iowa.gov.

D. SFY 2026 DWSRF Program Goals

SHORT TERM GOALS

Goal: Maximize Funding Opportunities. *Apply for all available Federal Fiscal Year (FFY) 2025 Base and IIJA Capitalization Grants.*

Goal: Maximize Loan Commitments. *Commit loan funds to as many recipients as possible in accordance with the state priority rating system, the IUP, staff resources, and available funding, to assist in the construction of projects that protect human health through the delivery of safe drinking water.*

Goal: Expand Subsidization Opportunities. *Assign/reallocate LF funds from new and previous capitalization grants to fulfill additional subsidization requirements and reduce the financial burden on borrowers.*

Goal: Improve Program Efficiency. *Streamline administrative processes, including adoption of new software that improves communication and reduces the time from initial application to funding.*

Goal: Enhance Public Awareness*. Update marketing materials, program resources and website to increase outreach and education efforts that will inform communities about available funding and program benefits.*

Goal: Increase Funding Accessibility. *Continue the partnership with Environmental Finance Center's (EFC) Technical Assistance (TA) resources to assist the Iowa SRF Program to make funding more accessible to small and disadvantaged communities.*

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[5] https://opportunityiowa.gov/community/water-quality/srf-programs/drinking-water-loan-program
[6] https://opportunityiowa.gov/community/water-quality/srf-resources/intended-use-plan
[7] https://opportunityiowa.gov/community/water-quality/srf-resources/intended-use-plan
[8] https://www.iowadnr.gov/About-DNR/Boards-Commissions/Environmental-Protection-EPC
[9] https://www.iowasrf.com/intended-use-plan-public-hearings/ and https://opportunityiowa.gov/community/water-quality/srf-resources/water-quality-news

LONG TERM GOALS

Goal: Minimize Barriers to Funding. *Apply program requirements that are simple and understandable and do not add unnecessary burdens to borrowers or recipients.*

Goal: Expand Program Reach. *Increase the number of projects funded and expand the geographic reach of the program to benefit more communities. Endeavor to make the SRF Program the first choice for Iowa communities to finance a water infrastructure project.*

Goal: Enhance Collaboration. *Strengthen partnerships with federal, state, and local agencies to maximize the impact of the DWSRF.*

Goal: Maintain Financial Health of the Fund. *Ensure the long-term financial stability of the DWSRF through prudent financial management and strategic investments that will sustain the DWSRF Loan Program in perpetuity to assist PWS in achieving compliance with public health objectives of the SDWA.*

E. SFY 2026 Program Activities to be Supported

The principal objective of the DWSRF is to facilitate compliance with national primary drinking water regulations or otherwise significantly advance the public health protection objectives of the SDWA. State SRF Programs are required to give priority for the use of DWSRF project funds to:

- Address the most serious risks to human health
- Ensure compliance with the requirements of the SDWA
- Assist systems most in need on a per household basis according to state affordability criteria

States also have the option to take up to 31% of their capitalization grant for set-asides. Set-asides can fund state programs, technical assistance and training for water utilities, and other activities that support achieving the public health protection objectives of the SDWA.[10] Section G. - Set-Aside Uses provides further details on Iowa's intended use of set-aside funds during SFY 2026.

DWSRF BASE PROGRAM

Allotments for the FFY 2025 EPA DWSRF Capitalization Grants (Cap Grants) have not been determined as of the publication of this DRAFT IUP. The Iowa SRF Program will apply for and/or receive FFY 2025 CWSRF Base Program Funding during the SFY 2026 once the allotments and funding become available.

FFY	Funding Source	Allocation Amount*
2025	DWSRF Base Cap Grant	$16,397,000

*This award amount is anticipated to be received by SFY 2026 but has not been applied for/received as of the publication of this DRAFT IUP.

WATER INFRASTRUCTURE PROJECTS

Eligible Borrowers: Publicly and privately-owned community water systems and nonprofit non-community water systems are eligible for funding under the DWSRF program.

Eligible Activities: Eligible projects include the installation, upgrade, or replacement of treatment facilities, finished water storage facilities, transmission and distribution systems, and water system consolidation/regionalization.[11] Eligibility guidelines are available in the DWSRF Eligibility Handbook.[12]

[10] https://www.epa.gov/dwsrf/how-drinking-water-state-revolving-fund-works#DWSRF%20Set-Asides
[11] https://www.epa.gov/dwsrf/dwsrf-program-overview-epa-816-f-18-001
[12] https://www.epa.gov/dwsrf/drinking-water-state-revolving-fund-eligibility-handbook

Special Conditions: Projects selected as equivalency will comply with the federal requirements described in F. Financial Administration and Appendix H-SRF Assistance Recipient Federal Requirements.

DWSRF IIJA PROGRAMS

The IIJA, also known as the IIJA, provides DWSRF programs with three additional capitalization grants annually through FFY 2026. Allotments for the FFY 2024 EPA capitalization grants have been determined and the Iowa SRF Program will apply for and/or receive FFY 2024 and 2025 IIJA Funding during the SFY 2026.

Due to IIJA funding requirements, projects being financed with IIJA PFAS/EC and General Supplemental funding should enter into a loan assistance agreement within one year of becoming eligible for the funds to avoid being bypassed. IIJA LSL Replacement projects should enter into a loan assistance agreement within 2 years of becoming eligible for the funds to avoid being bypassed. The DWSRF Program may bypass projects that have not signed a loan obligation within these time limits. If an eligible project is bypassed, the borrower may be reconsidered when the project is ready to move ahead, as funding is available, or may be financed through DWSRF Base Funds.

DWSRF IIJA GENERAL SUPPLEMENTAL (GS) FUNDS

FFY	Funding Source	Allocation Amount*
2025	DWSRF IIJA General Supplemental Grant	$37,434,000

*This award amount is anticipated to be applied for and/or received in SFY 2026 but has not been received as of the publication of this DRAFT IUP.

Eligibility. Eligible borrowers and eligible activities for IIJA GS Funds are the same as the DWSRF Base Program.

Special Conditions: Projects selected as equivalency will comply with the federal requirements described in F. Financial Administration and Appendix H-SRF Assistance Recipient Federal Requirements.

DWSRF PFAS/EMERGING CONTAMINANTS (EC) FUND

Iowa intends to apply for the full amount of these Cap Grant awards, however, award amounts will be limited to the total of the project applications received and listed on the PPL by the grant application deadline.

FFY	Funding Source	Allocation Amount
2024	DWSRF IIJA PFAS/EC	$11,487,000*
2025	DWSRF IIJA PFAS/EC	$11,487,000*

*This award amount is anticipated to be applied for and/or received during SFY 2026 but has not been received as of the publication of this DRAFT IUP.

Eligible Borrowers. Both publicly and privately-owned community water systems and nonprofit non-community water systems are eligible for funding under the DWSRF program. At least 25% of the funds will be awarded to DAC or PWSs fewer than 25,000 people.

Eligibility Activities. For a project or activity to be eligible under this funding source, it must be otherwise DWSRF eligible, and the ***primary purpose*** must be to address PFAS/EC in drinking water. Any contaminant on EPA's Contaminant Candidate Lists 1-6 are eligible, however, priority for funding will be given to projects addressing perfluoroalkyl and polyfluoroalkyl substances (PFAS) based on the April 2024 final PFAS National Primary Drinking Water Regulation.[13]

Special Conditions: Projects being funded with IIJA PFAS/EC are all considered equivalency projects and will comply with the federal requirements described in F. Financial Administration and Appendix H-SRF Assistance Recipient Federal Requirements.

[13] EPA's webpage for the final regulation at https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas

The Iowa SRF Program requested, at the time of application in SFY 2024, that a portion of the FFY 2023 CWSRF IIJA PFAS/EC allocation, totaling $1,078,000, be transferred to the DWSRF IIJA PFAS/EC fund. These transferred funds are expected to be received and available for DW PFAS/EC projects during SFY 2026.

The Iowa DWSRF Program reserves the right to request transfer of the unobligated portions of this Cap Grant to the Clean Water State Revolving Fund (CWSRF) IIJA PFAS/EC Fund.

DWSRF IIJA LEAD SERVICE LINE REPLACEMENT (LSL) FUND

Iowa intends to apply for the full amount of these Cap Grant awards, however, award amounts will be limited to the total of the project applications received and listed on the PPL by the grant application deadline.

FFY	Funding Source	Allocation Amount
2024	DWSRF IIJA LSL Replacement	$30,066,000*
2025	DWSRF IIJA LSL Replacement	$TBD*

*This award amount is anticipated to be applied for and/or received during SFY 2026 but has not been received as of the publication of this DRAFT IUP.

Eligible Borrowers. Both publicly and privately-owned community water supply systems and nonprofit non-community water systems are eligible for funding under the DWSRF program. LSLs can be system-owned or customer-owned.

- LF eligibility for LSL projects will be determined by the disadvantaged status of the community where the water system is located.
    - DAC community: All of the addresses within the service area will be considered disadvantaged for LF eligibility.
    - Non-DAC communities: The program will evaluate the disadvantaged status of individual addresses for LF eligibility. Addresses must be located within a census tract that scores between 11-20 to be considered disadvantaged in order for those construction costs to be eligible for LF.

If there is only one census tract covering the service area, borrowers will use the Service Area-Based SA Tool. If there are multiple tracts within the community's service area, borrowers will use the Census Tract-Based SA Tool to determine disadvantaged census tracts. See Appendix A - Disadvantaged Communities (DAC) and Appendix B - Additional Subsidization for more information.

Eligible Activities. For a project or activity to be eligible under this funding source, it must be otherwise DWSRF eligible, and the ***only purpose*** must be a LSL replacement project or associated activity directly connected to the identification, planning, design, and replacement of LSLs. LSL Replacement includes:

- A full lead service line replacement including the private portion (but not interior plumbing)
    - *Galvanized service lines that are or were ever located downstream of LSL are not eligible for funding after FFY 2024*
- Standalone or connected lead goosenecks, pigtails and connectors
- Pot-holing activities to confirm material types (regardless of type discovered)
- Pitchers and filters following replacement (up to 6 months)
- Lead Service Line disposal

Application Requirements. In order to be listed on the PPL, application packets must include, at minimum:

1. Intended Use Plan Application
    - An overall project description, including a proposed timeline for the replacement work can reasonably be replaced in 2-3 years;
    - The location of LSL to be replaced, listed by specific addresses (by census tract, if applicable); and
    - Budget estimate
2. Environmental Review Checklist
3. Viability Assessment
4. PER/Lead Service Line Replacement Plan

Projects may be given a **"C-contingency"** status on the PPL until they have met all funding criteria described below.

Funding Criteria

An approved ***LSL Replacement Project Plan*** is required to receive IIJA LSL funding. Although a PER is acceptable, the Project Plan for LSL Replacement does not need to be covered by an engineer's completed Iowa certification block with stamp, signature, and date. If a PER is submitted, it will need to include the same information needed in an ***LSL Replacement Project Plan.*** Requirements for Project Plans for LSL Replacement can be found on the IIJA Program Information page of the SRF website[14] or the DNR's DWSRF webpage.[15] A final address list must be submitted in an Excel format and included with the LSLR Plan prior to approval.

After a DNR Water Supply Engineering project manager has reviewed and ensured the plan is complete, an approval letter will be issued based on the final address list. No additional addresses may be added to the project after LSLR Plan approval is issued.

Environmental Review (ER). **Construction activities cannot begin at any address until that address has received an ER clearance.** Each address on the LSL replacement project list will be cleared through the ER process. LSL projects listed on the PPL will begin working with an SRF ER Specialist to complete the ER Checklist and submit additional information and maps, as needed, per project. ER clearances may "group" like-addresses together based on historical or architectural significance and multiple ER clearances may be issued for each project application. ER clearance will be based off the final address list submitted/approved with the LSLR Plan.

Funding Terms.

IIJA LSL funding will be offered to borrowers as a combination of additional subsidization (LF) and loans. Special loan interest rates and terms may be offered for LSL projects (see Appendix D - Interest Rates, Fees and Loan Terms). Funds will be committed on a first ready, first-funded basis while funds are available.

Special Conditions. Projects being funded with IIJA LSL are all considered equivalency projects and will comply with the federal requirements described in F. Financial Administration and Appendix H-SRF Assistance Recipient Federal Requirements.

Projects may be required to include specific contractual language in their bid packages regarding construction guidelines when conducting LSL replacements and/or monitoring of an identified historic place.

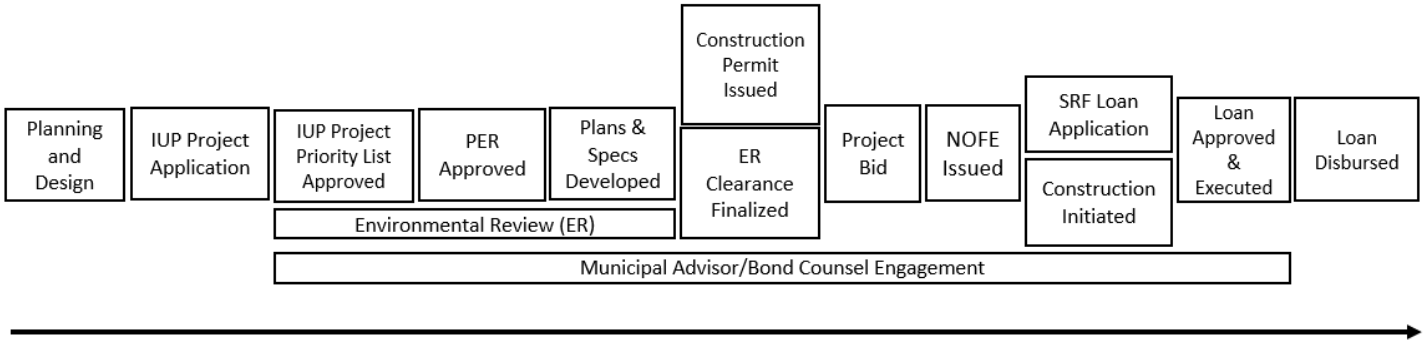
F. Iowa Specific SRF Program Requirements

PROJECT SEQUENCE

In order to ensure that all program requirements are met before binding financial commitments are made, the Iowa SRF Program requires all SRF projects to follow the project sequence below. Following this project sequence keeps projects progressing toward construction; limits duplication of work; reduces risk of re-bidding projects; reduces risk of re-issuing construction permits or environmental clearances; and minimizes the risk of project cost not being eligible for reimbursement from an SRF loan.

[14] LSL Replacement Plan Requirements https://opportunityiowa.gov/community/water-quality/srf-resources/infrastructure-investment-and-jobs-act

[15] https://www.iowadnr.gov/Environmental-Protection/Water-Quality/Water-Supply-Engineering/State-Revolving-Loan-Fund



ASSISTANCE RECIPIENT REQUIREMENTS

For more information on SRF Program federal requirements, see Appendix H – SRF Assistance Recipient Federal Requirements.

The Iowa SRF Program has developed specific requirements that apply to all Iowa SRF borrowers in order to ensure compliance with EPA program requirements and minimize risk to the program.

VIALBILITY ASSESSMENT

The Iowa SRF Program requires all borrowers to demonstrate Technical, Managerial and Financial (TMF) Capacity prior to executing an SRF loan. The SRF Program has chosen to use the DNR's Viability Self-Assessment Manual as a tool to demonstrate a system's T & M capacity. Financial capacity is determined through the use of a Municipal Advisor. A Viability Assessment is a required attachment to the IUP application.

MUNICIPAL ADVISOR

The Iowa SRF Program requires the use of a SEC-registered Municipal Advisor (MA). Borrowers must engage with a MA to perform pre-loan pro forma cash flow analysis on SRF construction loans to determine adequate revenue levels to repay a loan. If current user rates are not sufficient to meet the anticipated loan's debt coverage requirements, the MA will recommend the necessary rate increases to ensure adequate revenues. Borrowers are required to provide SRF an updated pro forma every five years while the loan is in repayment to demonstrate adequate debt coverage ratios. Municipal Advisor fees are eligible for reimbursement and can be capitalized as part of the SRF loan.

In 2015, to help communities adjust to the requirement that Iowa SRF borrowers engage a Municipal Advisor to perform pre-loan pro forma cash flow analysis, the Program began crediting SRF loans up to $4,000 to offset the cost (the "MA fee credit"). **Beginning with loans executed after July 1, 2025, Iowa SRF will no longer provide the $4,000 MA fee credit for SRF construction loans.** SRF borrowers are still required to engage a Municipal Advisor to complete the pro forma cash flow analysis on SRF construction loans, and Municipal Advisor fees will remain eligible for reimbursement.

BOND COUNSEL

The SRF Program provides loans through the purchase of local bond debt. As such, SRF borrowers must engage with their bond counsel to authorize and issue the debt, prepare documents for public hearings, and to prepare loan closing documents.

PROCUREMENT PROCEDURES

All SRF borrowers must follow Iowa procurement law, *Ch.26 – Public Construction Bidding*, when bidding SRF construction projects. If an SRF borrower is utilizing the Construction Manager at Risk (CMaR) delivery model, *Ch.26A – Guaranteed Maximum Price Contracts,* must also be adhered to. Borrowers will include a "Form of Bid Opinion" when

submitting bid documents for review and prior to receiving a Notice of Funding Eligibility. A samples of the Form of Bid Opinion form can be found on the Documents and Guides page of the SRF website[16].

For borrowers utilizing the CMaR method, this process is also required when soliciting for a Construction Manager prior to construction.

Front-End Documents
All SRF borrowers must include SRF Front-End Documents as part of their bid package prior to soliciting bids. Some of these documents will be required for borrowers and/or primary contractors to sign when purchases of goods and services are done directly by the borrower and/or outside of a public bid package. SRF staff will inform each project which of the SRF Front-End Documents are required for each undertaking. These documents are also available on the Documents and Guides page of the SRF website[17].

Legal Opinion of Compliance
After construction contracts are executed and delivered, a "Form of Legal Opinion" by legal counsel certifying compliance with Ch.26 must be submitted to SRF prior to a loan application being considered ready to go before the IFA Board for approval. A sample of this opinion form can be found on the Documents and Guides page of the SRF website[18].

Early Procurement
Occasionally, SRF borrowers find it necessary to procure construction-related equipment and services outside of and/or prior to a public request for bids. These activities are typically eligible for reimbursement under an SRF construction loan if SRF Front-End Documents are properly executed. Borrowers will need to contact SRF for guidance on proper documentation.

Some of these procurement activities may still require the compliance with Ch. 26 -Public Construction Bidding. Borrowers are encouraged to consult with their bond counsel prior to engaging in these activities to ensure that proper procedures are followed and/or bond documents are drawn up accurately to include these expenses.

Construction Manager at Risk (CMaR)
The CMaR construction delivery model allows for a construction manager to be hired early in the planning phase to assist with the planning and design of a project. The CMaR also offers borrowers more transparency in the bidding process and results in a Guaranteed Maximum Price (GMP) for constructing a project.

Although the CMaR delivery model is compatible with the Iowa SRF Program, there are limitations to its traditional use of "design-build" construction. Iowa SRF projects are more compatible with the "design-bid-build" construction model because all required permits must be issued and the entire scope of the project must have an environmental clearance issued prior to beginning construction.

Borrowers choosing to use the CMaR method must **contact SRF early in the planning phase of the project, prior to soliciting for qualifications for a CMaR**, and must follow Ch.26A procurement procedures. Legal opinions, Front-End Documents and Notice of Funding Eligibility are all required for selection of the Construction Manager.

NOTICE OF FUNDING ELIGIBLITY (NOFE)
The SRF Program reviews public bid documents, including schedule of values, and/or all procurement documents or purchase agreements for cost eligibility for the SRF Program. A *Form of Bid Opinion* must be submitted with the bid documents to demonstrate compliance with Iowa public bidding law. Following review of these documents, the SRF Program will issue a NOFE indicating the amount of construction costs eligible for an SRF construction loan. A NOFE also indicates a borrower's next steps and required documents needed before submitting a construction loan application.

[16] https://opportunityiowa.gov/community/water-quality/srf-resources/documents-and-guides
[17] https://opportunityiowa.gov/community/water-quality/srf-resources/documents-and-guides
[18] https://opportunityiowa.gov/community/water-quality/srf-resources/documents-and-guides

SELF CERTIFICATIONS
The SRF Program utilizes a self-certification form for demonstrating compliance with select federal program requirements. Although some additional program oversight may also occur, self-certifications are collected for American Iron and Steel compliance, Build America, Buy American (BABA) compliance, Disadvantaged Business Enterprise (DBE) usage, and Davis-Bacon Act compliance.

G. Financial Administration

RATES, FEES AND LOAN TERMS & CONDITIONS

(See Appendix D - Interest Rates, Fees and Loan Terms)

PROJECT READINESS FOR LOAN APPLICATION

SRF borrowers are required to comply with Iowa public bidding laws Chapter 26 and 26A of the Code of Iowa to receive funding through the DWSRF Program. Borrowers must demonstrate compliance through a "Form of Bid Opinion" submitted with the bid documents and a final "Legal Opinion of Compliance" following contract execution and delivery. Example templates of these documents are available on the SRF website.[19]

SRF Notice of Funding Eligibility (NOFE)
NOFE Letters will be issued ***only after*** the following program requirements are complete:

- Construction Permit(s) issued by DNR Project Manager for all project phases to be funded by the SRF loan
- Environmental Clearance issued by SRF ER staff
- Project Bid and Bid Documents (including signed SRF Front-End Documents) submitted to DNR
- Form of Bid Opinion

NOFE Letters will include "next steps" which, at minimum, include the collection of the following documents:

- Legal Opinion of Compliance – *An opinion by legal counsel certifying compliance with Chapter 26 and/or 26A*
- Executed contract(s)
- Notice to Proceed

A Construction Loan Application **will not be considered "complete" until SRF issues a NOFE Letter and the borrower submits an opinion of legal counsel to DNR certifying compliance with Iowa public bidding law**.

Prior to Approving a Construction Loan:
A complete SRF Construction application includes a proforma and proof of rate ordinance adoption. When the complete SRF construction loan application is accepted, the loan will be considered for IFA Board approval. Once the board approves the loan, the 90-day interest rate lock will be in effect.

- For revenue-backed loans, submit a pro-forma cash flow analysis prepared by a registered Municipal Advisor identifying all outstanding parity obligations and detailing the revenues, expenses, outstanding debt, and debt coverage ratios for the system. At a minimum, the pro-forma should show financial information based on actuals for the past two years, the current year, and projections for the next two years.
- If user rates must be increased to meet the loan's debt coverage requirements, provide documentation that action has been taken to implement the recommendation of the Municipal Advisor (adopted rate ordinance, public hearing notice, etc.).

DISADVANTAGED COMMUNITIES

(See Appendix A - Disadvantaged Communities (DAC))
The SDWA defines DAC as the entire service area of a PWS that meets affordability criteria established by the State after public review and comment.

[19] Under "Program Information" on the Documents and Guides page https://www.iowasrf.com/documents-and-guides/

The SA Tool and the metrics are discussed in Appendix A - Disadvantaged Communities (DAC), and they define the affordability criteria that will be used to evaluate the DAC status of a borrower for the purpose of SRF LF eligibility. The SA Tool is updated with new census data each year and will become effective, with the IUP, on the first day the state fiscal year. Borrowers will use the SA Tool in effect for the state fiscal year of their project application to determine DAC score. ***DAC determinations are made at the time of IUP application. Once a DAC score is assigned to a project, it will not change for that project.***

ADDITIONAL SUBSIDIZATION

(See Appendix B - Additional Subsidization)

Iowa applies additional subsidization in the form of LF. Appendix B - Additional Subsidization, identifies the available funding and the criteria used to determine projects and borrowers eligible to receive additional subsidization**. Criteria for additional subsidization is established for each Cap Grant.** At the end of each fiscal year, unassigned or reallocated LF may remain available in subsequent years in accordance with its original criteria, or may be combined with the funds made available in accordance with the new Cap Grant criteria.

EQUIVALENCY

An *Equivalency Project* is a treatment works project that is constructed, in whole or in part, with funds equaling the amount of a federal capitalization grant awarded to a state. The Iowa DWSRF Program must designate a project or group of projects with loan amounts totaling the amount of each Cap Grant received, to comply with all federal funding requirements applicable to that Cap Grant.

Projects assigned as equivalency for SRF capitalization grants will have to comply with the following federal requirements:

- Disadvantaged Business Enterprise[20]
- Single Audit Act
- Federal Funding Accountability and Transparency Act (FFATA) reporting
- EPA signage requirements
- BABA (FFY 2022 and all future capitalization grants)[21]
- Federal environmental crosscutters (such as Endangered Species Act and National Historic Preservation Act)
- Federal Socioeconomic crosscutters[22] (such as Debarment & Suspension Executive Order and Prohibition on Certain Telecom and Video Surveillance Services/Equipment)

See Appendix G - Federal Assurances, Certifications and Proposals for program compliance requirements.

PROJECT SELECTION FOR EQUIVALENCY

The Iowa SRF Program intends to select projects for equivalency that will impose the least amount of administrative or financial burden on a borrower. The evaluation is project-specific. Many factors are considered but, at minimum, the following factors are evaluated when making project selections for equivalency:

- Project type
- Project cost
- Project timeline
- Timing of loan execution
- Structure of loan(s)
- Federal co-funding (specifically, do other co-funding sources already require the same compliance?)
- Population of borrower
- Disadvantaged status of borrower
- Single audits (are they typically performed for the borrower?)

[20] https://www.epa.gov/grants/disadvantaged-business-enterprise-program-under-epa-assistance-agreements-dbe-program
[21] https://www.epa.gov/cwsrf/build-america-buy-america-baba
[22] https://www.epa.gov/grants/epa-subaward-cross-cutter-requirements

The SRF Program will coordinate with borrowers during project planning to identify and assign projects for equivalency. Because it is unknown which projects listed on the PPL will execute loan agreements in a fiscal year, the final equivalency loans selected for each year will not be listed in the IUP but will be identified in the annual report.

During SFY 2026, SRF intends to select projects for equivalency that are for property acquisition-only, connection fee-only, or regionalization buy-in fee-only.

CRITERIA AND METHOD FOR DISTRIBUTION OF FUNDS

The cash draw procedure used is the direct loan method. The Iowa DWSRF Program uses its Equity Fund to originate loans. When enough loans have been made, the DWSRF Program issues bonds and uses the bond proceeds to replenish the Equity Fund. Iowa's bonds are cross-collateralized across both the Clean Water and Drinking Water SRF accounts, in a manner consistent with state and federal laws. State match bonds are issued along with leveraged bond issues for greater cost effectiveness. State match proceeds are fully disbursed prior to drawing Cap Grant funds. The Cap Grant funds will be drawn at a 100% proportionality ratio. Iowa expects to fully disburse the loan portion of the FFY2025 DWSRF Base Capitalization Grant, FFY2025 IIJA General Supplemental Fund, the FFY2022 and FFY 2023 IIJA LSL Fund and FFY 2022 and FFY 2023 IIJA PFAS/EC during the program year.

Allocation of Funds Among Projects. All projects listed in the DWSRF PPL (Attachment 1) may be funded from the DWSRF subject to available funds.

The following approach was used to develop Iowa's proposed distribution of DWSRF funds:

1. Analysis of the priority of communities applying and financial assistance needed;
2. Identification of the sources and spending limits of available funds;
3. Allocation of funds among projects;
4. Development of a payment schedule which will provide for making timely binding commitments to the projects selected for DWSRF assistance; and
5. Development of a disbursement schedule to reimburse the project costs as incurred.

Allocation of funds to eligible projects was based on a four-step process:

1. The amount of financial assistance needed for each application was estimated.
2. The sources and allowable uses of all DWSRF funds were identified.
3. The DWSRF funds were allocated among the projects, consistent with the amount available and the financial assistance needed.

All projects listed in the DWSRF PPL may be funded from the DWSRF subject to available funds and eligibility. Information pertinent to each DWSRF project is contained in the attached PPL (Attachment 1).

Priority of Communities and Financial Assistance Needed. The state's priority rating system used to establish priorities for loan assistance is described in Appendix C – Project Ranking Criteria.

Capitalization Grant Requirements. Cap Grants include requirements for minimum and maximum percentages of the funds to be allocated for additional subsidization and/or green project reserve (GPR). Iowa will identify projects meeting eligibility criteria during SFY 2026 and will report assignments of these funds in the annual report.

FUNDING SOURCES AND USES

(See Appendix E – Estimated Sources and Use)

During SFY 2026, the Iowa SRF Program will apply for and/or receive the following capitalization grants and amounts:

FFY	Funding Source	Allocation Amount
2021	DWSRF Base Cap Grant Re-allotment	$24,000
2022	DWSRF IIJA PFAS/EC 2nd Re-allotment	$25,000
2023	DWSRF IIJA PFAS/EC Re-allotment	$322,000

2023	DWSRF IIJA LSL Re-allotment	$1,940,000
2023	DWSRF IIJA GS Grant Transfer from CWSRF	$1,078,000
2024	DWSRF IIJA PFAS/EC	$11,487,000*
2024	DWSRF IIJA LSL Replacement	$30,066,000*
2025	DWSRF Base Cap Grant	$16,397,000
2025	DWSRF IIJA GS Grant	$37,434,000

*This amount is subject to the total of the project applications received by the application deadline

During SFY 2026, the Iowa SRF Program will apply for (but may not receive these funds in SFY 2026) the following capitalization grants and amounts:

FFY	Funding Source	Allocation Amount
2025	DWSRF IIJA PFAS/EC	$11,487,000*
2025	DWSRF IIJA LSL Replacement	$TBD*

*This amount is subject to the total of the project applications received by the application deadline

Appendix E – Estimated Sources and Use illustrates potential sources and uses of funds in the DWSRF for SFY 2026. As shown, all pending loan requests and program administration needs can be funded. To account for the fact that projects draw their funding at different intervals, Iowa SRF frequently analyzes program cash flows to ensure adequate funding is available. Appendix E - Sources and Uses will be updated, as appropriate, to provide an ongoing view of the financial plan for meeting loan requests.

Current and Projected Financial Capacity of the DWSRF. The leveraging capacity of the DWSRF is robust due to the maturity of the fund and the current loan portfolio. SRF staff has analyzed the future financial capacity of the DWSRF considering the discussion over new SDWA regulations and other future drinking water needs. If Iowa SRF continues to receive Cap Grants, and provides at least 26% of the Base Cap Grant and 49% of the IIJA Supplemental Cap Grant as LF, it is estimated that the DWSRF could loan an average of approximately $200 million per year over the next 10 years, or a total of $2.0 billion. These figures would increase with an increase in interest rates.

STATE MATCH

(See Appendix F - State Match)

The Iowa SRF Program issues bonds for state match.

BONDS

Iowa's SRF program issues bonds as needed. These bond issues typically include the anticipated state match for the next federal Cap Grants.

SWIFIA

The Iowa SRF program was invited to apply for a loan through EPA's Water Infrastructure Finance and Innovation Act (WIFIA). The SRF Program is in the process of working through the underwriting process; the timeline for closing the loan is yet to be determined.

TRANSFERS BETWEEN FUNDS

The Iowa DWSRF reserves the right to transfer 33% of the amount of the Clean Water capitalization grants from the Water Pollution Control Revolving Fund to the Public Water Supply Loan Fund in the future. The transferred funds will not be federal funds and will come from either bond proceeds, investment earnings, or recycled funds. This would help the DWSRF Program to meet loan demands in the future and should not impact the ability for the CWSRF to fund demand for projects.

PLAN FOR EFFICIENT AND TIMELY USE OF DWSRF FUNDS

The Iowa DWSRF has a strong and sustained demand for loans and it utilizes Federal Cap Grant funds as quickly as possible. After SRF bonds are issued, state match funds are spent first, before drawing Cap Grant funds. The Cap Grant funds are drawn at a 100% proportionality ratio. Loan disbursements requests are processed weekly.

Throughout the first 10 months of SFY 2025 (through April 2025), the DWSRF program disbursed an average of approximately $10.5 million per month. Since the program's inception, Iowa's DWSRF has provided more than $3.00 of assistance for every $1.00 of federal investment due to the revolving nature of the program, demonstrating SRF's efficiency and effectiveness in delivering water infrastructure funding to important projects.

OTHER PROGRAM USES

ADMINISTRATIVE ACCOUNTS

DWSRF administration expenses include the work of drinking water engineering section project managers, SRF Environmental Review Specialists, SRF Project Compliance Specialist, program coordinators, program admin, program managers, financial officers and loan coordinators. It also covers expenses for financial and legal advisors. These program expenses will first be paid out of administrative set-aside and Program Income; and then Non-Program Income will be used once Program Income has been fully expended.

There are three distinct funding sources for DWSRF administrative expenses: Cap Grant administrative set-aside, loan initiation fees, and loan servicing fees.

DWSRF Cap Grant Administrative Set-Aside. A total of 4% of the cumulative amount of federal Cap Grants received may be used for program administration. Iowa will use all 4% of Admin. Planned expenses are discussed in Section F. Set-Aside Uses.

Program Income. A 0.50% ***loan initiation fee*** is charged on new DWSRF construction loans which is included in the loan principal. Iowa uses the initiation fee receipts for administration of the DWSRF Program. Program Income is earned throughout the fiscal year by funds received from loan initiation fees as described in Appendix D – Interest Rates, Fees, and Loan Terms.

Loan initiation fees will not be assessed on loans to any DAC borrowers.

Non-Program Income. An ***annual servicing fee*** of 0.25% is charged on the outstanding principal of DWSRF construction loans (see Appendix D – Interest Rates, Fees, and Loan Terms).

Iowa uses servicing fees collected throughout the fiscal year while the Cap Grant is open for administration of the DWSRF Program, and those fees are considered Program Income. Servicing fee receipts collected after the Cap Grant is closed are considered Non-Program Income and those fees are used for other purposes under SDWA Section 1452 or reserved for future administrative expenses.

A portion of the Non-Program Income funds may be used in SFY 2026 to fund some of the activities completed under the State Program Management set-aside. A portion of these funds may also be used in SFY 2026 toward Drinking Water Laboratory Certification and Capacity Development initiatives. Planned expenses are further discussed in Appendix G. Set-Aside Uses.

SENIOR ENVIRONMENTAL EMPLOYEE (SEE) SALARY FUNDS DEDUCTED FROM CAPITALIZATION GRANT

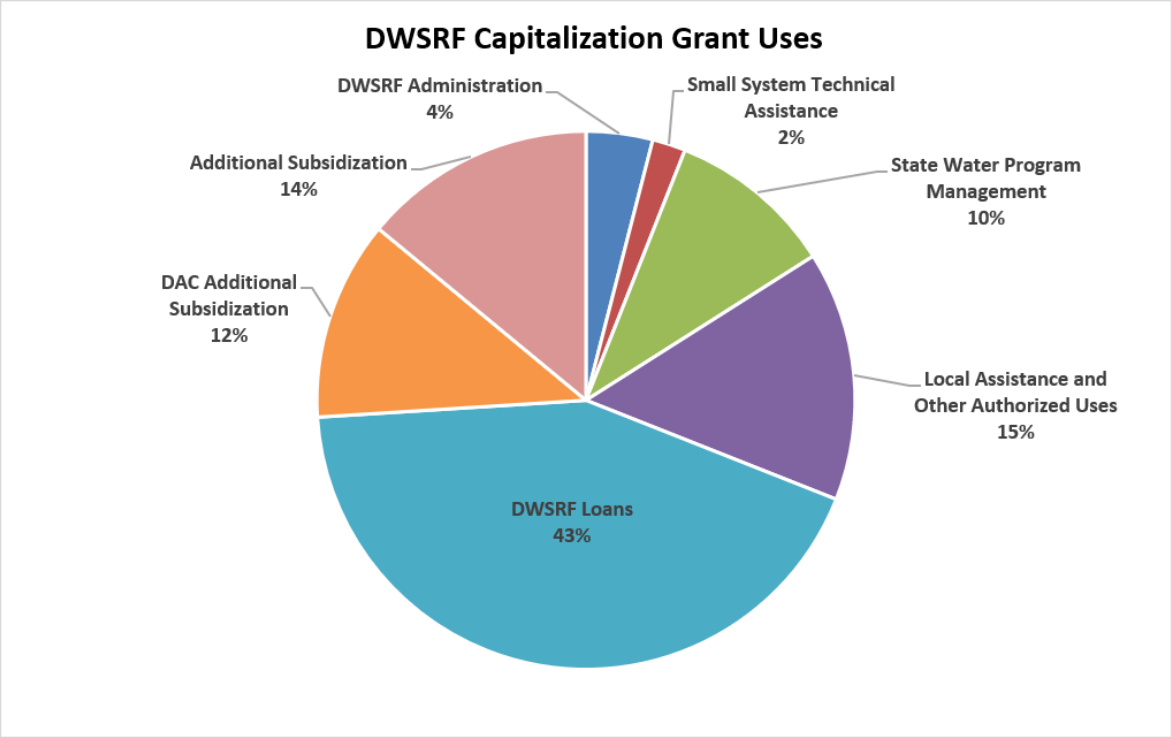
The DWSRF Program may withhold funding from FFY 2025 DWSRF Base Cap Grant application for the SEE Program and seek to fill positions under this program during SFY 2026. These positions are filled by EPA Region 7 and assigned to the DNR's Drinking Water Engineering section to provide technical and administrative assistance to the DWSRF projects and program. The SEE enrollees help provide staffing at DNR to maintain the DWSRF program and keep up with the

increasing DWSRF project technical and administrative work-load. Authorized under the Environmental Programs Assistance Act of 1984 (PL 98- 313), the SEE program is intended "to utilize the talents of older Americans in programs authorized by other provisions of law administered by the Administrator in providing technical assistance to Federal, State, and local environmental agencies for projects of pollution prevention, abatement, and control."

H. Set-Aside Uses

States are allowed to take or reserve set-aside amounts from each Federal Cap Grant for a number of activities that enhance the technical, financial, and managerial capacity of public water systems and protect sources of drinking water. The use of the set-asides as well as the loan program is intended to carry out Iowa's goal of ensuring that the drinking water received by 92% of the population served by community water systems meets all applicable health-based drinking water standards through approaches including effective treatment and source water protection.

The amounts are subject to approval by EPA of program workplans. The DNR is following the SFY 2025 workplan and will transition to the SFY 2026 workplan during the fiscal year. Iowa plans to take or reserve set-side funds from the allowed amounts shown in the chart.



DNR has two options for addressing the amounts available each year in set-asides. Set-aside funds may be taken up to their maximum allowable percentage or reserved for future use (except for the Local Assistance and Other Authorized Uses set-aside), in which case they would be deducted from a future Cap Grant when they are ready to be taken. Funds that are taken from an available Cap Grant must be applied to planned work efforts approved by EPA.

DNR has been using the set-asides and drawing upon reserved funds as needed to meet the needs for programs and efforts required by EPA that are critical for ensuring public health. Once the reserved amounts are expended, the amounts available for each set-aside will be limited to the percentage allowed out of each Cap Grant.

PLANNED EXPENSES

Iowa intends to take the total amount authorized for each set-aside from the IIJA General Supplemental Cap Grant and reserve authorized amounts from each of the DWSRF Base Program, IIJA PFAS/EC Funds and IIJA LSL Replacement Funds. Unused commitments are reserved for use in future years as necessary.

DWSRF Program Administration Set-Aside (4%).

Iowa intends to use this set-aside including loan administrative fees to pay the costs of administering the DWSRF Base, IIJA GS, IIJA LSL and PFAS/EC Funds including:

- Portfolio management, debt issuance, and financial, management, and legal consulting fees
- Loan underwriting
- Project review and prioritization
- Project management
- Technical assistance to borrowers
- AIS/BABA site inspections
- Database development and implementation
- Contract services for a continuous improvement facilitator
- Program marketing and coordination
- Drinking Water Infrastructure Needs Survey
- ER services*

In order to keep **ER services available for all borrowers, the SRF Program may establish funding limitations per project for archaeological and/or architectural contracted services necessary to complete a project's ER. If funding limitations are implemented, the borrower will be responsible for all related costs in excess of the funding limit.*

Small System Technical Assistance Set-Aside (2%). Iowa intends to use this set-aside to provide technical assistance to PWSs serving populations of less than 10,000.

Funds from this set-aside will be used this year to provide support for the operator certification program. This will include the administration and proctoring of examinations in all six regions of the state, provide training for new Grade A water system operators, and provide continuing education for existing Grade A water system operators. Grade A is the certification grade for the smallest PWS, with only disinfection treatment. Funds are also used by the Field Office water supply staff to provide technical assistance and compliance follow-up to small system operators.

Additional tasks may be added to the SFY 2026 Set-Aside Workplan to support initiatives specific to PFAS and/or LSL replacements.

State Program Support Set-Aside (10%). The primary uses of this set-aside are to assist with the administration of the Public Water Supply Supervision (PWSS) program, to review engineering documents for non-DWSRF construction projects, and to evaluate disinfection contact time determinations, approve corrosion control strategies, and make influenced groundwater determinations.

Other uses include:

- Updating the SDWIS database including support systems and provide compliance determinations and information technology database support
- Adopting rules and revisions to the IAC
- Field Office water supply staff conducting sanitary survey inspections at PWSs, as required by the SDWA.
- Create new electronic certification exams and PFAS Monitoring
- Audit laboratories to ensure compliance with permitting requirements
- Conduct surface water training

Additional tasks may be added to the SFY 2026 Set-Aside Workplan to support initiatives specific to PFAS/EC and/or LSL replacements.

Other Authorized Activities Set-Aside (15%). The two primary uses of this set-aside are capacity development and source water protection (SWP).

Funds are budgeted for efforts related to developing technical, managerial, and financial capacity for Iowa's PWSs, including:

- Completion of sanitary surveys with the eight elements and providing direct capacity development technical assistance
- Training of inspectors in comprehensive performance evaluation protocols
- Provision of technical assistance related to capacity development through the area wide optimization program (AWOP)
- System-specific capacity development assistance by contractor, including promotion of asset management planning

Additional tasks may be added to the SFY 2026 Set-Aside Workplan to support initiatives specific to PFAS/EC and/or LSL replacements.

Funds are also budgeted for SWP activities including the following:

- Coordination and administration of the SWP program
- Development of SWP plans and review and assist with implementation of Best Management Practices
- Development of data for Phase 1 SWP assessments for all new systems and new wells at existing PWSs
- Technical assistance for well siting
- Maintenance of the Source Water Mapper and Tracker online database

Appendix A - Disadvantaged Communities (DAC)

REVISED AFFORDABILITY CRITERIA USED TO DETERMINE DAC STATUS

The DWSRF Program historically focused on low-to-moderate income metrics to identify borrowers that would experience a significant hardship raising the revenue necessary to finance a drinking water project. In SFY 2023, the Iowa SRF Program began using a **SA Tool** with a broad range of metrics to evaluate a community or service area's underlying socioeconomic and demographic conditions in an effort to develop a more comprehensive definition of what it means to be DAC. This SA Tool provides a comprehensive analysis of factors that typically determine whether a community or service area is disadvantaged and can determine the affordability of water infrastructure projects.

The Iowa DWSRF Program will use the results of the SA Tool, or "Socioeconomic Assessment Score" to determine the disadvantaged status of a borrower and/or ***eligibility to receive SRF loan forgiveness*** (also referred to as additional subsidization) or other incentives offered by the DWSRF Program specifically for DAC.

The affordability criteria established in this IUP after public review and comment will be the criteria used to determine DAC status.[23] The amount of additional subsidization available to a DAC will be established annually in the IUP (see Appendix B – Additional Subsidization).

SA TOOL

The metrics (affordability criteria) used in the SA Tool was established using EPA guidance and revised with public input. The SA Tool continues to be part of the annual IUP public review and comment process. The SA Tool data is updated annually with new census data and the SFY 2026 SA Tool will go into effect upon approval of this IUP by the EPC.

For SFY 2026, borrowers with a SA score of at least 11 points meet the affordability criteria of the DWSRF Program and are identified as a "Disadvantaged Community" for the Program purposes.

There are two versions of the SA Tool:

- **Service Area-Based** - Metrics results are for an entire community or service area
  - Standard by Place: Applicable to municipalities which serve populations within ***incorporated*** boundaries.
  - Standard for Large Service Areas: Applicable to municipalities which serve populations within more than 5 incorporated boundaries.
  - Standard for Rural Service Areas: Applicable to Sanitary Districts, Rural Water Associations and/or municipalities which serve populations in ***unincorporated*** boundaries.

- **Census Tract-Based** - Metrics results are for Census tracts or primary county
  - By Tract: Applicable to Homeowner Associations (HOA) and SRF borrowers for IIJA Lead Service Line projects. This tool will also be used when the primary purpose of a consolidation/regionalization project is to expand a system's service area.

Both versions of the SA Tool are available to the public throughout the SRF website[24].

The SA Tool assesses 10 datapoints from publicly available sources produced by the Census Bureau of the U.S. Department of Commerce. The SA Tool *is* ***updated annually*** with the release of new data from these sources. In SFY 2026, the SA Tool will use 2019-2023 (5-year) data from the American Community Survey. Figure 1 below provides a list of the metrics used in the SA Tool.

To use the SA Tool, a borrower will select each community that makes up the utility's service area, along with the corresponding percent of population served. For each of the metrics evaluated, borrowers will be given a score indicating the relative disadvantage to the other communities in the state (see Figure 1 and Figure 2)[25]. A weighted

[23] 40 CFR 35.3505 Definitions and IAC 265 Chapter 26.7 - DAC Status

[24] Documents and Guides page https://www.iowasrf.com/documents-and-guides/

[25] The only exception is Population Trend. For the service area-based SA-Tool, no points are given for positive or 0% growth, 1 point for negative growth up to -7.5%, 2 points for more than -7.5% population growth.

average for each metric will be calculated and assigned points. Scores for each metric are totaled to produce an overall assessment of the borrower's underlying social, economic, and demographic profile.

Example: An borrower with a poverty rate falling in the 73rd percentile (a high rate) would be one of the bottom 1/3 of communities and receive 2 points for that metric.

Points	0	1	2
1 Median Household Income	Top 1/3 (Highest MHI)	Middle 1/3	Bottom 1/3 (Lowest MHI)
2 Percent Below Poverty	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
3 Percent Receiving Public Assistance or Supplemental Nutrition Assistance Program (SNAP)	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
4 Percent Receiving Supplemental Security Income (SSI)	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
5 Unemployment Rate	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
6 Percent Not in Labor Force	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
7 Population Trend Between 2010 and 2020 Census*	Non-negative population growth	Declining growth up to -7.5%	Declining growth of more than 7.5%
8 Percent with Highschool Diploma or Less	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
9 Percent of Vacant Homes (excluding 2nd/Vacation dwellings)	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
10 Percent of Cost Burdened Housing (>= 30% of Income spent on owner- and renter-occupied housing)	Bottom 1/3 (Lowest %)	Middle 1/3	Top 1/3 (Highest %)
Relative Disadvantage:	**Low**	**Moderate**	**High**

Figure 1

Percentile Rank	Relative Disadvantage	Points
Top 1/3	**Low**	**0**
Middle 1/3	**Moderate**	**1**
Bottom 1/3	**High**	**2**

Figure 2

NOTE: In prior years, population growth for both the service area-based and Census tract-based SA Tool was measured at the County level. The service area-based SA Tool now uses Census Place data to measure population growth. Projects that use the tract-based version of the SA tool will continue to use County level data for population growth.

USING THE SA SCORE TO DETERMINE DAC STATUS

The following information applies to DWSRF Base and IIJA Capitalization Grant Funds (General Supplemental, PFAS/EC and LSL):

- DAC status for the purposes of the DWSRF Program will be determined by completing the SA worksheet to produce a SA score.
- With 10 total metrics, equally weighted, the maximum number of points will be 20. Communities or service areas with a cumulative score of 11 and up (e.g., falling in the top 1/2 of the total possible cumulative score) indicates that the community or service area is socially, economically, and/or demographically disadvantaged relative to the other communities in the state. Conversely, borrowers who score in the bottom 1/2 of total cumulative points (e.g., 10 total points or less), will not be considered disadvantaged for SRF Program purposes.
- All projects added to the PPL during SFY 2026 will receive a DAC score based on the SFY 2026 SA Tool and this score will not change with future SFY SA Tool updates. ***All projects listed on the approved PPL prior to SFY 2026 will continue to use the DAC score assigned in accordance with the SFY 2025 or 2024 SA Tool, as applicable.***

Borrowers with a total SA score of at least 11 points meet the DWSRF Program's definition of DAC.

	Point Range	Disadvantaged Community
Low	0-10	No
Moderate	11-15	Yes
High	16-20	Yes

NOTE: Because DAC scores are determined at the time of IUP application, it is possible for a borrower with multiple projects listed on the approved PPL to have different DAC scores for each project, if the project IUP applications were submitted to SRF in different state fiscal years.

Appendix B - Additional Subsidization

The DWSRF Program will comply with the additional subsidization requirements of each Cap Grant and will identify recipients of available funds during the fiscal year. Criteria for additional subsidization eligibility is established with each Cap Grant (see below).

Iowa applies additional subsidization in the form of loan principal forgiveness (LF). LF is applied as principal forgiveness on the later of (1) the date of the final loan disbursement; or (2) the date of the loan's reissuance (if determined as necessary by the borrower's bond counsel).

The final amount disbursed on a loan is used to identify final LF amounts. In some cases, the actual amount of LF applied to a loan is less than the amount that SRF committed to a project, leaving a remaining balance of LF to be awarded to another project.

PREVIOUS LOAN FORGIVENESS OPPORTUNITIES

Unused portions of LF awards from previous LF opportunities may be reallocated to the next eligible borrower in accordance with its original criteria, or may be combined with other available Cap Grant LF funds and awarded in accordance with the LF criteria in effect for the current funding year.

LF awards were be made in SFY 2025 using all available LF funding to qualifying projects. As of the publication of this draft IUP, final committed amounts and remaining LF balances are pending loans executed in May and June, 2025 and pending acceptance of LF terms and conditions.

At the conclusion of SFY 2025, LF balances from these capitalization grants remain available to award in SFY 2026:

FFY	LF Funding Source
2023	DWSRF IIJA LSL

During SFY 2026, SRF will be receiving additional re-allocation/transfer funding from these previously awarded capitalization grants, providing additional loan forgiveness opportunities:

FFY	Funding Source	Allocation Amount
2021	DWSRF Base Cap Grant Re-allotment	$24,000
2022	DWSRF IIJA PFAS/EC 2nd Re-allotment	$25,000
2023	DWSRF IIJA PFAS/EC Re-allotment	$322,000
2023	DWSRF IIJA LSL Re-allotment	$1,940,000
2023	DWSRF IIJA GS Grant Transfer from CWSRF	$1,078,000

SFY 2026 LF CRITERIA

The following criteria will apply to all LF funding available to award during SFY 2026:

GENERAL RESTRICTIONS AND/OR LIMITATIONS

- LF eligibility will be evaluated based on the current SA Tool in effect at the time the project is added to the PPL.
- Borrowers being offered additional subsidization will be asked to accept the award by signing an offer letter of LF terms and conditions.
- Time limits may be established for signing loan commitments in order to apply LF awards.
- Maximum time limits may also be established for commencing construction of an eligible project. If construction has not been initiated or a loan commitment has not been signed by the date indicated in the LF terms and conditions award letter, the LF offer may be withdrawn or reassigned.
- Taxable portions of SRF projects are not eligible for LF.

- Borrowers who received a DAC determination from DNR prior to September 20, 2022 and are eligible for extended term financing (up to 30 years) at the 20-year interest rate, are not eligible for LF.
- Borrowers receiving EPA congressionally directed spending will not be eligible to receive subsequent LF from the Iowa SRF program for the same project.
- Borrowers receiving additional subsidization awards from a previous Cap Grant will not be eligible to receive subsequent LF from the Iowa SRF program for the same project.
- LF awards may consist of more than one funding source.

DWSRF BASE CAPITALIZATION GRANT AND IIJA GENERAL SUPPLEMENTAL FUND

FFY Fund	Award Amount	LF Required
2025 DWSRF Base Cap Grant	$16,397,000*	$4,263,220*
2025 DWSRF IIJA General Supplemental Fund (IIJA Year 4)	$37,434,000*	$18,342,660*

*This award amount is anticipated to be received during SFY 2026.

MAXIMUM AWARD AMOUNTS

LF awards will be issued as a not to exceed maximum award amount. Maximum amounts are based on a borrower's DAC score, in accordance with the SA Tool in effect at the time of IUP application (all borrowers listed on the approved PPL prior to SFY 2026 were assigned a DAC score in accordance with the SFY 2024 and SFY 2025 SA Tools).

LF awards from this funding source are applied only to the total eligible *construction costs* of the project.

Maximum award amounts based on DAC scores are identified below in Figure 3 - LF Award Scale:

DAC Score	Maximum LF Award Amount
20	$ 1,400,000
19	$ 1,300,000
18	$ 1,200,000
17	$ 1,100,000
16	$ 1,000,000
15	$ 900,000
14	$ 800,000
13	$ 700,000
12	$ 600,000
11	$ 500,000

Figure 3 - LF Award Scale

ELIGIBILITY CRITERIA

1. Compliance projects that result in the resolution of public health violations or return a system to compliance upon completion. Projects include correction of one of the following:
    A. Non-compliance with Safe Drinking Water Act (SDWA)
    B. Maximum Contaminant Level (MCL) or Health Advisory Level (HA) Violation
    C. Identified Significant Deficiency (determined by DNR)
    D. Requirements of a Bilateral Compliance Agreement (BCA)

2. New projects added to the PPL during SFY 2026 that meet the DAC criteria.

METHOD OF AWARD

Projects that meet compliance requirements listed above under eligibility criteria will be committed LF upon approval of the PPL. LF will be committed to all other projects added to the PPL during SFY 2026, based on highest to lowest ranking order, in accordance with the SFY 2026 LF method described below. ***It is the intent of the SRF Program to issue LF award letters to these recipients at the end of the 2nd and 4th quarters of the state fiscal year.***

After compliance projects have been committed LF, all other LF will be committed in two rounds until all funding is obligated/awarded:

Round 1: Projects added to the PPL in SFY 26 quarters 1 and 2 (July 1-December 31).
Round 2: Projects added to the PPL in SFY 26 quarters 3 and 4 (January 1-June 30).

Each group will be ranked and LF assigned according to the following ranking criteria:
1. First, all projects (DAC scores 11-20) will be ranked **by DAC score** (highest to lowest).
2. Next, projects will be ranked **by project priority points** (highest to lowest).
3. If necessary, the date of loan execution will be used as a tiebreaker to determine final priority ranking.

The DWSRF Program reserves the right to modify the DAC level maximum LF award amounts and/or to withdraw the limitation to construction costs.

DWSRF IIJA PFAS/EC FUND

FFY IIJA Fund	LF Required	LF Committed	LF Available to Award
2024 DWSRF PFAS/EC (IIJA Year 3)	$11,487,000*	$0	$11,487,000*

*This award amount is anticipated to be received during SFY 2026 and is subject to the total of the project applications received by the application deadline.

MAXIMUM AWARD AMOUNTS

The DWSRF Program reserves the right to withdraw or modify the individual project cap.

LF will be applied to eligible project costs within the SRF portion of the project.

- LF for ~~individual treatment/~~new water source projects is capped at **$3 million per project or 80% of the SRF loan, *whichever is less.***
- LF for individual treatment projects is capped at **$8 million per project or 80% of the SRF loan, *whichever is less.***
- LF for consolidation projects is capped at **$8 million per project or 90% of the SRF loan, *whichever is less.***

ELIGIBILITY CRITERIA

LF may be issued to any borrower addressing PFAS or an EC meeting the criteria described in the IUP D. SFY 2026 Program Activities to be Supported.

1. **Treatment or New Water Source Projects**. LF of up to 80% may be offered for eligible project costs for projects that meet the contaminant and detection level priorities as listed below.

Emerging Contaminant	Concentration (ppt)[1]	Loan Forgiveness %	
		Finished Water for PWS with Treatment[3]	Raw Water for PWS without Treatment[3]
PFAS	PFOA ≥ 4.0	80%	60%
	PFOS ≥ 4.0	80%	60%
	PFHxS ≥ 10	80%	60%
	PFNA ≥ 10	80%	60%
	HFPO-DA (Gen X) ≥ 10	80%	60%
	Hazard Index[2] > 1	80%	60%
Health Advisories (HA) on EPA's Contaminant Candidate Lists 1-6 (Non PFAS)	≥ HA level	80%	60%
	≥ 75% of HA level	40%	N/A

[1]In parts per trillion, except for the Hazard Index7
[2]Hazard Index calculation is based on the April 2024 final rule for the National Primary Drinking Water Regulation for PFAS.
[3]Treatment addresses the emerging contaminant through a removal process. Blending of raw water sources is not considered treatment.

2. **Consolidation Projects.** LF of 90% may be offered for eligible consolidation/connection projects with the purpose of resolving a source water issue due to an eligible contaminant with a detection level listed above.
This priority is intended for SRF-eligible applicants who are fully or partially consolidating or regionalizing with another system. The primary purpose of the consolidation or regionalization project must be for system A to obtain drinking water that more reliably meets SDWA requirements or to address technical, managerial, and/or financial issues within system A through consolidation or regionalization with system B. Consolidation or regionalization projects are eligible for this LF even if there is no violation or compliance issue for system A. The project cannot be primarily focused on expansion of system B's service area and must provide a public health benefit to those served by system A. When a consolidation project also includes expansion of system B, the costs related to connecting system A to system B are the only components eligible to receive LF.

METHOD OF AWARD
LF will be awarded on a first ready, first-funded basis while funds are available. ***It is the intent of the SRF Program to issue LF award letters to these recipients at the end of the 2nd and 4th quarters of the state fiscal year.***

DWSRF IIJA LSL REPLACEMENT FUND

FFY IIJA Fund	LF Required	LF Committed	LF Available to Award
2024 DWSRF IIJA LSL (IIJA Year 3)	$14,732,340	$0	$14,732,340*

*This award amount is anticipated to be received during SFY 2026 and is subject to the total of the project applications received by the application deadline.

MAXIMUM AWARD AMOUNTS
The DWSRF Program reserves the right to withdraw or modify the individual project cap.

Funding for individual projects is **capped at 49% per project.** ~~**or 90% of the SRF loan, *whichever is* .**~~

ELIGIBILITY CRITERIA
LF may be issued to any borrower for lead service line inventory or replacement meeting the criteria described in the IUP D. SFY 2026 Program Activities to be Supported.

Regardless of ownership:

(1) LF of 49% may be offered to DAC borrowers for all eligible **project costs** necessary to replace full lead service lines ***anywhere*** within their service area.

(2) LF of 49% may be offered to non-DAC borrowers for eligible **construction** costs necessary to replace full lead service lines ***in qualifying DAC census tracts*** within their service area. Qualifying census tracts are determined by the Census Tract-Based SA Tool (see Appendix A - Disadvantaged Communities (DAC)). Eligible project costs and project readiness are described in the IUP in section D. SFY 2026 Program Activities to be Supported.

For non-DAC borrowers, costs related to LSL replacements completed in census tract areas that do not meet the DAC criteria and non-construction costs (such as legal and engineering fees) are not eligible for LF. Special interest rates or other incentives may be offered for costs not eligible for LF (see Appendix D - Interest Rates, Fees and Loan Terms).

METHOD OF AWARD

LF will be awarded on a first ready, first-funded basis while funds are available.

LF is committed to a LSL project upon approval of the PPL. LF will not be ***awarded*** or offer letters sent to the borrower until DNR engineering staff have approved the borrower's LSLR Plan and an environmental review is finalized (project readiness is described in the IUP in section D. SFY 2026 Program Activities to be Supported).

Appendix C - Project Ranking Criteria

Projects are added to the PPL to be funded based on the rules for the DWSRF Program in 567 IAC Chapter 44. Projects will be funded as they become ready to proceed to construction. Adjustment to the list of fundable projects will be made, if necessary, to assure that at least 15% of the project funds are available to systems serving fewer than 10,000 persons as specified in Section 1452(a) (2) of the SDWA. Methods for determining the population served are described in 567 IAC Chapter 44.

Iowa is currently able to fund all projects that are eligible, but the priority system will be available to use in the case that demand for DWSRF loans exceeds supply of funds. In the event that available funds are limited, funding shall be offered to the projects with highest rank on the PPL, subject to the project's readiness to proceed, and shall proceed from the highest project downward, subject to availability of funds.

PPL RANKING CRITERIA

Planning and Design projects are not ranked. Construction projects are ranked based on the DNR's scoring system, described in 567 IAC Chapter 44. All projects shall be listed in descending order on the published PPL according to the number of total priority points assigned each project. The ranking will be done at the time the IUP is prepared and will not be updated during the year.

When two or more projects have the same priority point total:

1. The project sponsored by a system in the process of consolidation shall receive the higher priority;
2. A private system in the process of forming and becoming a PWS shall have the next highest priority (if the system is determined by EPA regulations or guidance to be eligible for DWSRF funding);
3. The entity with the smallest served population shall receive the next highest priority.

IIJA PFAS/EC and LSL Replacement projects on the PPL may be given a ***contingency*** status until all fundable criteria described in section D. SFY 2026 Program Activities to be Supported of this IUP have been met.

PPL SCORING CRITERIA

Eligible PWS projects will be scored for inclusion in the PPL based on the application as submitted, in accordance with the scoring system contained in Chapter 44 of the IAC.

The DWSRF Project Scoring System assigns points to projects in each of the following scoring criteria:

A. Human Health Risk-related Criteria (maximum of 60 points)
B. Infrastructure and Engineering-related Improvement Criteria (maximum of 35 points)
C. Affordability Criteria (maximum of 15 points)
D. Special Category Improvements (maximum of 15 points)
E. DNR Adjustment Factor for Population (10 points)

Projects involving a multiyear, phased effort may carry over their original priority point total from the previous year's application, provided that the project owner reapplies at each stage.

Appendix D - Interest Rates, Fees and Loan Terms

TYPES OF FINANCING

SRF P&D LOANS

Eligible entities may use SRF P&D Loans to reimburse costs incurred during the P&D phase of SRF-eligible proposed drinking water project. Eligible costs include, but are not limited to, engineering fees, archaeological surveys, environmental studies, fees related to project plan preparation and submission, and other costs associated with project plan preparation.

P&D Loans have no interest or payments due for up to three years while the project is designed, and there are no minimum or maximum loan limits. These loans are not assessed initiation or servicing fees; however, borrowers must engage their Bond Counsel to authorize and issue the debt. P&D Loans will be rolled into an SRF Construction Loan or may be repaid when other permanent financing is secured.

SRF CONSTRUCTION LOANS

SRF Construction Loans provide low-cost financing for a variety of drinking water infrastructure projects. These loans feature below-market interest rates, low fees, and favorable terms including repayment terms up to 30 years. SRF Construction Loans require a first-lien pledge of either (1) a utility system's net revenues (equal to 10% of aggregate annual debt service for all parity obligations); (2) ad valorem taxes levied against all taxable property (general obligation); or (3) a combination of both. Additionally, the SRF Program reserves the right, on a case-by-case basis, to require that borrowers establish and maintain debt service reserve fund (DSRF) equal to the lesser of (1) 10% of the par amount of the loan; (2) 100% of the Maximum Annual Debt Service; or (3) 125% of the Average Annual Debt Service. A DSRF may be funded with SRF funds.

TERMS OF FINANCING

STANDARD TERM LOANS (UP TO 20 YEARS)

Standard Term SRF Construction Loans are available for up to 20 years. Qualifying projects may request extended term financing for up to 30 years (not to exceed the average useful life of the project).

EXTENDED TERM LOANS (21-30 YEARS)

Extended term loans of up to 30 years are available for qualifying projects. The SRF borrower's consulting design engineer and the DNR permitting engineer (project manager) will complete and sign the SRF Extended Financing Worksheet and submit it to the Iowa Finance Authority with their construction loan application. The interest rate for these projects will be:

Loan Term*	Interest Rate
21-30 years	Base Interest Rate + 1.00%

*Not to exceed the qualifying average useful life of the project

The DWSRF Extended Term Financing Worksheet can be found on the Documents and Guides page of the SRF website.[26]

INTEREST RATES

DWSRF Programs are responsible for providing communities with a low-cost, perpetual funding source for constructing infrastructure and implementing practices that deliver safe drinking water to citizens and treats water pollution to support a healthy environment.

To carry out this mandate, Iowa's SRF Loan Programs utilize Base Interest Rates for Tax-Exempt and Taxable loans, which are re-calculated and published on the first business day each January, April, July, and October (the "Effective Date").

Current SRF loan interest rates are published on the SRF website[27].

[26] https://opportunityiowa.gov/community/water-quality/srf-resources/documents-and-guides
[27] https://iowasrf.com/loan-interest-rates/

The Base Interest Rate for tax-exempt loans is calculated by taking 75 percent of the average daily Bloomberg BVAL General Obligation Municipal AAA 20-year yield ("BVAL") for the calendar month immediately preceding the Effective Date. For example, the Base Interest Rate effective July 1 will be calculated using the average 20-year BVAL yield for the month of June.

Similarly, the Base Interest Rate for the taxable portions of SRF projects is calculated by taking 75 percent of the average Bloomberg BVAL Taxable General Obligation Municipal AAA 20-year yield for the calendar month immediately preceding the Effective Date.

About BVAL

BVAL use real-time trades and contributed sources to signal movement in the municipal market as it is happening. Iowa SRF has chosen BVAL's AAA Municipal Curves as the benchmark indices because they are widely used, objective, transparent, and publicly available through the Municipal Securities Rulemaking Board to anyone who wishes to track the market independently.

SPECIAL PURPOSE FUND LOANS

The interest rate on loans for lead service line-related projects is 0%[28]. Loan servicing fees will still apply (see Fees section below).

INTEREST RATE LOCK

Applicants should work with their Bond Counsel, Municipal Advisor, and other members of their financing team to complete the loan issuance process (e.g., submit a complete SRF Construction Loan Application: NOFE letter, legal opinion on bidding procedures, hold public hearing and authorize debt, complete proforma financial analysis, pass rate ordinance if required, etc.).

After receiving an acceptable construction application, the loan will be presented for IFA Board approval. Once approved, applicants will receive a notification from IFA that includes an interest rate lock for 90 days. If the Program's loan interest rates decrease before signing a loan agreement, applicants will automatically receive the more favorable rate at loan closing while remaining within the 90-day rate lock period. If the 90-day rate lock period expires, the loan will be executed using the current interest rates (which are set quarterly).[29]

FEES

Fee income is considered both Program Income and Non-Program Income, depending on when it is collected and if it is capitalized as part of the SRF loan. Program Income may only be used for purposes of administering the SRF Program or for making new loans. Non-Program Income can be used to administer the program or for other water quality purposes. The uses of Program Income and Non-Program Income are discussed in this IUP under Section F. Financial Administration-Other Program Uses and Section G. Set-Aside Uses.

LOAN INITIATION FEES

New SRF Construction Loans are assessed a loan initiation fee of 0.50% of the full loan commitment amount, not to exceed $100,000, paid upon closing. Since Iowa's loan initiation fees are capitalized, the fee income is considered Program Income.

Initiation fees will not be assessed on loans to any borrower that meets the Program's criteria as a DAC.

LOAN SERVICING FEES

An annual loan servicing fee equal to 0.25% of the outstanding loan balance is charged on SRF Construction Loans. Iowa's servicing fees are capitalized and are calculated based on the outstanding principal balance. Payment of the loan servicing fee is made semiannually along with scheduled interest payments. Loan servicing fees are considered both Program Income and Non-Program Income.

[28] IMPORTANT NOTE: 0% financing is limited to an aggregate amount equal to the amount of the IIJA LSL Cap Grant(s) available for loans (e.g., net of set-asides).

[29] https://www.iowasrf.com/loan-interest-rates/

Appendix E – Estimated Sources and Uses

DWSRF - SFY 2026

Rounded to the nearest $1,000 as of April 30, 2025

SOURCES OF FUNDS

Federal Capitalization Grants:		
FFY 2021 Grant(s):		
Base Program (reallotment)	*$24,000*	
Total FFY 2021 Capitalization Grants Available		$24,000
FFY 2022 Grant(s):		
IIJA Emerging Contaminants (undrawn amount)	*$11,128,000*	
IIJA Emerging Contaminants (2nd reallotment)	*$25,000*	
IIJA Lead Service Line Replacement (undrawn amount)	*$48,747,000*	
Total FFY 2022 Capitalization Grants Available		$59,900,000
FFY 2023 Grant(s):		
IIJA Emerging Contaminants (undrawn amount)	*$11,487,000*	
IIJA Emerging Contaminants (transfer from CW)	*$1,078,000*	
IIJA Emerging Contaminants (reallotment)	*$322,000*	
IIJA Lead Service Line Replacement (undrawn amount)	*$29,319,000*	
IIJA Lead Service Line Replacement (reallotment)	*$1,940,000*	
Total FFY 2023 Capitalization Grants Available		$44,146,000
FFY 2024 Grant(s):		
IIJA Supplemental (undrawn amount, net of set-aside balance)	*$5,836,000*	
IIJA Emerging Contaminants (application forthcoming)	*$11,487,000*	
IIJA Lead Service Line Replacement (application forthcoming)	*$30,066,000*	
Total FFY 2024 Capitalization Grants Available		$47,389,000
FFY 2025 Grant(s):		
Base Program (application forthcoming, less anticipated set-asides)	*$16,044,000*	
IIJA Supplemental (application forthcoming, less anticipated set-asides)	*$25,829,000*	
Total FFY 2025 Capitalization Grants Available		$41,873,000
Estimated Loan Repayments (P&I)		$57,522,000
Estimated Fee Income		$2,752,000
Funds Available in Equity and Program Accounts		$226,640,000
Estimated Investment Earnings on Funds		$7,378,000
Estimated Bond Proceeds:		
Leveraged/Reimbursement		$35,000,000
New State Match		$12,000,000
TOTAL SOURCES		**$534,600,000**

ANTICIPATED USES OF FUNDS

Administration	$6,700,000
Project Funding:	
Disbursements to Existing Loan Commitments[1]	$38,895,000
Disbursements to Future Loan Commitments:	
Planning & Design Loan Requests from IUP[2]	$18,568,000
Additional DWSRF Project Requests[3]	$107,537,000
Debt Service:	
Principal Payments on Outstanding Revenue Bonds	$22,195,000
Interest Payments on Outstanding Revenue Bonds	$17,901,000
Retained Equity[4]	$322,804,000
TOTAL USES	**$534,600,000**
NET AVAILABLE FUNDS	**$0**

Notes:

1. *Assumes 60% disbursement rate.*
2. *Assumes 50% disbursement rate.*
3. *Additional projects from IUP (up to the budgeted disbursement total for SFY 2026).*
4. *Includes accumulated undrawn cap grants, investment interest, and loan repayments available for future project funding and/or debt service.*

Appendix F - State Match

Drinking Water SRF

Federal Fiscal Year 2023

Sources of State Match

Surplus State Match from Prior Year(s)	$5,272,900
Total DW State Match Available	**$5,272,900**

Application of State Match

	Cap Grant ($)	Match Required (%)	Match Required ($)
FFY 2023 Base Cap Grant	$7,424,000	20%	$1,484,800
FFY 2023 IIJA Supplemental Cap Grant	$31,656,000	10%	$3,165,600
Total DW State Match Required			**$4,650,400**

DW State Match Surplus (Deficit)	**$622,500**

Federal Fiscal Year 2024

Sources of State Match

Surplus State Match from Prior Year(s)	$622,500
State Match Bonds Issued in June 2024	$8,000,000
Total DW State Match Available	**$8,622,500**

Application of State Match

	Cap Grant ($)	Match Required (%)	Match Required ($)
FFY 2024 Base Cap Grant (includes reallotment)	$7,031,000	20%	$1,406,200
FFY 2024 IIJA Supplemental Cap Grant	$34,558,000	20%	$6,911,600
Total DW State Match Required			**$8,317,800**

DW State Match Surplus (Deficit)	**$304,700**

Federal Fiscal Year 2025

Sources of State Match

Surplus State Match from Prior Year(s)	$304,700
State Match Bonds to be Issued in July 2025	$12,000,000
Total DW State Match Available	**$12,304,700**

Application of State Match

	Cap Grant ($)	Match Required (%)	Match Required ($)
FFY 2025 Base Cap Grant (estimated)	$16,712,000	20%	$3,342,400
FFY 2025 IIJA Supplemental Cap Grant	$37,434,000	20%	$7,486,800
Total DW State Match Required			**$10,829,200**

DW State Match Surplus (Deficit)	**$1,475,500**

Appendix G - Federal Assurances, Certifications and Proposals

Iowa will provide the necessary assurances and certifications according to the Operating Agreement between the State of Iowa and the EPA, the grant terms and conditions, and the proposals listed within this Appendix.

SPECIFIC PROPOSALS AND CERTIFICATIONS

PROGRAM BENEFITS REPORTING

The Iowa DWSRF Program plans to enter data into the EPA reporting database for the Office of Water State Revolving Funds (OWSRF) not less than quarterly and enter data into the National Information Management System (NIMS) annually.

SIGNAGE

SRF staff and recipients will notify the public in the most effective ways possible about assistance agreements and benefits of the DWSRF program in order to enhance public awareness of EPA assistance agreements nationwide. The Iowa SRF program issues periodic announcements of all executed DWSRF loans. Each SRF funded project is also required to provide public notice of their SRF Project as part of the ER process.

VIABILITY ASSESSMENT

The SDWA requires states to ensure PWSs can provide safe drinking water to their public at a reasonable cost for the foreseeable future. Iowa has chosen to use a Viability Self-Assessment Manual as a tool for water supplies to appraise their technical, managerial, and financial capability. SRF borrowers will be required to submit a Viability Self-Assessment for approval.

GREEN PROJECT RESERVE (GPR)

Congressional Appropriations require 10% of DWSRF Cap Grant amounts be used to fund projects that qualify under the EPA's GPR, if such applications are submitted. GPR projects address green infrastructure, water and energy efficiency, and/or other environmentally innovative activities. The specific projects identified as GPR will be listed in the annual report.

ADDITIONAL SUBSIDIZATION

DWSRF Base Program funding, provided through the Consolidated Appropriations Act, includes two different additional subsidization authorities (Congressional and SDWA DAC). Additional subsidy authority also exists under the IIJA. Iowa has established criteria in Appendix B - Additional Subsidization to comply with these authorities and will document recipients of these funds in the annual report.

AMERICAN IRON AND STEEL

DWSRF assistance recipients are required to use iron and steel products produced in the United States for projects for constructing, altering, maintaining, or repairing public water systems[30]. Iowa DWSRF Program conducts oversight of this requirement by verification of bid documents, selective review of product certification documentation, and on-site inspections and/or desk reviews. SRF staff will provide technical assistance to help borrowers determine eligibility for the exemptions and waivers provided for in the Act and EPA guidance. All recipients will be required to sign a self-certification of compliance at completion of the project.

Forms and guidance for compliance will be provided to SRF borrowers and/or made available on the SRF website[31]

BUILD AMERICAN, BUY AMERICA (BABA) ACT

On November 15, 2021, President Joseph R. Biden Jr. signed into law the IIJA, Pub. L. No. 117-58, which includes the BABA that strengthens the Made in America Laws.[32] Infrastructure projects funded by federal financial assistance must

[30] https://www.epa.gov/cwsrf/state-revolving-fund-american-iron-and-steel-ais-requirement
[31] https://opportunityiowa.gov/community/water-quality/srf-resources/documents-and-guides
[32] Build America, Buy America Act, https://www.epa.gov/baba

ensure that the ***iron, steel, manufactured products, and construction materials*** used in the project are produced in the United States.[33]

Since not all funds available through the Iowa DWSRF Program are considered federal financial assistance, SRF will provide information to those borrowers required to comply with necessary documentation and inspection procedures. Iowa conducts oversight of this requirement by verification of bid documents, selective review of product certification documentation, and on-site inspections and/or desk reviews. SRF staff will provide technical assistance to help borrowers determine eligibility for the exemptions and waivers provided for in BABA and EPA guidance[34]. All recipients will be required to sign a self-certification of compliance at completion of the project.

Forms and guidance for compliance will be provided to SRF borrowers and/or made available on the SRF website[35].

ENVIRONMENTAL REVIEW

Projects receiving assistance from the DWSRF must conduct ERs of the potential environmental impacts of projects and associated activities. To reduce costs and barriers to participating in the SRF loan program, Iowa SRF ER staff will conduct NEPA-like ER services on behalf of DWSRF borrowers in accordance with the federal assurances below and in accordance with the EPA-approved Iowa DWSRF State Environmental Review Process (SERP), to the extent practicable.

Projects receiving assistance from the CWSRF as equivalency projects will also undergo a review for compliance with the National Historic Preservation Act (NHPA) and certain environmental authority crosscutters. SRF staff will facilitate consultation with State Historic Preservation Office (SHPO) and other consulting agencies, as necessary, on behalf of SRF borrowers (see Appendix H-SRF Assistance Recipient Federal Requirements).

In order to keep these services available for all borrowers, the SRF Program may establish funding limitations per project for archaeological and/or architectural contracted services necessary to complete a project's ER. If funding limitations are implemented, the borrower will be responsible for all related costs in excess of the funding limit.

DAVIS-BACON

The Davis Bacon Act requires that all contractors and subcontractors performing construction, alteration and repair (including painting and decorating) work under federal contracts in excess of $2,000 pay their laborers and mechanics not less than the prevailing wage and fringe benefits for the geographic location.[36] Iowa's oversight of this requirement is conducted by verification of bid documents and wage determinations, and will require borrowers to submit a self-certification form at completion of the project indicating compliance with this requirement.

FEDERAL ASSURANCES

Instrumentality of the State. See language in current Operating Agreement.

Binding Commitments. The State will enter into binding commitments with recipients to provide assistance in accordance with the requirements of the SDWA, in an amount equal to 120 percent of the amount of each grant payment, within one year after receipt of such grant payment.

Expeditious and Timely Expenditure. All monies in the fund will be committed and expended in an expeditious and timely manner.

State Laws and Procedures. The state will commit or expend each quarterly capitalization grant payment in accordance with laws and procedures applicable to the commitment or expenditure of revenues of the State.

[33] https://www.epa.gov/cwsrf/build-america-buy-america-baba
[34] https://www.epa.gov/system/files/documents/2022-11/OW-BABA-Implementation-Procedures-Final-November-2022.pdf
[35] https://opportunityiowa.gov/community/water-quality/srf-resources/documents-and-guides
[36] https://www.epa.gov/grants/davis-bacon-and-related-acts-dbra

State Accounting and Auditing Procedures. In carrying out the fiscal control and auditing requirements of the SDWA, the state will report to EPA in accordance with Generally Accepted Accounting Principles (GAAP) as promulgated by the Government Accounting Standards Board.

Assistance Recipient Accounting and Auditing Procedures. The state will require as a condition of making a loan or providing other assistance from the fund that the recipient of such assistance provide an annual audit of project accounts in accordance with GAAP.

Annual/Biennial Reports. As required, the state agrees to report to EPA on the actual use of funds (including Biennial reporting of set-asides) and how the state has met the goals and objectives for the previous fiscal year as identified in that year's IUP and set-aside workplans.

Environmental Review. The State will assure compliance through the procedures described in State Rules and 40 CFR 35.3580, in effect at the time of execution of this agreement, and any future amendments which are reviewed and approved by EPA. A NEPA-like review will be conducted for any DWSRF project receiving assistance. Projects identified as equivalency projects will also undergo a review for compliance with the National Historic Preservation Act (NHPA) and applicable environmental authority crosscutters (see Appendix H-SRF Assistance Recipient Federal Requirements).

Types of Financial Assistance. The State certifies that only the types of assistance authorized under Section 1452 of the SDWA, as amended, and the State's enabling legislation, will be awarded.

PROCESS (APPLICATION/PAYMENT/DISBURSEMENT)

Application. Properly executed, completed grant applications with supporting documentation meeting 2 CFR Part 200 requirements will be submitted to the Regional Administrator at least 90 days prior to the target grant award date. The State and EPA agree to negotiate promptly, cooperatively, and in good faith to clarify or resolve questions which may arise during the 60-day application review time period.

Grant Payments. After the award of a capitalization grant, the state will begin receiving quarterly grant payments according to the schedule in the grant award. The quarterly payments, up to the full amount of the grant, must be made in no more than 8 quarters following grant award or 12 quarters after funds are allotted.

Cash Draws/Disbursements. Cash draws will be made as costs are incurred. Disbursements will be made from state monies first, then federal monies.

Annual Report, Review and Audit. State will follow requirements in 40 CFR 35.3570.

Corrective Action. State will follow requirements addressed in 40 CFR 35.3585.

Disputes. Dispute provisions of 2 CFR Part 1500 Subpart E shall be used for disputes involving EPA disapproval of an application or a capitalization grant, as well as disputes arising under a capitalization grant including suspension or termination of grant assistance.

Records, Retention and Access. Records will be retained according to 2 CFR 200.333. Federal access to records will be according to 2 CFR 200.336a. The State will establish and maintain program and project files as required to:

1. Document compliance with SDWA, other federal regulations, and any general and special grant conditions;
2. Produce the required report;
3. Document technical and financial review and project decisions;
4. Support audits; and
5. Provide effective and efficient program management.

Congressional and Public Inquiries. Responses to Congressional and public inquiries will be made by the State and coordinated with EPA as necessary. The State will address project-level and most program inquiries and provide EPA a

copy of all Congressional inquiries and responses. If EPA is responsible for any program inquiries, the State will provide background information in a timely manner and EPA will provide a copy of the inquiry and response in a timely manner.

Appendix H – SRF Assistance Recipient Federal Requirements

PROGRAM SPECIFIC REQUIREMENTS—ALL SRF PROJECTS

The following federal program requirements are specifically identified in the CWA, SDWA, SRF Program regulations, and/or EPA policy and they apply to all SRF borrowers. These requirements are beyond basic borrower eligibility and basic project/activity requirements.

Requirement	Authorizing Statute	How IA SRF borrowers comply
American Iron and Steel	33 U.S.C. 1388 and 42 U.S.C. 300j-12(a)(4)	SRF Front-End Document #9; SRF Staff perform on-site inspection and desk review of certification letters; and BABA Self-Certification form signed at completion of project.
Davis-Bacon Wages	33 U.S.C. 1382(b)(6) and 42 U.S.C. 300j12(a)(5	Self-Certification
Environmental Review	40 CFR 35.3140; 40 CFR 35.3580	Iowa SRF Environmental Review staff perform a NEPA-like investigation and/or consult with federal authorities on behalf of the SRF borrower to gain the necessary technical assistance and/or concurrence to issue a Categorical Exclusion (CX) or Finding of No Significant Impact (FNSI) clearance.
Generally Accepted Accounting Principles	33 U.S.C. 1382(b)(9) and 42 U.S.C. 300j-12(g)(3)	Loan documents
Technical, Managerial, and Financial Capacity Demonstration, (DWSRF Only)	42 U.S.C. 300j-12(a)(3	Viability Assessment and Municipal Advisor

ADDITIONAL PROGRAM SPECIFIC REQUIREMENTS—EQUIVALENCY PROJECTS ONLY

Requirement	Authorizing Statute	How IA SRF borrowers comply
Single Audit	2 CFR part 200, Subpart F	Submit Single Audit; Corrective Actions
Signage	EPA Guidance for Enhancing Public Awareness of SRF Assistance Agreements (2015)	SRF Program issues a media release quarterly listing all SRF executed loans. Projects issue public notification of project through social media, customer mailings, or other public notification methods.

REQUIRED CROSS-CUTTERS—ALL SRF PROJECTS

Federal cross-cutter authorities are requirements established by other federal laws and Executive Orders that apply to federal financial assistance programs. These requirements are not cited in the SRF Programs' authorizing statutes or

regulations but apply broadly by their own terms in federal statutes, regulations, or executive orders to a wide range of federal financial assistance programs, including SRF.

Authority	Crosscutter	How IA SRF borrowers comply
Social Policy Authorities	Civil Rights Laws - The Age Discrimination Act of 1975, 42 U.S.C. 6102 et seq. - Section 13 of the Federal Water Pollution Control Act Amendments of 1972, (CWSRF only) 33 U.S.C. 1251 et seq. Civil Rights Laws October 2003.pdf October 2003 - Section 504 of the Rehabilitation Act of 1973, 29 U.S.C. 794 - Title VI of the Civil Rights Act of 1964, 42 U.S.C. 2000d et seq.	SRF Front-End Documents #1&7, IUP application and loan documents

ADDITIONAL REQUIRED CROSS-CUTTERS—EQUIVALENCY PROJECTS ONLY*

Authority	Crosscutter	How IA borrowers comply
Social Policy Authorities	Participation by Disadvantaged Business Enterprises in United States Environmental Protection Agency Programs	SRF Front-End Documents #3-6, as applicable *This requirement is applied to all Iowa SRF projects*
Environmental Authorities	Archaeological and Historic Preservation Act, 16 U.S.C. 469 et seq.	Iowa SRF Environmental Review staff perform a NEPA-like investigation and/or consult with federal authorities on behalf of the SRF borrower to gain the necessary concurrence or clearances for these crosscutter requirements. *Investigation and/or consultation for these environmental authorities may be conducted for non-equivalency Iowa SRF projects, however, the consultation is for the technical assistance rather than concurrence or clearance purposes.*
	Clean Air Act Conformity, 42 U.S.C. 7401 et seq	
	Coastal Barriers Resources Act, 16 U.S.C. 3501 et seq	
	Coastal Zone Management Act, 16 U.S.C. 1451 et seq.	
	Endangered Species Act, 16 U.S.C. 1531 et seq.	
	Farmland Protection Policy Act, 7 U.S.C. 4201 et seq.	
	Floodplain Management Executive Order No. 11988 (1977), as amended by Executive Order No. 12148 (1979)	
	Magnuson-Stevens Fishery Conservation Management Act, 16 U.S.C. 1801 et seq.	
	National Historic Preservation Act, 54 U.S.C. 300101 et seq.	
	Sole Source Aquifer, Section 1424(e) of Safe Drinking Water Act, 42 U.S.C. 300h-3e	
	Wetlands Protection - Executive Order No. 11990 (1997), as amended by Executive Order No. 12608 (1997)	
	Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq.	

Economic and Miscellaneous Authorities	Administration of the Clean Air Act and the Federal Water Pollution Control Act with respect to Federal contracts, grants, or loans, Executive Order No. 11738 (1973) -Section 306 of the Clean Air Act, 42 U.S.C. 7606 et seq. -Section 508 of the Clean Water Act, 33 U.S.C. 1368 et seq.	SRF Environmental Review staff perform investigation and/or consult with federal authorities on behalf of the SRF borrower to gain the necessary concurrence or clearances for this crosscutter requirement.
	Build America, Buy America Act, Pub. L. 117-58, Sections 70901-70927	SRF Front-End Document #9; SRF Staff perform on-site inspection and desk review of certification letters; and BABA Self-Certification form signed at completion of project.
	Prohibition on Certain Telecom and Video Surveillance Services/Equipment, 2 CFR 200.216	SRF Front-End Document #10 **This requirement is applied to all Iowa SRF projects*
	Suspension and Debarment, Executive Order 12549 (1986), 2 CFR Part 180, 2 CFR Part 1532	SRF Front-End Documents #2; SRF staff verifying SAMS.gov for all selected bidders/procurement contracts **This requirement is applied to all Iowa SRF projects*
	Uniform Relocation and Real Property Acquisition Policies Act, 42 U.S.C 4601 et seq., 40 CFR Part 4, 49 CFR Part 24	Signature on Section 6 (final page) of IUP Application **This requirement is applied to all Iowa SRF projects*
	Federal Funding Accountability and Transparency Act (FFATA), Public Law 109-282	SRF Program staff file a FFATA report through SAM.gov following a SRF loan execution, as applicable, for projects selected as equivalency.

Appendix I – Public Review and Comments Received

A public meeting to allow input to Iowa's SFY 2026 IUP and PPL will be held May 29, 2025, 10:00 a.m. via video conference call. This meeting was announced in a notice provided to stakeholder organizations representing city officials, consulting engineers, county governments, councils of government, area planning agencies, and other groups which might have an interest. Public notice announcements were also posted on the Water Quality News[37] and the IUP Intended Use Plan[38] pages of the SRF website. Written comments may be submitted to srf-pc@dnr.iowa.gov and will be accepted through June 5, 2025.

Comments Received:

Question: In relation to PFAS/Emerging Contaminants Loan Forgiveness: "I did see that the draft language includes an increase in the potential loan forgiveness amount from the $2M max to the $3M max amount. It seemed like the City had a strong case to be made for the maximum loan forgiveness based on our past conversations. Do you believe the City may be granted the $3M maximum?"

Response: *This question identified an error in the loan forgiveness maximum amounts published in the original draft version of the IUP. The original version did not have the maximum amount of LF correct for treatment projects. Corrections to the eligible amounts were addressed on page 27. Additionally, the project description and requested amounts for the City of Schaller FS-81-23-082 was updated on Attachment 1-DWSRF PPL.*

Comment: EPA Region 7 provided technical review comments on the DRAFT IUP and identified areas that needed clarification or correction.

Response: *SRF added additional clarification language and/or corrected information in Appendix H, Attachment 1 – Project Priority List and the Equivalency section of pages 15 and 16.*

Comment: IFA requested clarification on a discrepancy between loan forgiveness eligibilities listed in the program highlights and Appendix B.

Response: *SRF provided further clarification and/or corrected errors in statements on pages 3, 28 and 29.*

During the public comment period, SRF received the FFY 2025 Cap Grant allocations so those amounts were updated throughout the document.

Second Quarter Update:

Comments Received:

Third Quarter Update:

Comments Received:

Fourth Quarter Update:

Comments Received:

[37] https://opportunityiowa.gov/community/water-quality/srf-resources/water-quality-news

[38] https://opportunityiowa.gov/community/water-quality/srf-resources/intended-use-plan

Appendix J – IUP Acronyms

Acronym	Description
A/E	Architectural and Engineering
AIS	American Iron and Steel
ARRA	American Recovery and Reinvestment Act of 2009
AWIA	America's Water Infrastructure Act of 2018
AWOP	Area Wide Optimization Program
BABA	Build America, Buy America
BIL	Bipartisan Infrastructure Law
BVAL	Bloomberg Value - General Obligation Municipal AAA 20-year yield
CFR	Code of Federal Regulation
CMaR	Construction Manager at Risk
CSO	Combined Sewer Operations
CWA	Clean Water Act
CWSRF	Clean Water State Revolving Fund
DAC	Disadvantaged Community
DNR	Iowa Department of Natural Resources
DW	Drinking Water
DWSRF	Drinking Water State Revolving Fund
EC	Emerging Contaminants
EFC	Environmental Finance Center
EPA	U.S. Environmental Protection Agency
EPC	Environmental Protection Commission
ER	Environmental Review
FEMA	Federal Emergency Management Agency
FFATA	Federal Funding Accountability and Transparency Act
FFY	Federal Fiscal Year
FP	Facility Plan
FY	Fiscal Year
GAAP	Generally Accepted Accounting Principles

GMP	Guaranteed Maximum Price
GNS	General Nonpoint Source
GPR	Green Project Reserve
GS	General Supplemental
HOA	Homeowner's Association
IAC	Iowa Administrative Code
IDALS	Iowa Department of Agriculture and Land Stewardship
IFA	Iowa Finance Authority
IIJA	Infrastructure Investment and Jobs Act
IUP	Intended Use Plan
LF	Loan Forgiveness
LSL	Lead Service Line
LWPP	Local Water Protection Program
LWQP	Livestock Water Quality Program
MOU	Memorandum of Understanding
NEPA	National Environmental Protection Act
NHPA	National Historic Preservation Act
NIMS	National Information Management System
NOFE	Notice of Funding Eligibility
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
OMB	Office of Management and Budget
OSWAP	Onsite Wastewater Assistance Program
OWSRF	Office of Water State Revolving Fund
P&D	Planning & Design
PER	Preliminary Engineering Report
PFAS	Perfluoroalkyl and polyfluoroalkyl Substances
POPs	Persistent Organic Pollutants
POTW	Publicly Owned Treatment Works
PPCPs	Pharmaceuticals and Personal Care Products
PPL	Project Priority List

PWS	Public Water Supply
PWSS	Public Water Supply Supervision
SA	Socioeconomic Assessment (Tool)
SDWA	Safe Drinking Water Act
SDWIS	Safe Drinking Water Information System
SEE	Senior Environmental Employee
SFY	State Fiscal Year
SWIFIA	State Infrastructure Financing Authority Water Infrastructure Finance and Innovation Act of 2014
SWP	Stormwater Best Management Practices Program
TA	Technical Assistance
WRRDA	Water Resources Reform and Development Act of 2014

Attachment 1 - DWSRF PPL

This is a separate, sortable Excel File

DWSRF Project Priority List (PPL)

Project Status	Abbreviations
Contingent -- C	BIL GS= Bipartisan Infrastructure Law General Supplemental Fund
Pending Drop -- PD	CAP = Federal Capitalization Grant
Loan Signed -- L	IUP YR = Intended Use Plan Year
Planning Stage -- P	LSL = Lead Service Line
Ready for Loan -- R	P&D = Planning and Design Loan
	PFAS/EC - PFAS Emerging Contaminates
	QTR = State Fiscal Year Quarter

DAC Level	Point Range	Disadvantaged Community (DAC)
Low	0-10	No
Moderate	11-15	Yes
High	16-20	Yes

Loan Forgiveness offered and accepted

Applicant Name	DWSRF No.	Project Description	IUP Yr	Qtr	Priority Points	Pop	Project Status	Current Funding Request	Most Recent Loan	Total Loan Amount To Date	Remaining Amount on IUP	Funding Source			Compliance Project	DAC Score
												Base or BIL GS	PFAS/EC	LSL		
Onslow	PD-DW-26-18	New Well, Booster Station,Water Main Loop, Water Mains replacement	2026	1	P&D	196	P	$ 300,000.00				x				NA
Creston (LSL)	**PD-DW-26-17**	**Lead service line replacement**	**2026**	**1**	**P&D**	**7,536**	**P**	**$ 218,000.00**						**x**		**NA**
Pony Creek HOA	PD-DW-26-16	Transmission main to connect to Glenwood	2026	1	P&D	44	P	$ 176,000.00				x				NA
Corydon	PD-DW-26-15	Water tower replacement and water main improvements	2026	1	P&D	1,526	P	$ 279,000.00				x				NA
Marcus	PD-DW-26-14	Two new wells	2026	1	P&D	1,200	P	$ 230,441.00				x				NA
Central Iowa Water Works (PFAS/EC)	**PD-DW-26-13**	**New wells to offset PFAS contaminated wells for AC Ward Treatment Plant**	**2026**	**1**	**P&D**	**600,000**	**P**	**$ 700,000.00**				**x**				**NA**
Central Iowa Water Works	PD-DW-26-12	12 MGD membrane water treatment plant in Dallas County	2026	1	P&D	600,000	P	$ 22,725,000.00				x				NA
Central Iowa Water Works	PD-DW-26-11	Expansion of Grimes membrane water treatment plant	2026	1	P&D	600,000	P	$ 5,050,000.00				x				NA
Hartley	PD-DW-26-10	Water main improvements	2026	1	P&D	1,605	P	$ 330,000.00				x				NA
Early	PD-DW-26-09	Raw water capacity	2026	1	P&D	581	P	$ 400,000.00				x				NA
Hastings	FS-65-26-DWSRF-001	Water Treatment Improvements	2026	1	70	152	P	$ 895,000.00				x			Yes	11
Norway	FS-06-26-DWSRF-002	Water Pressure Booster Station	2026	1	30	466	P	$ 1,605,000.00				x			Yes	3
Carson	FS-78-26-DWSRF-003	New Deep Well	2026	1	45	766	P	$ 810,000.00				x				11
Kalona	FS-92-26-DWSRF-004	Water Sysatem Improvements	2026	1	40	2690	P	$ 3,607,000.00				x				3
Waukee	FS-25-26-DWSRF-005	CIWW Asset Transfer Purchase Payment	2026	1	0	31645	P	$ 8,743,000.00				x				5
Oskaloosa Municipal Water Department	FS-62-26-DWSRF-006	Distribution System	2026	1	30	11558	P	$ 1,021,000.00				x				13
Ralston	FS-14-26-DWSRF-007	Water System Improvements	2026	1	25	81	P	$ 682,000.00				x				13
Marion County Rural Water District	FS-63-26-DWSRF-008	Water System Improvements	2026	1	45	9196	P	$ 4,837,000.00				x				verify
Marcus	FS-18-26-DWSRF-009	Water System Improvements PER	2026	1	25	1079	P	$ 13,849,000.00				x				6
Long Grove	FS-82-26-DWSRF-010	Plant	2026	1	25	855	P	$ 2,600,000.00				x				3
Onawa	FS-67-26-DWSRF-011	Improvements	2026	1	30	2816	P	$ 19,383,000.00				x				14
Osage	PD-DW-25-38	well	2025	4	P&D	3,627	P	$ 1,130,000.00				x				NA
Macedonia	PD-DW-25-44	New well and backup generator	2025	4	P&D	267	P	$ 103,600.00				x				NA
Urbandale Water Utility	PD-DW-25-46	New 3.0 MGD ASR well, ASR facility and distribution	2025	4	P&D	45,580	P	$ 2,130,000.00				x				NA
Minden	PD-DW-25-47	New drinking water treatment plant, well, distribution main and replacement of the sanitary sewer for the new plant	2025	4	P&D	600	P	$ 625,000.00				x				NA
Sumner	FS-09-25-DWSRF-037	Y Avenue Water Main Looping	2025	4	40	2,175	P	$ 546,000.00				x				11
Villisca	FS-69-25-DWSRF-038	Permanent Groundwater Treatment at Well #3	2025	4	50	1,132	P	$ 300,000.00				x				16
Logan	FS-43-25-DWSRF-039	Water Treatment Facility Improvements	2025	4	25	1,593	P	$ 4,615,000.00				x				10
Fort Dodge	FS-94-25-DWSRF-040	Fort Dodge to Manson Water Main	2025	4	20	1,656	P	$ 1,709,000.00				x			Yes	13
Oakland	FS-78-25-DWSRF-041	Water Treatment Plant Improvements	2025	4	25	1,690	P	$ 13,093,000.00				x				13
Oakland	FS-78-25-DWSRF-042	Water Main Improvements	2025	4	30	1532	P	$ 8,948,000.00				x			Yes	13
Lawler	FS-19-25-DWSRF-035	Well 3 Improvements	2025	3	45	439	P	$ 410,000.00				x				12
Vinton	FS-06-25-DWSRF-036	Water Treatment Improvements	2025	3	40	5148	P	$ 10,044,000.00				x				12
Yale	FS-39-25-DWSRF-032	Water Treatment Filter Replaced	2025	3	35	267	P	$ 482,000.00				x				9
Urbandale Water Utility	FS-77-25-DWSRF-033	170th Street Aquifer Storage and Recovery (ARS) Well Design	2025	3	35	46729	P	$ 14,020,000.00				x				2
Fairfax	FS-57-25-DWSRF-030	Water Supply Treatment Facility & Production Well #5	2025	3	25	2828	P	$ 13,975,000.00				x				2

Applicant Name	DWSRF No.	Project Description	IUP Yr	Qtr	Priority Points	Pop	Project Status	Current Funding Request	Most Recent Loan	Total Loan Amount To Date	Remaining Amount on IUP	Funding Source			Compliance Project	DAC Score
												Base or BIL GS	PFAS/EC	LSL		
Sioux City	FS-97-25-DWSRF-031	Harbor Drive Water Main Upsize	2025	3	20	102218	P	$ 6,440,000.00				x				12
Bayard	PD-DW-25-17	New well, aerator & detention tank, and replacement of distribution system valves and water meters	2025	2	P&D	405	P	$ 70,000.00				x				NA
Moville	FS-97-25-DWSRF-011	Improvements	2025	2	45	1687	P	$ 9,829,000.00				x				1
Bondurant Municipal Water Supply	FS-77-25-DWSRF-016	Water Supply and Treatment Facilities	2025	2	45	9980	P	$ 28,990,000.00				x				2
Ely	FS-52-25-DWSRF-017	Water System Improvements	2025	2	45	2328	P	$ 1,965,000.00				x				4
Carlisle	FS-91-25-DWSRF-019	Carlisle Well Number 7	2025	2	45	6500	P	$ 826,000.00				x				4
Macedonia	FS-78-25-DWSRF-020	Shallow Well Improvements	2025	2	45	270	P	$ 584,000.00				x				4
De Soto	FS-25-25-DWSRF-021	Improvements, and WTP Expansion	2025	2	45	1500	P	$ 5,432,000.00				x				1
Osceola Water Works (LSL)	**FS-20-25-DWSRF-029**	**Lead Service Line Replacement project**	**2025**	**2**	**40**	**5577**	**C**	**$ 2,634,000.00**						**x**		**15**
Altoona	FS-77-25-DWSRF-014	Water System Improvements 2024 - Water Treatment Plant No. 4	2025	2	35	21503	P	$ 50,914,000.00				x				6
Osceola Water Works	FS-20-25-DWSRF-015	Water Treatment Plant Improvements	2025	2	35	5577	P	$ 10,206,000.00				x				15
Belle Plaine	FS-06-25-DWSRF-018	Water Treatment Facility	2025	2	35	2330	P	$ 9,303,000.00				x				14
Lansing (LSL)	**FS-03-25-DWSRF-028**	**Lead Service Line Funding**	**2025**	**2**	**30**	**983**	**C**	**$ 1,965,000.00**						**x**		**16**
Maxwell	FS-85-25-DWSRF-012	Filter Backwash Treatment	2025	2	25	859	P	$ 290,000.00				x				5
Des Moines Water Works (LSL)	**FS-77-25-DWSRF-010**	**Lead Service Line Replacement Phase 2 Project**	**2025**	**2**	**20**	**3000**	**C**	**$ 14,482,000.00**						**x**		**LSL TBD by Census Tract**
IA American Water (Quad Cities) LSL	**FS-82-25-DWSRF-013**	**Quad Cities 2024 Updated Lead Service Line Replacement**	**2025**	**2**	**20**	**137200**	**C**	**$ 12,950,000.00**						**x**		**LSL TBD by Census Tract**
Spencer (LSL)	**FS-21-25-DWSRF-024**	**Lead Service Line Replacement**	**2025**	**2**	**20**	**11413**	**C**	**$ 12,577,000.00**						**x**		**11**
Knoxville (LSL)	**FS-63-25-DWSRF-027**	**Lead Service Line Replacement**	**2025**	**2**	**20**	**14945**	**C**	**$ 295,000.00**						**x**		**12**
Tiffin	PD-DW-24-72	New osmosis treatmetnt system	2025	1	P&D	5282	P	$ 826,000.00				x				NA
Decorah	FS-96-25-DWSRF-004	Water Meter Replacement	2025	1	40	7700	P	$ 1,407,000.00				x				11
Poweshiek Water Association	FS-86-25-DWSRF-005	Distribution System Improvements PWA - 2024	2025	1	30	24639	P	$ 20,472,000.00				x				Verify
Prairie City	FS-50-25-DWSRF-007	Phase 3 Water Main Replacement	2025	1	30	1700	P	$ 1,576,000.00				x				2
Sully	FS-50-25-DWSRF-002	Water Distribution System Improvements	2025	1	30	881	P	$ 1,690,000.00				x				4
Tabor	FS-36-25-DWSRF-003	Water System Improvements	2025	1	30	1014	R	$ 2,404,000.00				x				11
Tiffin	FS-52-25-DWSRF-001	Water Treatment Improvement	2025	1	25	5282	R	$ 13,186,000.00				x				4
Ankeny	FS-77-25-DWSRF-009	SW Walnut Street and SW Ordance Road Water Main	2025	1	20	70287	R	$ 2,430,000.00				x				2
Boone	PD-DW-24-61	Rehab of 2 MG ground storage reservoir	2024	4	P&D	12460	P	$ 200,000.00				x				NA
Correctionville	FS-97-24-DWSRF-046□	Water System Improvements	2024	4	55	766	P	$ 5,210,000.00				x				14
New Albin	FS-03-24-DWSRF-042□	Well #2 Improvements	2024	4	55	500	P	$ 700,000.00				x				12
Oakland	FS-78-24-DWSRF-047□	2023 Water Supply Wells	2024	4	45	1711	R	$ 2,531,000.00				x				13
Urbana	FS-06-24-DWSRF-045□	2025 Water System Improvements	2024	4	45	1590	P	$ 3,388,000.00				x				4
Creston	FS-88-24-DWSRF-041□	Water Distribution System Improvements	2024	4	40	7536	R	$ 5,804,000.00				x				18
Creston (LSL)	**FS-88-24-DWSRF-041L□**	**Lead Service Line**	**2024**	**4**	**40**	**7536**	**R**	**$ 196,000.00**						**x**		**18**
Coralville	FS-52-24-DWSRF-049□	Well 16 Improvements	2024	4	35	21630	R	$ 3,120,000.00				x				4
Eldora	FS-42-24-DWSRF-051□	SCADA Upgrade	2024	4	35	2700	P	$ 263,000.00				x				14
Prairie City	FS-50-24-DWSRF-050□	Phase 2 Water Main Replacement	2024	4	30	1700	R	$ 924,000.00				x				6
Council Bluffs	FS-78-24-DWSRF-048□	CBWW Narrows WTP High Service Pump Station	2024	4	25	63000	P	$ 22,494,000.00				x				13
Muscatine Power & Water (LSL)	**FS-70-24-DWSRF-052□**	**Lead Service Line Replacement**	**2024**	**4**	**20**	**23474**	**C**	**$ 1,830,000.00**						**x**		**14**
Fort Dodge	PD-DW-24-52	Supplemental to Future Needs PER P&D	2024	3	P&D	25206	P	$ 92,000.00				x				NA
Knoxville	PD-DW-24-34	Replacing Well #2 and Recasing Well #3	2024	3	P&D	14945	P	$ 230,000.00				x				NA
La Motte	FS-49-24-DWSRF-030	Proposed Municipal Well #3	2024	3	55	237	P	$ 1,573,000.00				x				7
Greenfield Municipal Utilities	FS-01-24-DWSRF-036	Water Treatment Plant Improvements	2024	3	45	2062	P	$ 20,000,000.00				x				16
Knoxville	FS-63-24-DWSRF-032	Deep Well No 2 and 3 Evaluation	2024	3	45	8480	P	$ 5,701,000.00				x				12
Keokuk	FS-56-24-DWSRF-034	2023 System Improvements	2024	3	40	9900	P	$ 3,518,000.00				x				19
Lansing	FS-03-24-DWSRF-039	Platt, 4th &North St Utility Improvement	2024	3	40	968	R	$ 363,000.00				x				16
Marble Rock	FS-34-24-DWSRF-031	Project	2024	3	40	271	R	$ 811,000.00				x				12
Norwalk	FS-91-24-DWSRF-038	Norwalk Central Water Tower	2024	3	35	12799	P	$ 6,380,000.00				x				4
Grinnell (LSL)	**FS-79-24-DWSRF-037**	**Lead Service Line Replacement Program**	**2024**	**3**	**30**	**9564**	**C**	**$ 1,002,000.00**						**x**		**11**

Applicant Name	DWSRF No.	Project Description	IUP Yr	Qtr	Priority Points	Pop	Project Status	Current Funding Request	Most Recent Loan	Total Loan Amount To Date	Remaining Amount on IUP	Funding Source			Compliance Project	DAC Score
												Base or BIL GS	PFAS/EC	LSL		
Kingsley	FS-75-24-DWSRF-040	Water System Improvements	2024	3	25	1396	P	$ 7,136,000.00				x				2
Central City (PFAS/EC)	**FS-57-24-DWSRF-027**	**New Well (PFAS)**	**2024**	**2**	**80**	**1264**	**P**	**$ 2,085,000.00**				**x**	**x**		**Yes**	**9**
Meservey	FS-17-24-DWSRF-017	Phase 1 Water Supply System Improvements Project	2024	2	55	222	R	$ 548,000.00				x				13
Tama (PFAS/EC)	**FS-86-24-DWSRF-014**	**Water Treatment Plant Improvements (PFAS)**	**2024**	**2**	**55**	**2745**	**P**	**$ 3,941,000.00**				**x**	**x**		**Yes**	**15**
Ellsworth	FS-40-24-DWSRF-025	Elevated Tower Improvements	2024	2	45	508	P	$ 3,123,000.00				x				10
Fairfax	FS-57-24-DWSRF-020	Production Well #4	2024	2	45	2828	R	$ 555,000.00				x				2
Wellman	FS-92-24-DWSRF-012	Water System Improvements: Distribution & Supply	2024	2	45	1524	P	$ 5,776,000.00				x				10
Le Grand	FS-64-24-DWSRF-026	2023 Water Distribution Improvements	2024	2	40	905	R	$ 396,000.00				x				12
Des Moines Water Works	FS-77-24-DWSRF-021	2023 Aquifer Storage and Recovery (ASR) Well	2024	2	35	600000	R	$ 12,700,000.00				x				Verify
Newton	FS-50-24-DWSRF-015	Newton Jordan Well	2024	2	35	16391	P	$ 6,392,000.00				x				15
Greene	FS-12-24-DWSRF-018	2024 Water System Improvements Project	2024	2	30	990	R	$ 694,000.00				x				16
Madrid	FS-08-24-DWSRF-028	Well #10 Access Road Phase 2	2024	2	30	2802	P	$ 129,000.00				x				6
Cedar Rapids (LSL)	**FS-57-24-DWSRF-023**	**LSL F Ave NW and 13th St NW Water Service Line Transfers**	**2024**	**2**	**20**	**141063**	**C**	**$ 241,000.00**						**x**		**9- LSL TBD by Census Tract**
Cedar Rapids (LSL)	**FS-57-24-DWSRF-024**	**2024 Lead Service Line Replacement Project**	**2024**	**2**	**20**	**141063**	**C**	**$ 5,548,000.00**						**x**		**9- LSL TBD by Census Tract**
Iowa Lakes Regional Rural Water	FS-30-24-DWSRF-013	Orleans Expansion Project	2024	2	20	15000	R	$ 4,014,000.00				x				7
Grinnell	FS-79-24-DWSRF-006	Water System Improvements	2024	1	90	9564	L	$ 35,000,000.00	11/22/2024	$ 6,123,000.00	$ 28,877,000.00	x			Yes	11

Applicant Name	DWSRF No.	Project Description	IUP Yr	Qtr	Priority Points	Pop	Project Status	Current Funding Request	Most Recent Loan	Total Loan Amount To Date	Remaining Amount on IUP	Funding Source			Compliance Project	DAC Score
												Base or BIL GS	PFAS/EC	LSL		
Rock Valley (PFAS/EC)	**FS-84-24-DWSRF-001**	**Water System Study Phase II - System Improvements**	**2024**	**1**	**55**	**3730**	**R**	**$ 726,000.00**				**x**	**x**		**Yes**	**7**
Des Moines Water Works	FS-77-24-DWSRF-005	Saylorville Water Treatment Plant (SWTP) Capacity Expansion - Raw Water Supply & Treatment	2024	1	30	600000	P	$ 150,750,000.00				x				Verify
Fort Dodge	FS-94-24-DWSRF-007	Water Main Replacement	2024	1	30	24912	R	$ 11,217,000.00				x				18
Council Bluffs (LSL)	**FS-78-24-DWSRF-009**	**Lead Service Line Replacement**	**2024**	**1**	**20**	**62799**	**C**	**$ 2,525,000.00**						**x**		**13**
Des Moines Water Works (LSL)	**FS-77-24-DWSRF-008**	**Lead Service Line Replacement Phase 1 Project**	**2024**	**1**	**20**	**600000**	**C**	**$ 12,070,000.00**						**x**		**LSL TBD by Census Tract**
Dubuque (Phase 2 LSL)	**FS-31-24-DWSRF-010**	**Lead Service Line Replacement Phase 2**	**2024**	**1**	**20**	**58983**	**C**	**$ 2,000,000.00**						**x**		**9- LSL TBD by Census Tract**
Dubuque (Phase 3 LSL)	**FS-31-24-DWSRF-011**	**Lead Service Line Replacement Phase 3**	**2024**	**1**	**20**	**58983**	**C**	**$ 1,907,000.00**						**x**		**9- LSL TBD by Census Tract**
Burlington (PFAS/EC)	**FS-29-23-DWSRF-085**	**Water Supply and Treatment Improvements**	**2023**	**4**	**60**	**23713**	**P**	**$ 3,499,000.00**				**x**	**x**		**Yes**	**17**
Burlington (PFAS/EC)	**FS-29-23-DWSRF-084**	**New Jordan Wells Project**	**2023**	**4**	**45**	**23713**	**P**	**$ 16,356,000.00**				**x**	**x**		**Yes**	**17**
Lake City	FS-13-23-DWSRF-068	Well No. 6 and Well No. 7	2023	4	45	1992	P	$ 1,750,000.00				x				12
Schaller	**FS-81-23-DWSRF-082**	**Wells**	**2023**	**4**	**45**	**729**	**P**	**$ 1,309,000.00**				**x**				**9**
Schaller (PFAS/EC)	**FS-81-23-DWSRF-082EC**	**Pilot Study and manganese treatment**	**2023**	**4**	**45**	**729**	**P**	**$ 5,719,000.00**					**x**		**Yes**	**9**
Lime Springs	FS-45-23-DWSRF-083	2024 Street and Utility Improvements Project	2023	4	40	473	P	$ 5,507,000.00				x				9
Marshalltown Water Works	FS-64-23-DWSRF-079	New 6 MGD RO Membrane Process Train	2023	4	35	27591	P	$ 36,254,000.00				x				15
Palmer	FS-76-23-DWSRF-074	Water System Improvement	2023	4	35	138	R	$ 615,000.00				x				12
Burlington (LSL)	**FS-29-23-DWSRF-086**	**Lead Service Line Replacement**	**2023**	**4**	**30**	**23713**	**R**	**$ 788,000.00**						**x**		**17**
Emmetsburg	FS-74-23-DWSRF-071	Water Treatment Improvements-Reverse Osmosis	2023	4	25	3706	P	$ 10,215,000.00				x				13
Dubuque	FS-31-23-DWSRF-080	Supervisory Control and Data Acquisition (SCADA) Upgrade	2023	4	15	58983	R	$ 2,170,000.00				x				9
Hinton	FS-75-23-DWSRF-034	Water Treatment Plant Improvements and Expansion	2023	3	60	947	P	$ 7,286,000.00				x				2
Central City	FS-57-23-DWSRF-025	New Elevated Storage Tank	2023	3	45	1264	P	$ 4,179,000.00				x				9
Thompson	FS-95-23-DWSRF-020	Water Main Replacement	2023	3	40	502	P	$ 451,000.00				x				11
Iowa American Water - Quad Cities	FS-82-23-DWSRF-026	Quad Cities Elevated Storage Tank and Booster Station	2023	3	35	52807	P	$ 8,362,000.00				x				13
Clarence	FS-16-23-DWSRF-022	7th Ave Water Main	2023	3	30	1039	R	$ 2,392,000.00				x				13
Hiawatha	FS-57-23-DWSRF-023	Rd	2023	3	30	7935	L	$ 1,665,000.00	9/13/2024	$ 434,000.00	$ 1,231,000.00	x				10
Johnston	FS-77-23-DWSRF-029	NW 78th Ave and NW Beaver Drive)	2023	3	20	24195	R	$ 21,536,000.00				x				4
Dubuque (Phase 1 LSL)	**FS-31-23-DWSRF-012**	**Lead Service Line Replacement Phase 1**	**2023**	**2**	**20**	**58983**	**R**	**$ 1,941,000.00**						**x**		**9- LSL TBD by Census Tract**
Mount Vernon	FS-57-23-DWSRF-004	Water Meter Replacement	2023	1	30	4527	P	$ 905,000.00				x				9
Dedham	FS-14-22-DWSRF-032	Water System Improvements	2022	4	60	224	R	$ 877,000.00				x				5
Wahpeton	FS-30-22-DWSRF-031	Water System Improvements	2022	4	45	344	P	$ 12,695,000.00				x				4
Pocahontas	FS-76-22-DWSRF-038	Water System Improvements	2022	4	25	6267	P	$ 2,825,000.00				x				14
Manson	FS-13-22-DWSRF-023	Connection from Manson to Fort Dodge Municipal Water System	2022	3	45	1690	R	$ 8,167,000.00				x			Yes	7
Dubuque	FS-31-22-DWSRF-025	2022 Water System Improvements	2022	3	35	58983	P	$ 15,565,000.00				x				9
Nashua	FS-19-22-DWSRF-016	Greeley Street Water & Sanitary Improvements	2022	2	30	1663	P	$ 259,000.00				x				11
Waukee	FS-25-21-DWSRF-004	ASR Well	2021	1	35	17945	R	$ 3,567,750.00				x				2

Applicant Name	DWSRF No.	Project Description	IUP Yr	Qtr	Priority Points	Pop	Project Status	Current Funding Request	Most Recent Loan	Total Loan Amount To Date	Remaining Amount on IUP	Funding Source: Base or BIL GS	Funding Source: PFAS/EC	Funding Source: LSL	Compliance Project	DAC Score
MacBride Pointe	FS-52-20-DWSRF-019	Water Supply Improvements	2020	3	60	100	P	$ 210,000.00				x			Yes	-
Somers	FS-13-19-DWSRF-028	Municipal Water Filtration Improvements	2019	4	35	113	L	$ 355,000.00	4/25/2025	$ 244,000.00	$ 111,000.00	x				12
								$ 907,536,791.00		$ 6,801,000.00						

PFAS/EC Projects -- information extracted from the Project Priority List above												Funding Source			
Project Name	DWSRF No.	Project Description	IUP Yr	Qtr	Priority Points	Pop	Project Status	Current Funding Request	Most Recent Loan	Total Loan Amount To Date	Remaining Amount on IUP	Base BIL GS	PFAS/EC	LSL	
Tama (PFAS/EC)	FS-86-24-DWSRF-014	Water Treatment Plant Improvements (PFAS)	2024	2	55	2745	P	$ 3,941,000.00				x	x		
Central City (PFAS/EC)	FS-57-24-DWSRF-027	New Well (PFAS)	2024	2	80	1264	P	$ 2,085,000.00				x	x		
Rock Valley (PFAS/EC)	FS-84-24-DWSRF-001	Water System Study Phase II - System Improvements	2024	1	55	3730	P	$ 726,000.00				x	x		
Burlington (PFAS/EC)	FS-29-23-DWSRF-084	New Jordan Wells Project	2023	4	45	23713	P	$ 16,356,000.00				x	x		
Burlington (PFAS/EC)	FS-29-23-DWSRF-085	Water Supply and Treatment Improvements	2023	4	60	23713	P	$ 3,499,000.00				x	x		
Schaller (PFAS/EC)	FS-81-23-DWSRF-082EC	Water System Improvements	2023	4	45	729	P	$ 5,719,000.00				x	x		
Central Iowa Water Works (PFAS/EC)	PD-DW-26-13	New wells to offset PFAS contaminated wells for AC Ward Treatment Plant	2026	1	P&D	600,000	P	$ 700,000.00				x	x		
								$ 33,026,000.00		$ -					

Lead Service Line Projects -- information extracted from the Project Priority List above												Funding Source		
Project Name	DWSRF No.	Project Description	IUP Yr	Qtr	Priority Points	Pop	Project Status	Current Funding Request	Most Recent Loan	Total Loan Amount To Date	Remaining Amount on IUP	Base BIL GS	PFAS/EC	LSL
Creston (LSL)	PD-DW-26-17	Lead service line replacement	2026	1	P&D	7,536	P	$ 218,000.00				x		x
Osceola Water Works (LSL)	FS-20-25-DWSRF-029	Lead Service Line Replacement project	2025	2	40	5577	C	$ 2,634,000.00				x		x
Lansing (LSL)	FS-03-25-DWSRF-028	Lead Service Line Funding	2025	2	30	983	C	$ 1,965,000.00				x		x
Des Moines Water Works (LSL)	FS-77-25-DWSRF-010	Lead Service Line Replacement Phase 2 Project	2025	2	20	3000	C	$ 14,482,000.00				x		x
IA American Water (Quad Cities) LSL	FS-82-25-DWSRF-013	Quad Cities 2024 Updated Lead Service Line Replacement	2025	2	20	137200	C	$ 12,950,000.00				x		x
Spencer (LSL)	FS-21-25-DWSRF-024	Lead Service Line Replacement	2025	2	20	11413	C	$ 12,577,000.00				x		x
Knoxville (LSL)	FS-63-25-DWSRF-027	Lead Service Line Replacement	2025	2	20	14945	C	$ 295,000.00				x		x
Creston (LSL)	FS-88-24-DWSRF-041L	Lead Service Line	2024	4	40	7536	R	$ 196,000.00				x		x
Muscatine Power & Water (LSL)	FS-70-24-DWSRF-052	Lead Service Line Replacement	2024	4	20	23474	C	$ 1,830,000.00				x		x
Grinnell (LSL)	FS-79-24-DWSRF-037	Lead Service Line Replacement Program	2024	3	30	9564	C	$ 1,002,000.00				x		x
Cedar Rapids (LSL)	FS-57-24-DWSRF-023	LSL F Ave NW and 13th St NW Water Service Line Transfers	2024	2	20	141063	C	$ 241,000.00				x		x
Cedar Rapids (LSL)	FS-57-24-DWSRF-024	2024 Lead Service Line Replacement Project	2024	2	20	141063	C	$ 5,548,000.00				x		x
Council Bluffs (LSL)	FS-78-24-DWSRF-009	Lead Service Line Replacement	2024	1	20	62799	C	$ 2,525,000.00				x		x
Des Moines Water Works (LSL)	FS-77-24-DWSRF-008	Lead Service Line Replacement Phase 1 Project	2024	1	20	600000	C	$ 12,070,000.00				x		x
Dubuque (Phase 2 LSL)	FS-31-24-DWSRF-010	Lead Service Line Replacement Phase 2	2024	1	20	58983	C	$ 2,000,000.00				x		x
Dubuque (Phase 3 LSL)	FS-31-24-DWSRF-011	Lead Service Line Replacement Phase 3	2024	1	20	58983	C	$ 1,907,000.00				x		x
Burlington (LSL)	FS-29-23-DWSRF-086	Lead Service Line Replacement	2023	4	30	23713	R	$ 788,000.00				x		x
Dubuque (Phase 1 LSL)	FS-31-23-DWSRF-012	Lead Service Line Replacement Phase 1	2023	2	20	58983	R	$ 1,941,000.00				x		x
								$ 75,169,000.00						