

**MINUTES OF THE
ENVIRONMENTAL PROTECTION COMMISSION
MEETING**

December 19, 2017

**DNR Field Office 5
7900 Hickman Road, Windsor Heights, Iowa**

Approved by the Commission 1-17-17

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Meeting Minutes

CALL TO ORDER

The meeting of the Environmental Protection Commission was called to order by Chairperson Chad Ingels at 10:00 a.m. on December 19, 2017 at the DNR Field Office 5 in Windsor Heights.

COMMISSIONERS PRESENT

- Mary Boote
- Nancy Couser
- Howard Hill
- Barbara Hovland
- Chad Ingels, Chair
- Ralph Lents, Vice Chair
- Joe Riding, Secretary

COMMISSIONERS ABSENT

- Rebecca Guinn
- Bob Sinclair

APPROVAL OF AGENDA

Motion was made by Mary Boote to approve the agenda as presented. Seconded by Joe Riding. Motion passes.

APPROVED AS PRESENTED

APPROVAL OF MINUTES

Motion was made by Joe Riding to approve the November 21, 2017 EPC minutes as presented. Seconded by Barbara Hovland. Motion passes.

APPROVED AS PRESENTED

MONTHLY REPORTS

Bill Ehm summarized for the Commission the office move for the Air Quality Bureau from its location on Hickman Road to the Wallace Building. He shared with the Commission the anticipation of budget challenges in the next year. He is hoping the agency can absorb the reductions through holding positions open from retirements and people leaving the agency. He also shared the Department’s legislative initiatives are making their way through the process.

Bill Ehm distributed a handout summarizing the AFO EPA Workplan objectives and unclassified sites. There is still more work to do but there is a plan for moving forward. He described the differences between federal and state law for concentrated and confined animal feeding operations.

The monthly report(s) has been posted on the DNR website under the appropriate meeting month: <http://www.iowadnr.gov/About-DNR/Boards-Commissions>

INFORMATION

PUBLIC COMMENT**Teri Goodmann – City of Dubuque**

Teri Goodmann introduced herself as an employee for the City Manager for the City of Dubuque and deferred her time to Laura Carstens.

Laura Carstens – City of Dubuque

Laura Carstens introduced herself as a City Planner for the City of Dubuque and highlighted their watershed project to improve water quality. The project would focus on best management practices to reduce rain water runoff and increase infiltration. EPC's approval of the SRF sponsored project would enable the use of the best management practices to reduce adverse effects from stormwater runoff.

Erica Blair – Iowa Citizens for Community Improvement (ICCI)

Erica Blair shared with the Commission the December meeting would be their last meeting for 2017. This past year has been a whirlwind – both good and bad. More people are taking action and fighting back on the attack on their health through letters to the editors and counties asking for resolutions. ICCI is doing what it can to keep factory farms in check. The bad news is the EPC is not doing its job which is evident in the drafts of the annual report. She believes the annual report is a joke and a slap in the face for thousands of Iowans who wish for the Commission to protect the environment. She would like to see the report include local control and a moratorium on factory farms until there are less than 100 polluted waterways.

Nick Schutt – Iowa Citizens for Community Improvement (ICCI)

Nick Schutt shared with the Commission that his prediction that the Prestage slaughterhouse would bring more animal feeding operations is coming true as construction permits have increased. Iowa Select is planning more sites across Iowa. Citizens are uprising against these new sites. Even though the county disapproves the construction permit, the DNR turns around and approves the permit. The people have spoken and they don't want factory farms. He asked the Commission to listen to the people and not allow Iowa Select Farms to have more sites. He lives next to a factory farm and it is embarrassing. His own family doesn't want to visit him because it stinks. He asked for a moratorium on new factory farms until there are less than 100 polluted waterways.

Ruth Van Antwerp – Iowa Citizens for Community Improvement (ICCI)

Ruth Van Antwerp shared with the Commission the inappropriate siting of a facility in Clayton County that the DNR is going out of its way to help build. Walz Energy is building a 10,000 head farm and does not have the right permits and the DNR knows about it and is continuing to let them build. This facility will be next to a trout stream and is in karst terrain which a manure spill will quickly pollute. Lagoons are not allowed in karst terrain but the DNR is allowing a lagoon with a clay layer. She believes if a lagoon is going to be built in such a fragile area, it should be made of concrete. The neighbors in the area are scared they are going to lose their lifestyle. She does not believe a digester is environmentally friendly nor is it a sustainable system.

Patti McKee – Iowa Citizens for Community Improvement (ICCI)

Patti McKee shared with the Commission she is glad the DNR is starting to check the 5,000 factory farms that have not been monitored in the past. The DNR estimates 25% are medium sized facilities and will require an inspection and manure management plan. She showed a map of Iowa with dots for the existing sites and is worried even more dots are going to be added to the map. She questioned when is enough going to be enough. She asked the Commission to tell the legislature we need a moratorium. She asked the Commission to deny the Iowa Select confinements. As a Des Moines Water Works fee payer, she pays for the cleanup of nitrogen in the water and she is tired of paying for others to pollute.

Paula Egen – Iowa Citizens for Community Improvement (ICCI)

Paula Egen shared with the Commission items she feels are missing from the annual report like the DNR firing of the AFO Coordinator Dr. Gene Tinker. She summarized an editorial from the Storm Lake Times in which Dr. Tinker smelled his own demise after the Iowa Farm Bureau and Pork Producers met with Director Chuck Gipp complaining about Dr. Tinker educating the county boards. Within three weeks, Dr. Tinker was fired. Since then, there have been claims of the AFO funds being misused. After an investigation in 2018, we will find out. She asked the Commission to issue a stronger report recommending a moratorium.

Phyllis Burget – Iowa Citizens for Community Improvement (ICCI)

Phyllis Burget believes the Commission forgot to include in its annual report information about strengthening the master matrix. The EPC is passing the buck to strengthen the master matrix and close the loopholes. ICCI held community meetings to gather feedback from over 1,400 lowans who wished for the EPC to use its authority to improve their lives. Instead of starting the rulemaking process you denied the petition. Writing something to the legislature is the least the Commission can do. She and her husband drove to West Union throughout beautiful farmland but every once in a while, they had to hold their noses because it smelled so bad.

Mary Ann Koch – Iowa Citizens for Community Improvement (ICCI)

Mary Ann Koch believes lowans are becoming more and more aware of their environment. Earlier, the DNR suggested to reduce E.coli testing. ICCI worked with over 700 lowans to call the DNR out and get its attention. Citizens and ICCI will continue to organize until a moratorium is in place. She asked the Commission for a stronger report to include a moratorium on confinement operations. The DNR is experiencing budget cuts so instead of spreading the agency thinner, she suggested limiting the agency's work by not allowing any more CAFOs.

Rob Eschieland – Iowa Citizens for Community Improvement (ICCI)

Rob Eschieland encouraged the Commission to include in its report that 2017 was a year of resistance. There were 21 counties who spoke up in one way or another calling for a moratorium, local control, and a stronger permitting process. He showed a map of the counties of Iowa that highlighted the 21 counties who want stronger rules. He asked the Commission to join the counties and ICCI.

Michael McKinnley – Iowa Citizens for Community Improvement (ICCI)

Michael McKinnley pointed out to the Commission public opinion was missing from the annual report. In 2017 three major newspapers supported a moratorium on CAFOs, local control, and stronger permitting. He inquired on which side of history the Commission will be on. The upcoming Governor campaign will bring CAFOs to the forefront of the debate. Already, 3 of the candidates have made CAFOs an issue in their campaign. He believes the Commission's job is to protect the environment and not factory farms.

Betty Salmon – Iowa Citizens for Community Improvement (ICCI)

Betty Salmon shared with the Commission her desire to see more in the annual report about the Clean Water Act (CWA). This year was the last year for the DNR to come into compliance with the CWA. Next year when the EPA audits the DNR, we will see if the DNR has been effective in implementing the CWA permits. She believes all factory farms should be issued a CWA permit and have good inspections conducted to really find problems and fix them before it becomes an issue. Tougher fines and penalties would deter future spills.

Shari Hawk – Iowa Citizens for Community Improvement (ICCI)

Shari Hawk believes the human impact of CAFOs is missing from the annual report. She is struggling with the probability the EPC is about to make life more miserable and dangerous for lowans. Lowans are expecting the EPC to protect the environment. The EPC continually fails to hear the repeated cries and voices of those impacted by CAFOs. The DNR continues to approve construction permits that destroy the quality of lives of neighbors and children. She doesn't want Iowa to be considered the sewer of America.

Joe Fagan – Iowa Citizens for Community Improvement (ICCI)

Joe Fagan has been around for a while and remembers Iowa Select’s history over the past 22 years and it is still doing badly. He asked the Commission to deny all of the Iowa Select factory farm proposed sites. It is the job of the EPC to protect the environment and not the polluters. He asked the Commission to protect the environment and the people living near these sites even if personally a Commissioner has a conflict of interest.

Jess Mazour – Iowa Citizens for Community Improvement (ICCI)

Jess Mazour shared with the Commission people believe ICCI members are confrontational but they are angry. She is angry because there are 10,000 factory farms where she grew up and where she wants to raise a family. She is mad as hell factory farms are dumping untreated manure on our land. The DNR is misleading the public on how many CAFOs are going to be medium or large facilities. She feels ICCI does everything in its power to do the Commission’s job. Historically, asking nicely has not worked. ICCI is going to show up at every meeting. She wants to see the loopholes for sites with LLC ownership closed, proper measurements for separation distance, and a prohibition on sites 10% open from being considered an open feedlot. She wants to close the loophole allowing a violation history to be erased just because a site changes its name. She believes draft 1 of the annual report is mediocre while draft 2 says nothing about AFOs, and draft 3 uses industry talking points.

- No written comments were submitted.

END OF PUBLIC COMMENT

DIRECTORS REMARKS

Director Chuck Gipp was not in attendance.

INFORMATION

CLEAN WATER AND DRINKING WATER STATE REVOLVING LOAN FUND – THIRD QUARTER UPDATES TO FY 2018 INTENDED USE PLANS

Patti Cale-Finnegan presented to Commissioners the intended use plans for the SRF. She shared the approach for deferring projects until a date when the project is closer to implementing the phase. Applicants not selected are offered a consultation to improve the application. She summarized the review of projects and selecting the priorities along with working with Iowa Finance Authority on adjustments to the fund cap. She shared the process for the Natural Heritage Foundation to purchase property which is often low production areas. Often times the Foundation is approached by a land owner to negotiate a price while other times the price is so low it is like a donation and sometimes it is purchased at a public auction. The DNR doesn’t determine property prices and is only a potential loan provider.

Motion was made by Mary Boote to approve the agenda item as presented. Seconded by Howard Hill. Motion passes.

APPROVED AS PRESENTED

FINAL ADOPTION, CHAPTER 64, “WASTEWATER CONSTRUCTION AND OPERATION PERMITS” – GENERAL PERMITS 1-3

Joe Griffin presented to Commissioners water quality general permits as final. He answered questions from the Commission about the benefits of the new turnaround time for reporting.

Motion was made by Howard Hill to approve the agenda item as presented. Seconded by Ralph Lents. Motion passes.

APPROVED AS PRESENTED

ADOPTED AND FILED – UPDATE TO WASTELOAD ALLOCATION PROCEDURE DOCUMENT CHAPTER 61, “WATER QUALITY STANDARDS” AND CHAPTER 62, “EFFLUENT AND PRETREATMENT STANDARDS: OTHER EFFLUENT LIMITATIONS OR PROHIBITIONS”

Matthew Dvorak presented to Commissioners water quality rules to begin the rulemaking process. He clarified for the Commission E.coli single testing for beaches and recreational areas was never proposed to be removed for public health warnings but was proposed to be removed as a long term assessment method.

Motion was made by Mary Boote to approve the agenda item as presented. Seconded by Ralph Lents. Motion passes.

APPROVED AS PRESENTED

DRINKING WATER FACILITY NPDES PERMIT EDUCATIONAL PRESENTATION

David Schelling provided an educational presentation on how the wasteload for a drinking water facility is calculated and permitted. In the presentation he shared how water is removed, treated, and residual wastes placed back in the stream. Wastewater is governed by the Clean Water Act and drinking water is regulated under the Safe Drinking Water Act. He provided different examples of facilities and how they handle different situations like salt, nitrates, and sulfates. He also discussed compliance schedules. Many drinking water facilities are utilizing wells to obtain their water rather than surface water from lakes and rivers because wells do not have as many contaminants to remove.

INFORMATIONAL

FINAL ADOPTION – CHAPTER 64 – RENEWAL OF PRIVATE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT 4

Danial Olson presented to Commissioners water quality rules as final.

Motion was made by Mary Boote to approve the agenda item as presented. Seconded by Nancy Couser. Motion passes.

APPROVED AS PRESENTED

NOTICE OF INTENDED ACTION: CHAPTERS 40, 41, 42, 43, 44, 81, 83

Diane Moles presented to Commissioners drinking water rules to begin the rulemaking process. She also shared there are about 200 seasonal systems which can include parks, golf courses, and ski resorts which are open seasonally. Drinking water systems are required to provide testing results to homeowners, factories, schools, etc.

Motion was made by Barbara Hovland to approve the agenda item as presented. Seconded by Ralph Lents. Motion passes.

APPROVED AS PRESENTED

EPC ANNUAL REPORT

Secretary Joe Riding provided the Commission three different drafts of the proposed Annual Report. He explained the differences between the three versions. Commissioners discussed their pros and cons for each of the reports.

Motion was made by Ralph Lents to approve the Draft 3 version of the annual report. Seconded by Mary Boote. Joe Riding-nay, Bob Sinclair-absent, Ralph Lents-yea, Howard Hill-yea, Nancy Couser-yea, Rebecca Guinn-absent, Barbara Hovland-yea, Mary Boote-yea, and Chad Ingels-ye,. Motion passes.

DRAFT 3 OF THE EPC ANNUAL REPORT APPROVED

NOTICE OF INTENDED ACTION –CHAPTER 111, ANNUAL REPORTS OF SOLID WASTE ENVIRONMENTAL MANAGEMENT SYSTEMS

Leslie Goldsmith presented to Commissioners land quality rules to begin the rulemaking process. She also shared the program is voluntary and not a right fit for all solid waste planning areas.

Motion was made by Mary Boote to approve the agenda item as presented. Seconded by Barbara Hovland. Motion passes.

APPROVED AS PRESENTED

ENVIRONMENTAL MANAGEMENT SYSTEM PROGRAM FISCAL YEAR 2017 ANNUAL REPORT

Leslie Goldsmith summarized the annual report for the Commission. She inquired whether the format and content meets the Commission’s needs and received favorable comments.

INFORMATION

PROPOSED CONTESTED CASE DECISION –DIANA COSTELLO

Carrie Schoenebaum summarized the proposed decision by the Administrative Law Judge and the options for the Commission to approve, deny, or take no action on the matter which would affirm the ALJ’s decision.

NO ACTION TAKEN

GENERAL DISCUSSION

- Board Administrator Jerah Sheets thanked the Commissioners for their flexibility with the December agenda changing multiple times as topics arose.
- Bill Ehm summarized the permitting process for Walz Energy, including the necessary stormwater permit.
- Commissioners discussed the proper way to close an abandoned well and who to contact.
- Board Administrator Jerah Sheets shared the logistics of the upcoming meetings.

Chairperson Ingels adjourned the Environmental Protection Commission meeting at 12:28p.m., Tuesday, December 19, 2017.

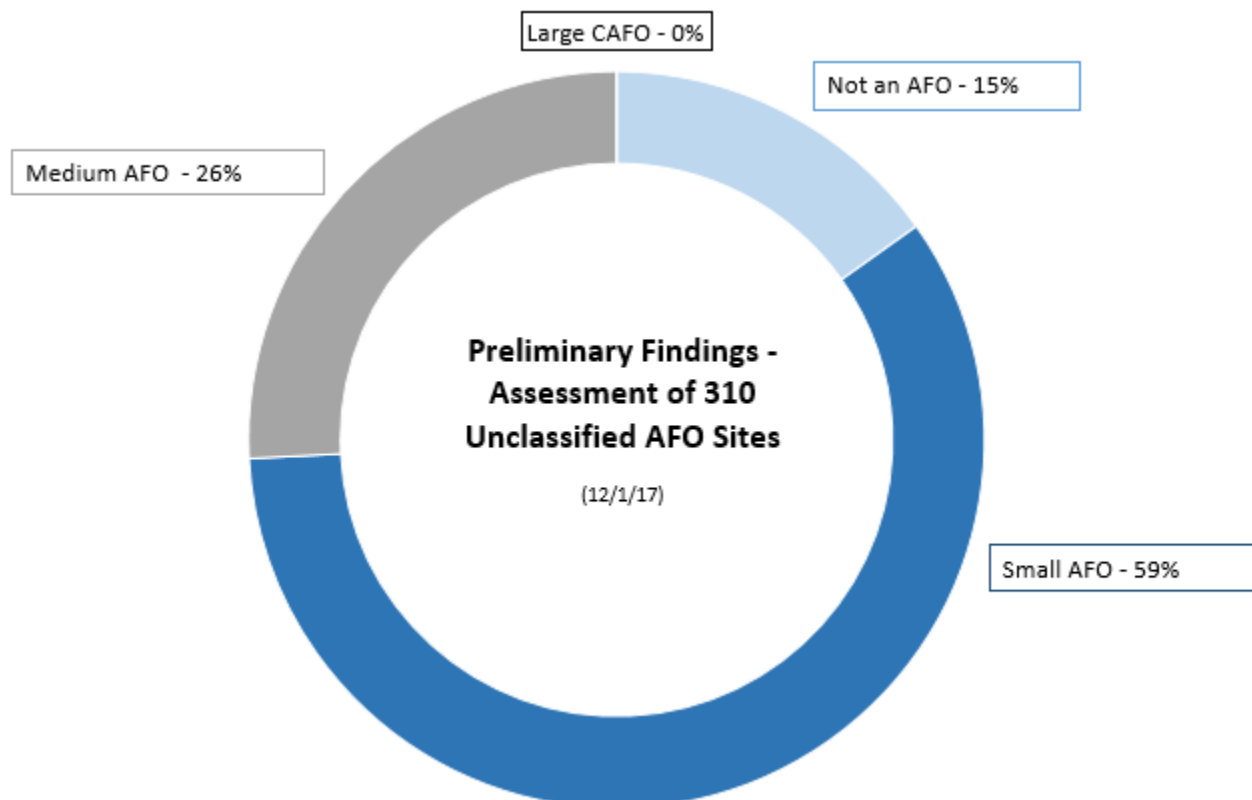
IOWA DEPARTMENT OF NATURAL RESOURCES

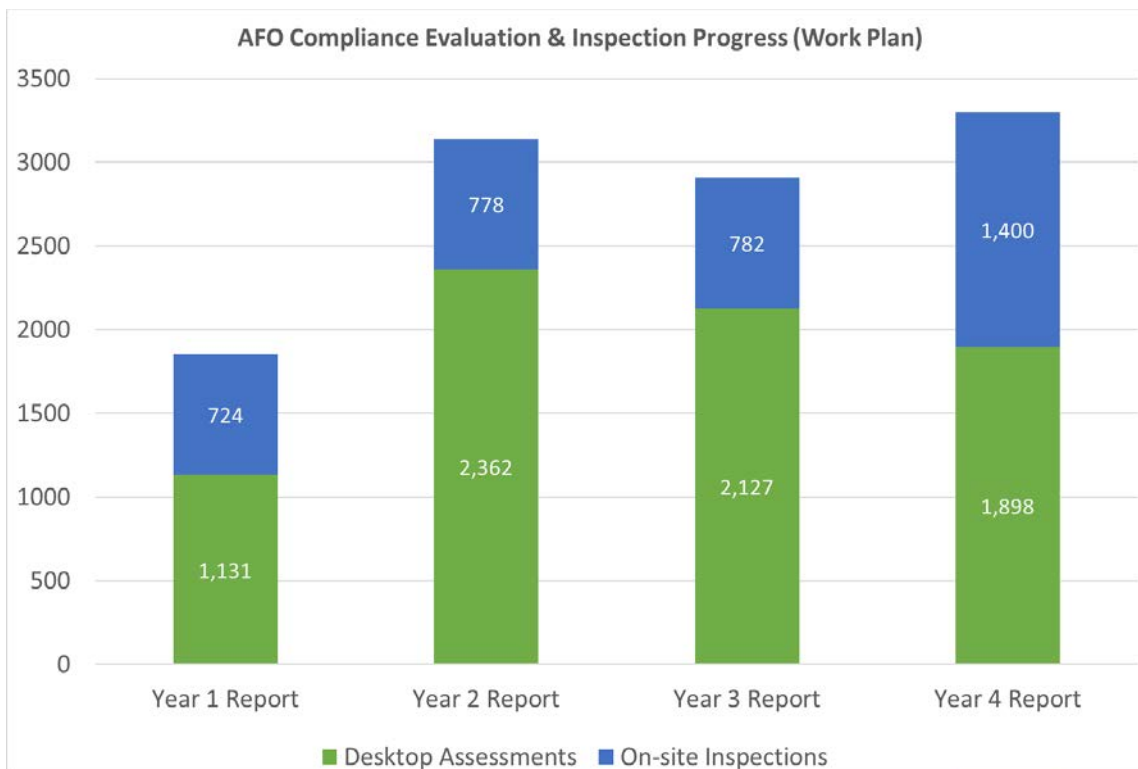
LEADING IOWANS IN CARING FOR OUR NATURAL RESOURCES

CHUCK GIPP, DIRECTOR | BRUCE TRAUTMAN, DEPUTY DIRECTOR

EPA/DNR CAFO Work Plan Update

Sep 2007:	A Petition for Withdrawal of the National Pollutant Discharge Elimination System (NPDES) Program Authorization from the State of Iowa was submitted to EPA by the Iowa Citizens for Community Improvement, the Sierra Club, and the Environmental Integrity Project. Petitioners allege Iowa's NPDES concentrated animal feeding operations (CAFO) program does not meet the requirements of the Clean Water Act (CWA).
Jul 2012:	EPA issued a report discussing EPA's preliminary findings and actions DNR must take for its program to comply with Clean Water Act requirements for authorized state NPDES programs. The report indicates DNR resolved 26 of the 31 alleged deficiencies.
Sep 2013:	EPA & DNR signed a five-year Work Plan Agreement that establishes priorities, program commitments, work sharing, and outcomes for the Iowa Annual Feeding Operations Program.
Work Plan Objectives:	<ul style="list-style-type: none">✓ Promulgate permitting rules for CAFO's that discharge to waters of the U.S.✓ Promulgate rules related to setback and separation distances that they are equivalent to federal requirements✓ Revise DNR application forms and templates to meet minimum federal requirements✓ Establish a baseline inventory of large CAFO and medium-sized AFOs in Iowa✓ Develop a plan to implement a comprehensive survey of unclassified AFO sites✓ Develop training curriculum for staff conducting inspections✓ Timely issuance of NPDES permits to CAFOS that DNR determines to discharge✓ Compliance Evaluations & Inspections: Perform comprehensive surveys consistent with standard operating procedures✓ Implement an enforcement program consistent with DNR's Enforcement Management System✓ Provide annual progress reports on DNR's implementation of the Work Plan <p>www.iowadnr.gov/afo</p>





AFO Terms (see 567 IAC Chapter 65 for complete definitions)

AFO – Animal Feeding Operation – A lot, corral, building where animals are confined and fed for a minimum of 45 days or more in a 12 month period (not a pasture).

AU – Animal Unit – A unit of measurement by taking the product of multiplying a type of animal by an equivalency amount. For example, a hog greater than 55 pounds is 0.4 AU, and a beef animal is 1.0 AU.

CAFO (EPA) – Concentrated Animal Feeding Operation / **“CAFO”** – Confinement Animal Feeding Operation

Construction Permit – written approval from the DNR to construct, alter or modify the use of a confinement feeding operation structure (generally over 1,000 AU or constructing an earthen basin) – needs MMP, Master Matrix, separation distances

Large CAFO – confines a minimum number of animals defined by the federal Clean Water Act. Examples below.

Medium CAFO – confines a certain number of animals defined by the federal Clean Water Act and discharges one of two ways to a water of the U.S.

Animal Sector	Size Thresholds (number of animals)	
	Large CAFOs	Medium CAFOs
cattle or cow/calf pairs	1,000 or more	300 – 999
mature dairy cattle	700 or more	200 – 699
swine (weighing over 55 pounds)	2,500 or more	750 -2,499
swine (weighing less than 55 pounds)	10,000 or more	3,000 – 9,999

MMP – Manure Management Plan – Requirements for confinements greater than 500 AU

Open Lot – An unroofed or partially roofed animal feeding operation that has no permanent vegetation (not a pasture)

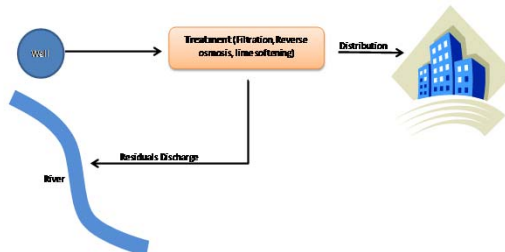
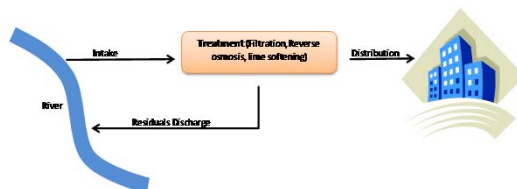
SAFO – Small Animal Feeding Operation - an animal feeding operation that has an animal unit capacity of 500 or fewer animal units.



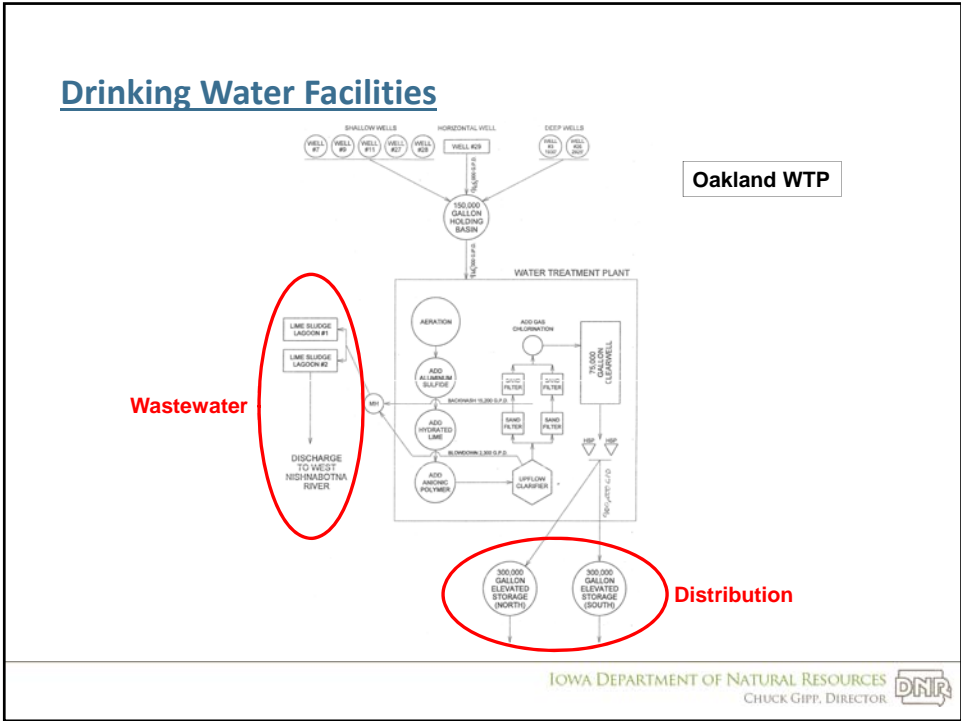
IOWA DEPARTMENT OF NATURAL RESOURCES

LEADING IOWANS IN CARING FOR OUR NATURAL RESOURCES

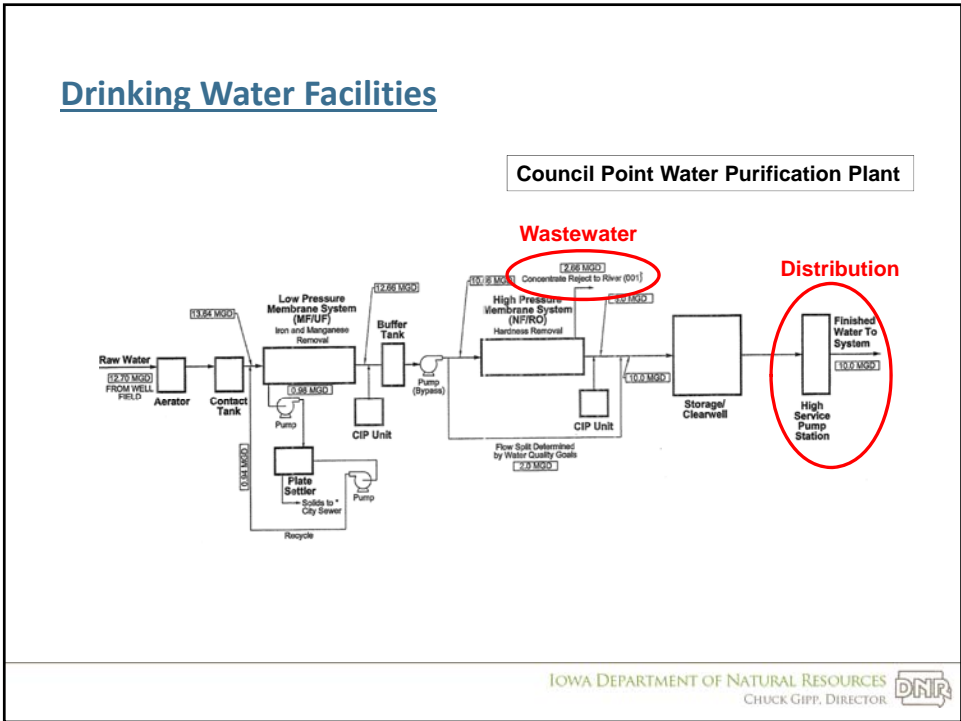
Drinking Water Facilities



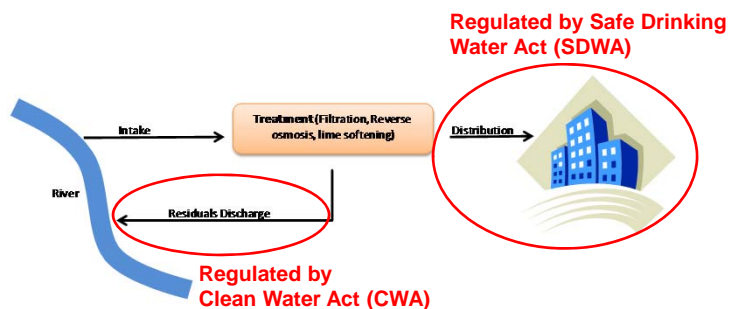
Drinking Water Facilities



Drinking Water Facilities



Drinking Water Facilities



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 CHUCK GIPP, DIRECTOR 

Drinking Water Facilities: Wastewater

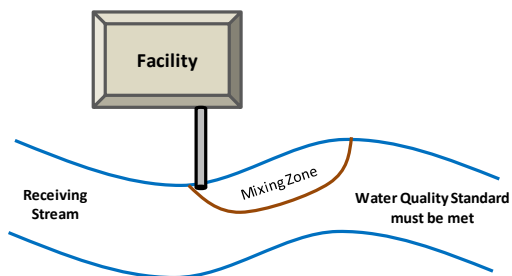
- Wastewater contains concentrated pollutants from source water
- Common pollutants in wastewater
 - Iron
 - Total Residual Chlorine
 - Suspended Solids
 - Sulfate
 - Chloride
 - Nitrate

SDWA: Total Chlorine 4.0 mg/L
WQS: Total Residual Chlorine 0.011 mg/L

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Drinking Water Facilities: Effluent Discharge Limits

- Water Quality Criteria
- Stream Designated Uses
- Background water chemistry
- Stream Flows
- Allowable dilution
- Discharge flows



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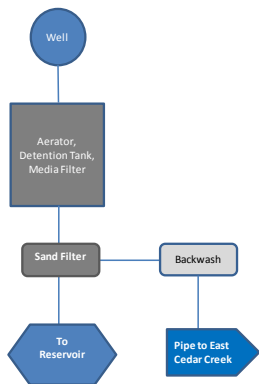
Drinking Water Facilities: Example (Burlington)



- Source Water: Mississippi River and Wells
- Discharge to Flint Creek
- Compliance Schedule for Aluminum

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Drinking Water Facilities: Example (Knierim WTP)



- Source Water: Wells
- Discharge to East Cedar Creek
- Compliance Schedule for ammonia nitrogen

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Questions?



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CHUCK GIPP, DIRECTOR 

Agenda

Environmental Protection Commission

Tuesday, December 19, 2017
DNR Field Office 5
7900 Hickman Road Suite 200
Windsor Heights, Iowa

Tuesday, December 19, 2017

10:00 AM – EPC Business Meeting

Public Participation¹ - Requests to speak during the business meeting Public Participation must be submitted to Jerah Sheets at Jerah.Sheets@dnr.iowa.gov 502 East 9th St, Des Moines IA 50319, 515-313-8909, or in-person by the start of the business meeting. Please indicate who you will be representing (yourself, an association, etc.), the agenda item of interest, and your stance of For, Opposed, or Neutral.

If you are unable to attend the business meeting, comments may be submitted via mail and email for the public record. The Commission encourages data, reports, photos, and additional information provided by noon the day before the meeting to allow ample time for review and consideration.

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| 1 | Approval of Agenda | |
| 2 | Approval of the Minutes | |
| 3 | Monthly Reports | Bill Ehm
(Information) |
| 4 | Public Participation | |
| 5 | Director's Remarks | Chuck Gipp
(Information) |
| 6 | Clean Water and Drinking Water State Revolving Loan Fund – Third Quarter Updates to FY 2018 Intended Use Plans | Patti Cale-Finnegan
(Decision) |
| 7 | Final Adoption, Chapter 64, "Wastewater Construction and Operation Permits" | Joe Griffin
(Decision) |
| 8 | Adopted and Filed – Update to Wasteload Allocation Procedure document Chapter 61, "Water Quality Standards" and Chapter 62, "Effluent and Pretreatment Standards: Other Effluent Limitations or Prohibitions" | Matthew Dvorak
(Decision) |
| 9 | Final Adoption – Chapter 64 – Renewal of Private Sewage Disposal System General Permit 4 | Danial Olson
(Decision) |
| 10 | Notice of Intended Action: Chapters 40, 41, 42, 43, 44, 81, 83 | Diane Moles
(Decision) |
| 11 | EPC Annual Report | Secretary Joe Riding
(Decision) |
| 12 | Removed from the agenda | |
| 13 | Notice of Intended Action –Chapter 111, Annual Reports of Solid Waste Environmental Management Systems | Leslie Goldsmith
(Decision) |
| 14 | Environmental Management System Program Fiscal Year 2017 Annual Report | Leslie Goldsmith
(Information) |
| 15 | PROPOSED CONTESTED CASE DECISION –Diana Costello | Carrie Schoenebaum
(Decision) |
| 16 | General Discussion | |
| 17 | Items for Next Month's Meeting | |
| | <ul style="list-style-type: none">Wednesday, January 17, 2018 – Joint NRC & EPC Meeting and EPC Business Meeting – Des Moines | |

- Tuesday, February 20, 2018 – EPC Business Meeting – Windsor Heights

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

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

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

**MINUTES OF THE
ENVIRONMENTAL PROTECTION COMMISSION
MEETING**

November 21, 2017

**Oakland Mills Nature Center
2593 Nature Center Dr, Mt Pleasant, Iowa**

Approved by the Commission **DATE**

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DRAFT

Meeting Minutes

CALL TO ORDER

The meeting of the Environmental Protection Commission was called to order by Chairperson Chad Ingels at 10:20 a.m. on November 21, 2017 at the Oakland Mills Nature Center in Mt Pleasant.

John Pulse, Director of Henry County Conservation Board (CCB), welcomed the Commissioners and guests to Oakland Mills. He provided a summary of the recreational opportunities the CCB has to offer to the general public. Construction is underway for additional cabins which can be reserved through mycountyparks.com. Between the two naturalists, environmental educators, and volunteers, the CCB interacts with 20,000 people annually.

Director Chuck Gipp thanked all County Conservation Boards for their partnership with DNR. In some cases, these county boards manage state owned parks. REAP revenue is a key financial support for the counties. The Iowa Outdoors Magazine named Oakland Mills as one of the best nature centers in the state.

COMMISSIONERS PRESENT

- Nancy Couser
- Rebecca Guinn
- Howard Hill
- Barbara Hovland
- Chad Ingels, Chair
- Ralph Lents, Vice Chair
- Joe Riding, Secretary
- Bob Sinclair

COMMISSIONERS ABSENT

- Mary Boote

APPROVAL OF AGENDA

Motion was made by Bob Sinclair to approve the agenda as presented. Seconded by Joe Riding. Motion passes.

APPROVED AS PRESENTED

APPROVAL OF MINUTES

Motion was made by Ralph Lents to approve the October 17, 2017 EPC minutes as presented. Seconded by Bob Sinclair. Motion passes.

APPROVED AS PRESENTED

MONTHLY REPORTS

Bill Ehm shared with the Commission EPA changed the ozone standard to be more stringent and while some states are appealing the standard, Iowa is in attainment along with other Midwest states. A large thanks goes to the partners and businesses working hard to be in compliance.

Bill Ehm shared with the Commission the 2018 legislative package has been cleared by the Governor's Office and is with the code drafters. Items for code cleanup include a proposed move of the statutory authority for the Geological Survey to the University of Iowa and an increase in the reimbursement cap DNR can receive for overseeing the cleanup of contaminated properties participating in the Land Recycling Program.

Bill Ehm shared with the Commission the Air Quality Bureau's relocation from Hickman Road to the Wallace Building. Field Office 5 will remain at the Hickman location and EPC meetings will still take place there except when meeting at the Capitol.

Bill Ehm shared with the Commission that some members of the public are requesting that we give counties an additional 30 days to review the manure management plans (MMPs) / construction permit applications of new animal feeding operations. At this time, counties have been reviewing applications in a timely manner and the DNR has been issuing permits within 60 days.

Bill Ehm shared with the Commission a Des Moines Register story about Walz Energy, The company is building a digester for manure and other organic materials. The facility is categorized as an open lot and does not require a construction permit but may require a nutrient management plan. Currently, the facility is in need of a stormwater permit. They applied for a general permit but after review, it was determined they need an individual stormwater permit. A public hearing has been requested and will be conducted November 30th. In building its lagoon Walz was required to conduct drill borings and add additional clay to ensure karst lands were avoided.

Director Chuck Gipp shared with the Commission how successes can lead to challenges. A number of DNR programs are set up to receive revenue from the amount of pollutants created. Since 2009, there has been a 34% reduction in pollutants which means less revenue. Additionally, the General Fund has also been reduced from about \$21 million to \$12 million. In order to keep the greatest number of staff, the Air Quality Bureau is being moved to a different building with lower rent. The Department is looking at all areas to save money including out of state travel, uniforms, vehicles, and more. The Department announced layoffs earlier in July and again in November.

Director Chuck Gipp shared with the Commission the poor state of the Wallace Building with elevators not working, leaking roof, and more. The environmental health issues of the building have been addressed by the Department of Administrative Services.

Bill Ehm and Ed Tormey summarized the process for a request for a variance. Variances receive Commissioner review each month. When an overwhelming number of variances are requested for a similar topic, it is an indicator that the DNR should review that particular rule.

The monthly report(s) has been posted on the DNR website under the appropriate meeting month:
<http://www.iowadnr.gov/About-DNR/Boards-Commissions>

INFORMATION

PUBLIC COMMENT

- No verbal comments were provided. Penny Creech registered in advance to speak but did not show up at the meeting.
- No written comments were submitted.
- Chairperson Ingels thanked the audience members who came to observe the meeting.

END OF PUBLIC COMMENT

DIRECTORS REMARKS

Director Chuck Gipp shared with the Commission he was not on the education tour the previous day because he was presenting the Department’s budget request to the Governor and her staff. Fiscal year 2019 will be another challenging year since the General Fund has not received the revenue anticipated. He will present the same information during the January Joint NRC/EPC meeting.

Director Chuck Gipp provided a follow-up to the presentation the previous month by Jason Marcel regarding 5,000 unknown animal feeding operations. As required by the EPA Workplan, an inspection was required for all existing AFO facilities within 5 years. Additionally, the Department was tasked with determining unknown facilities. Jason Marcel shared last month the process to identify these unknown sites. Once the EPA Workplan commitments are met, the Field Services team will complete its review of the unknown sites. In preliminary review, some sites were closed/abandoned or being used for alternative purposes or had minimum livestock (e.g., 12 goats).

Commissioners and DNR Leadership shared trends occurring in the AFO and manure industry, including not enough certified manure applicators, some counties/townships deficient in nutrient assets and others at their maximum, population demographic shifts in rural and urban settings, and new products on the market to reduce manure odor.

INFORMATION

CONTRACT AMENDMENT #3, CONTRACT 17ESDLQBCWOLT-0001 WITH THE UNIVERSITY OF IOWA

Calvin Wolter presented to Commissioners an amendment to the GIS contract with the university. Once the project is finished, BMPs can be identified and calculated for reductions in erosion and phosphorous. The state’s Nutrient Reduction Strategy pulls together BMPs, point source efforts, and other practices to show the state as a whole.

Motion was made by Howard Hill to approve the agenda item as presented. Seconded by Barbara Hovland. Motion passes.

APPROVED AS PRESENTED

NOTICE OF INTENDED ACTION: AIR QUALITY REGULATORY CERTAINTY RULES PART 2 - CHAPTERS 20, 22, 23, 25, 30, 33 AND 34

Christine Paulson presented to Commissioners air quality rules to begin the rulemaking process. The intent of the rules is to match EPA rules, include new stack test methods, and allow for the electronic submittal of public notifications. It may seem like a long time before Iowa adopts EPA rules but DNR waits for litigation associated with the rules to be finalized before recommending to the EPC that it adopt these rules. She shared with the Commission some minor amendments to the packet.

- Page 11, first complete paragraph, fourth sentence: "understand" should be "understandable"
- Page 17, first complete paragraph: Wallace State Office Building, 502 East 9th, Des Moines, IA 50319
- Page 17, third complete paragraph, first sentence: "ha" should be "has"

Motion was made by Joe Riding to approve the agenda item as amended. Seconded by Rebecca Guinn. Motion passes.

APPROVED AS AMENDED

EPC 2018 DATES

Jerah Sheets engaged with the Commissioners to select educational tours and meeting dates for 2018.

Motion was made by Bob Sinclair to approve the agenda item as presented. Seconded by Rebecca Guinn. Motion passes.

APPROVED AS PRESENTED

GENERAL DISCUSSION

- Secretary Joe Riding distributed a draft version of the EPC 2017 Annual Report. The report summarizes the major accomplishments of the Commission with rulemaking and referrals. The Commission discussed the penalty cap, the Master Matrix, and SRF infrastructure funds. Commissioners are to further review the draft report and provide comments to Joe Riding by the end of the month.
- Bob Sinclair thanked the DNR for the diesel emissions reduction grant for the Williamsburg School District. The District was able to trade an older, larger emissions bus for a better, less emitting bus.
- Ed Tormey reminded the Commissioners to utilize the State of Iowa email address for their correspondence.

Chairperson Ingels adjourned the Environmental Protection Commission meeting at 12:10p.m., Tuesday, November 21, 2017.

**Monthly Variance Report
October 2017**

Item #	DNR Reviewer	Facility/City	Program	Subject	Decision	Date	Agency Reference
1	Lanie Boas	Des Moines Water Works	Water Supply Construction	Construct water main in casing pipe instead of constructing sanitary sewer of water main material where there is 2-10 feet of horizontal separation	approved	9/11/2017	17wcv274
2	Lanie Boas	City of Harpers Ferry	Water Supply Construction	Classify the proposed well as a deep well instead of a shallow well, even though there is not a confining layer meeting the lithologic requirements in the IAC's definition.	approved	9/22/2017	17wcv275
3	Lanie Boas	Waukee Water Supply	Water Supply Construction	Construct the water main of ductile iron pipe with nitrile gaskets at points where the water main is located less than 10 feet horizontally from a storm sewer	approved	9/22/2017	17wcv276
4	Lanie Boas	Des Moines Water Works	Water Supply Construction	Construct the water main of ductile iron pipe with nitrile gaskets instead of constructing the sewer of water main material where the water main and sewer are 6-10 feet apart horizontally	approved	10/3/2017	17wcv277
5	Reid Bermel	Iowa Fertilizer Company	Air Quality Bureau	IFCo to utilize a truck loadout to haul to the rail line on south side of plant without obtaining or modifying construction permits.	approved	10/3/2017	17aqv278
6	Ashley Dvorak	Pattison Sand Company	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/4/2017	17aqv279
7	Ann Seda	Pella - Sioux Center	Air Quality	Pella is seeking to reallocate the specific material usage limits in the existing permits to have more flexibility in their operations. Pella is asking to count the gallons of a lower VOC containing material against a higher VOC range.	approved	10/4/2017	17aqv280
8	Michael Hermsen	Van Diest Supply Company	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/5/2017	17aqv281
9	Brian Hutchins	Grain Processing Corp	Air Quality	Grain Processing Corp (GPC) variance request to begin construction of ducting and a new scrubber for Dryer House 4 (DH4) prior to issuance of a construction permit.	approved	10/6/2017	17aqv282
10	Dennis Thielen	Iowa Fertilizer	Air Quality Bureau	Testing extension for permit 13-A-3014-S2	approved	10/6/2017	17aqv283
11	Tara Naber	Allison Water Supply	Water Supply Construction	Construct water main of DIP with nitrile gaskets instead of replacing existing storm sewer with water main material where water main crosses 18" below the existing storm sewer. Project W2017-0693, PWSID 1203026	approved	10/9/2017	17wcv284
12	Priyanka Painuly	American Packaging Corporation	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/9/2017	17aqv285
13	Michael Hermsen	The Monsanto Company	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/10/2017	17aqv286
14	Jason Christopherson	Pine Lake Corn Processors	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/11/2017	17aqv287
15	Reid Bermel	Roquette American Inc	Air Quality Bureau	DNR received a request for a variance to operate a temporary back up natural gas fired boiler when the main Circulating Fluidized Bed (CFB) boiler isn't able to reach capacity.	approved	10/11/2017	17aqv288
16	Danjin Zulic	Stellar Industries, Inc. Kanawha Plant	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/11/2017	17aqv289
17	Michael Hermsen	REG Ralston LLC	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/12/2017	17aqv290
18	Terry Kirschenman	City of Indianola (1)	CP	Upgrade of an existing lift station to a higher firm pumping capacity (4.245 mgd) without the addition of screening to protect the pumps from clogging or damage.	approved	10/12/2017	17cpv291

19	Terry Kirschenman	City of Indianola (2)	CP	Upgrade of an existing lift station to a higher firm pumping capacity (4.245 mgd) with check valves placed on the vertical portion of discharge piping rather than the horizontal portion of discharge piping.	approved	10/12/2017	17cpv292
20	Nina M. Booker	US Gypsum Sperry Landfill	Sanitary Disposal	US Gypsum Sperry Landfill has requested to change groundwater level measurement frequency from monthly to semiannually.	approved	10/13/2017	17sdv293
21	Nina M. Booker	US Gypsum Sperry Landfill	Sanitary Disposal	US Gypsum Sperry Landfill has requested to sample for total metals instead of dissolved.	approved	10/13/2017	17sdv294
22	Michael W. Smith	NCIRSW Landfill	Sanitary Disposal	The North Central Iowa Regional Solid Waste Agency (NCIRSWA) is requesting a variance to the pre-treatment requirements for petroleum contaminated soil (PCS) outlined in IAC 567-109.1(2)"d" through "i" for direct burial into landfill.	approved	10/18/2017	17sdv295
23	Dennis Thielen	Muscatine Power & Water	Air Quality Bureau	Muscatine Power & Water (MPW) is requesting an extension to the testing deadline for EP 360.	approved	10/17/2017	17aqv296
24	Karen Kuhn	Clow Valve Company	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/20/2017	17aqv297
25	Sara Smith	Woods and Meadows Subdivision	Water Supply Construction	Well #3 to be relined (250') with 6.625" OD ASTM A53 Gr B steel casing, inside existing 8" ID casing (170' deep), with 1.375" for grouting < 1.5" required in Ten States. Variance is to consider the 2.8" grout when Well #3 was constructed (2004)	approved	10/23/2017	17wcv298
26	Danjin Zulic	New Cooperative - Pomeroy	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/23/2017	17aqv299
27	Priyanka Painuly	American Packaging Corporation	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/24/2017	17aqv300
28	Priyanka Painuly	American Packaging Corporation	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/24/2017	17aqv301
29	Rachel Quill	Cresco Food Technologies, LLC	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/25/2017	17aqv302
30	Michael Hermsen	Van Diest Supply Company	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/25/2017	17aqv303
31	Danjin Zulic	Aveka Nutra Processing	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/26/2017	17aqv304
32	Dennis Thielen	IPL - Ottumwa Generating	Air Quality Bureau	Condition 5 of permit 10-A-329-P1, requires EP10 shall not exceed 990 tph, IPL is requesting to operate at 1100 tph during November testing to verify compliance at a higher operating rate.	approved	10/30/2017	17aqv305
33	Danjin Zulic	JELD-WEN, Inc.	Air Quality Construction Permits	Waiver of Initial Stack Test Requirement.	approved	10/31/2017	17aqv306

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

Item 6

Decision

Topic - Clean Water and Drinking Water State Revolving Loan Fund – Third Quarter Updates to FY 2018 Intended Use Plans

Commission approval is requested for the third quarter updates to the Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Fund (DWSRF) Intended Use Plans (IUPs) for FY 2018 (July 1, 2017 – June 30, 2018).

The State Revolving Fund programs are authorized through federal legislation and administered by the State of Iowa under the oversight of the U.S. Environmental Protection Agency. The CWSRF finances publicly owned wastewater and sewer facilities, storm water management for water quality, and nonpoint source control practices to keep pollution out of Iowa's water. The DWSRF covers water system projects, including source water, treatment, storage, and distribution and transmission, as well as consolidation and connections.

The Iowa SRF is operated through a coordinated partnership between the Department of Natural Resources (DNR) and the Iowa Finance Authority (IFA). DNR administers the environmental and permitting aspects of the programs, with IFA providing financial assistance including loan approval and disbursements. Other important partners include the Iowa Department of Agriculture and Land Stewardship, Soil and Water Conservation Districts, county sanitarians, participating lenders, and others.

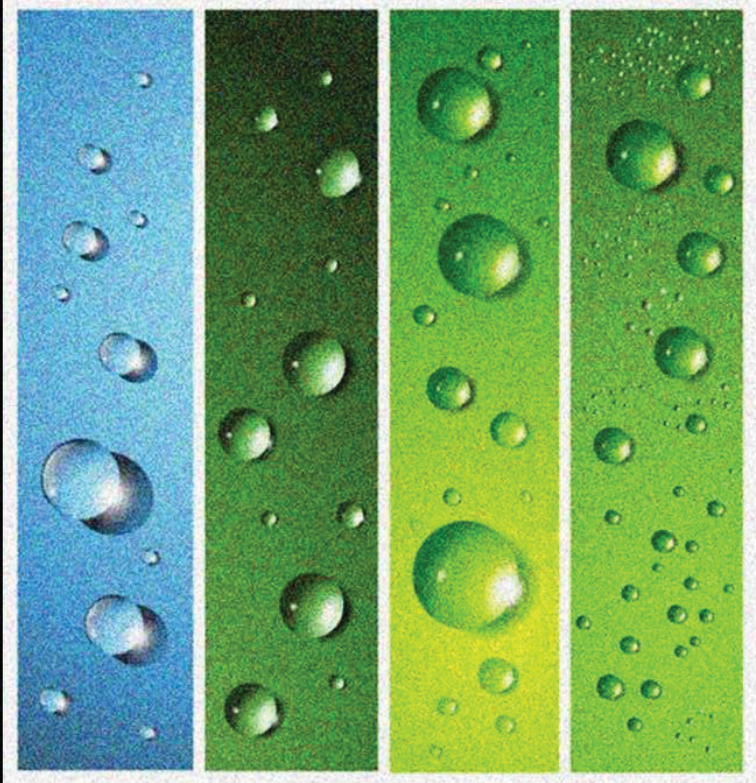
The FY 2018 IUPs include plans of action for the SRF programs, including goals and objectives, an analysis of current and projected financial capability, financial management strategies, the project priority lists, discussion of set-aside programs and efforts, and planned uses for administrative accounts.

The IUPs are developed and updated quarterly, in June, September, December, and March or more often as needed. Each draft IUP is released for public comment, and then presented for approval to the Commission. A public meeting was held November 9, 2017 to receive comments on the proposed IUP updates. There were no attendees. The written comment period closed on November 16, 2017. There was one written comment on the CWSRF update which is addressed in the document.

The CWSRF update includes recommendations for Water Resource Restoration Sponsored Projects. DNR received 27 applications totaling \$24 million. Originally \$10 million was set aside for FY 2018. Ten projects totaling \$5.7 million were approved by EPC in June 2017. For the September 2017 funding round, DNR recommends 10 projects totaling \$6.1 million, raising the total amount set aside to \$11.8 million. This includes two applications that were capped at \$1.5 million each rather than the total amount requested. Five applications were rejected for being incomplete or ineligible, and two applications were deferred until FY 2019.

The Sources and Uses tables for both CWSRF and DWSRF show that funds are available or obtainable to provide anticipated disbursements. The IUPs will be updated once more during FY 2018.


Patti Cale-Finnegan, DNR SRF Coordinator
November 20, 2017



INVESTING IN IOWA'S WATER

FY 2018 INTENDED USE PLANS
 Clean Water State Revolving Fund
 Drinking Water State Revolving Fund

Iowa Department of Natural Resources
 Iowa Finance Authority

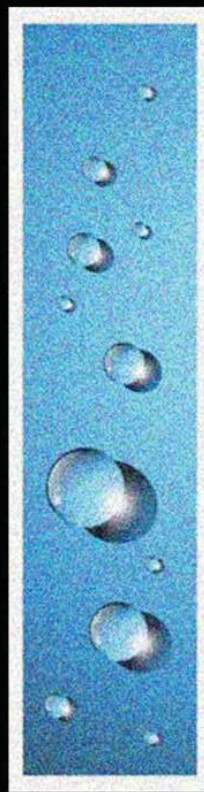



FY 2018 INTENDED USE PLANS
 Clean Water State Revolving Fund
 Drinking Water State Revolving Fund

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Approved by the Environmental Protection Commission on June 20, 2017; Second Quarter Update approved on September 18, 2017; [Third Quarter Update approved on December 19, 2017](#)

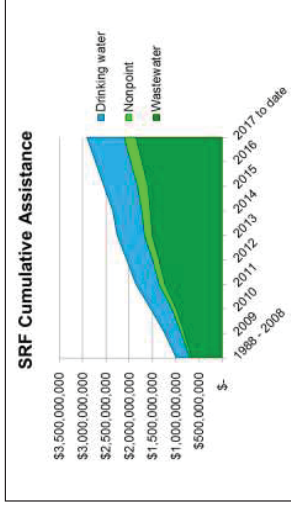


FY 2018 INTENDED USE PLANS

Introduction

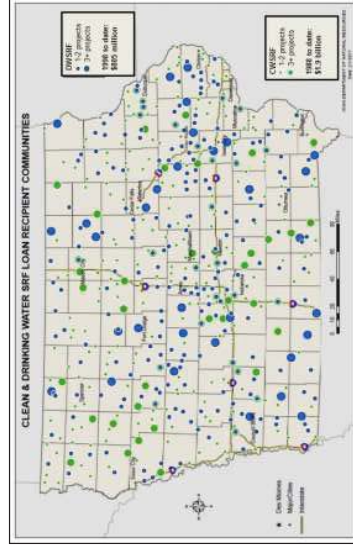
The fiscal year beginning July 1, 2017 marks the 30th year of the Clean Water SRF and the 20th year of the Drinking Water SRF. What have these programs accomplished in Iowa in their 50 cumulative years of operation?

1. Since 1988, Iowa's SRF has provided more than **\$2.9 billion** in loans for water and wastewater infrastructure, agricultural best management practices, and other water quality projects. SRF loans are used as stand-alone financing or in combination with a wide variety of grants, including other federal water and wastewater assistance programs, state and federal agricultural cost-share, and local sources, along with private investment.



2. Cities, counties, and sanitary districts across the state have used the Clean Water SRF to protect the state's **water quality**. Loans are used to build or upgrade publicly owned wastewater and sewer facilities and to create green infrastructure solutions for storm water.

The goal of the Drinking Water SRF is to help public water systems serve safe, adequate, and affordable drinking water. Both



publicly and privately owned water systems use SRF loans to upgrade treatment and replace aging infrastructure. These systems are owned by cities, counties, rural and regional water systems, and homeowners associations.

Many borrowers come back to the SRF multiple times to finance their ongoing capital improvement projects.

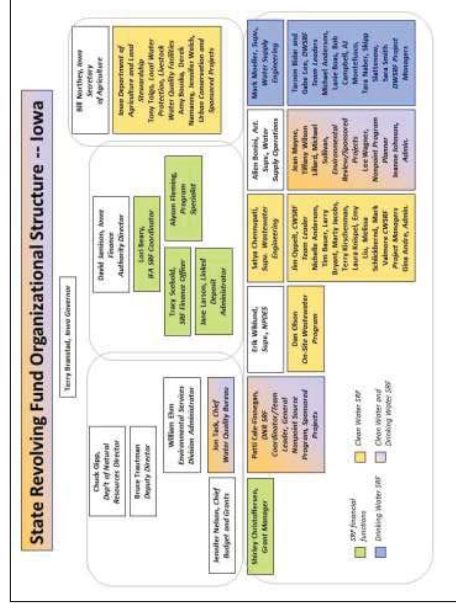
3. Within the broad framework set by federal legislation, states have flexibility to set their own priorities and manage their own SRF programs. Iowa's SRF has become one of the most **innovative** and far-reaching in the United States to help the state meet its **water quality goals**.

Iowa's SRF **listens** to stakeholders and creates programs and financing tools to meet their needs.

In particular, Iowa's SRF has responded to the need for funding for **nonpoint source** pollution control. Program innovations such as sponsored projects and loans to farmers and livestock producers are providing effective financing tools for voluntary practices.

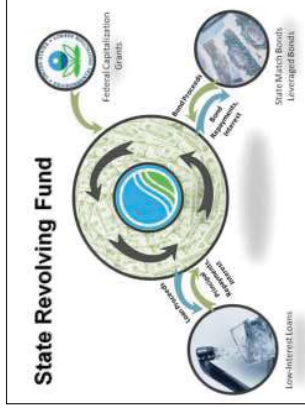
4. Strong partnerships developed between three state agencies form the basis for the SRF programs. The Iowa Department of Natural Resources, the Iowa Finance Authority, and the Iowa Department of Agriculture and Land Stewardship work together to deliver streamlined programs and good customer service.

Iowa's SRF also depends on several other **types of partners** to implement program and financial goals, including Soil and Water Conservation Districts, county environmental health agencies, watershed and land trust organizations, and lending institutions across the state.

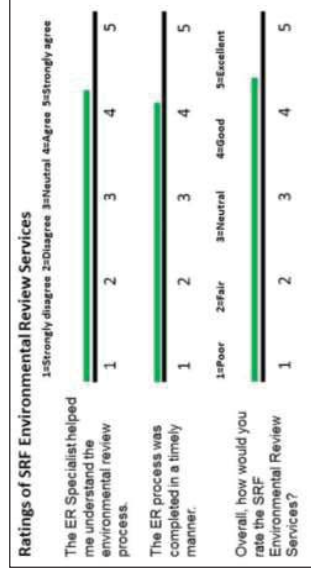


5. Iowa's SRF programs are **rated highly** in financial markets, giving the programs strong leveraging capacity to keep up with **demand** for loans. The SRF programs accept applications year-round, and make funding available when projects are ready to proceed. All eligible projects can be **funded**.

The Clean Water Act and the Safe Drinking Water Act created the programs as revolving loan funds to provide an **ongoing source** of financing. Iowa's SRF draws on several sources of money to make loans, including federal capitalization grants, bonds, and loan repayments with interest. No state general funds are provided.

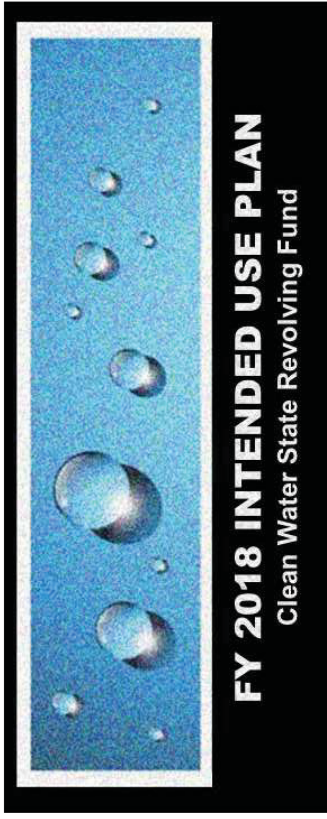


6. Iowa's SRF staff is committed to **transparency and accountability**. All program plans are issued for public review and comment, with approval quarterly by the Iowa Environmental Protection Commission. Annual reports and program audits show program performance. Surveys and questionnaires are used to gauge **customer satisfaction** and identify and solve problems.



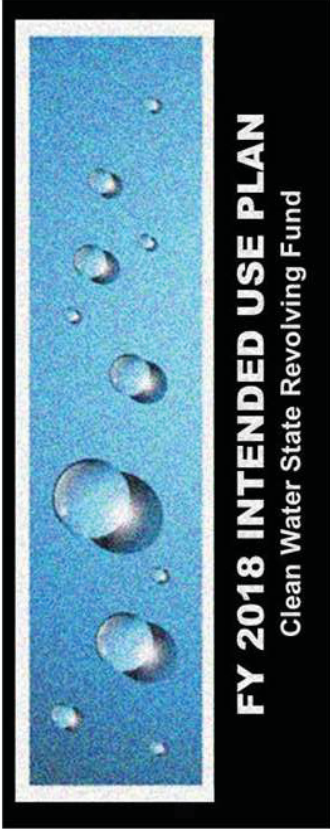
The Intended Use Plans (IUPs) following this introduction provide a roadmap to the policies and procedures of the SRF programs, along with the lists of projects and activities to be funded. The IUPs outline the proposed management of the Clean Water SRF and the Drinking Water SRF during State Fiscal Year 2018 (July 1, 2017 – June 30, 2018). The IUPs are developed and updated quarterly, in June, September, December, and March or more often as needed.

There have been many changes to the SRF programs since their beginnings in 1988 (Clean Water) and 1998 (Drinking Water). Over the years, Iowa's SRF has responded to new regulations and requirements at the federal level, updated state goals for the programs, and new developments in the landscape of Iowa. Moving into the next era of the programs will continue to bring challenges and opportunities. With the FY 2018 Intended Use Plan and future program plans, Iowa's SRF will continue to help Iowans protect public health and the environment through investing in Iowa's water.



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I. STATE FISCAL YEAR 2018 PLAN OF ACTION

The plan is based on anticipated use of new and revolved funds available in the CWSRF for funding water quality protection needs, including both publicly owned wastewater infrastructure and nonpoint source water protection projects.

The CWSRF loan program consists of three main program areas:

- The purchase of debt obligations for wastewater and some storm water projects is provided through the CWSRF to publicly owned facilities.
- Direct loans or linked deposit financing approaches address nonpoint source programs.
- Water Resource Restoration sponsored projects address nonpoint source problems via interest rate reductions on wastewater loans.

The SFY 2018 Plan of Action covers the following areas:

- CWSRF goals and objectives;
- Current and projected financial capacity of the CWSRF;
- Financial management strategies;
- Plan for the SFY 2018 project priority list;
- Plan for nonpoint source set-asides; and
- Plan for use of administrative accounts.

CWSRF Goals and Objectives

The primary long-term goal of the Iowa CWSRF is to protect the environment and public health and welfare through a perpetual financial assistance program. While there have been changes to the CWSRF in recent years due to federal legislation, no major program updates are anticipated in SFY 2018. The SFY 2018 short-term goals and objectives are as follows:

- Goal: Commit loan funds to as many recipients as possible in accordance with the state priority rating system, the IUP, staff resources, and available funding, in order to assist in the construction of projects with the highest water quality impacts. *Objective: During SFY 2018, quarterly updates to the IUP will be prepared to add projects and update program financial information. Sponsored project applications will be taken and added to the IUP twice per year. Projects approved under the nonpoint source set-aside programs will be funded on a continuous basis.*

- Goal: Require applicants to engage a registered Municipal Advisor (MA). *Objective: During SFY 2018, all applicants submitting an Intended Use Plan application must demonstrate that they have hired an MA to assist with cash flows, rate setting, debt service coverage, and other financial aspects of their wastewater utility.*
- Goal: Implement the "Use of American Iron and Steel (AIS)" requirements enacted by Congress on January 17, 2014. *Objective: During SFY 2018, SRF staff will help applicants determine eligibility for the exemptions and waivers provided for in the Act and EPA guidance. SRF staff will provide information to those applicants required to comply on necessary documentation and inspection procedures. SRF will engage DNR Field Office staff to conduct site visits and provide technical assistance.*
- Goal: Fund green projects to meet the requirements of the Green Project Reserve. *Objective: During SFY 2018, the Iowa SRF plans to fund green projects as required in the FFY 2017 capitalization grant. Iowa has already complied with the GPR requirements in the FFY 2010 – 2016 cap grants. The GPR requirement for the FFY 2017 cap grant is 10%.*
- Goal: Apply additional subsidization required in FFY 2012 - 2014 and FFY 2016 capitalization grants to disadvantaged community projects and green projects. Develop plans for allocating any loan forgiveness required in FFY 2017 cap grant. *Objective: During SFY 2018 SRF staff plans to approve plans and specifications and execute loans or loan amendments with loan forgiveness for the amounts required in the FFY 2017 cap grant. For the FFY 2015 capitalization grant, loan forgiveness was optional. Iowa does not intend to provide any loan forgiveness from the FFY 2015 grant. Iowa has complied with the add subs requirements for all previous cap grants. The add subs requirement for FFY 2017 is 20%.*
- Goal: Comply with EPA guidance on reporting under the Federal Funding Accountability and Transparency Act (FFATA). *Objective: In the Annual Report, SRF staff will list loans that met the several requirements of FFATA for open capitalization grants. Grants may not be closed out until equivalency amounts can be reported. Loans reported for FFATA will meet equivalency requirements for the following:*
 - Section 602(b)(14) of the Clean Water Act: "A contract to be carried out using funds directly made available by a capitalization grant...for program management, construction management, feasibility studies, preliminary engineering, design, engineering, surveying, mapping, or architectural related services shall be negotiated in the same manner as a contract for architectural and engineering services is negotiated under Chapter 11 of title 40, United States Code..."
 - Federal socioeconomic cross-cutters.
 - Federal environmental cross-cutters.
 - EPA signage guidance.
 - Single audit requirements.
- Goal: Comply with EPA guidance on cost and effectiveness requirements under Section 602(b)(13) of the Clean Water Act, which states: "Beginning in (federal) fiscal year 2016, the State will require as a condition of providing assistance...that the recipient of such assistance certify...that the recipient – A)

has studied and evaluated the cost and effectiveness of the processes, materials, techniques, and technologies for carrying out the proposed project...; and B) has selected, to the maximum extent practicable, a project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation, and energy conservation, taking into account – i) the cost of constructing the project or activity; ii) the cost of operating the project or activity over the life of the project or activity; and iii) the cost of replacing the project or activity.” *Objective: During SFY 2018 CWSRF will require applicants whose project requests were placed on the IUP after October 1, 2015 to submit a self-certification form indicating compliance with this requirement.*

- Goal: Promote and identify sustainable practices in projects proposed for funding. *Objective: During SFY 2018 SRF staff will provide information on the EPA’s Sustainability Policy to applicants and include sustainability features in project descriptions.*
- Goal: Continue to implement the Water Resource Restoration Sponsor Program authorized in Iowa Code 384.84. *Objective: During SFY 2018, SRF staff will receive applications twice per year for sponsored project funding. Application deadlines will be in September and March. In conjunction with DNR 319 program staff, watershed coordinators, Iowa Department of Agriculture and Land Stewardship urban conservationists, and others, SRF staff will evaluate the applications and prepare a list of proposed projects for the IUP.*
- Goal: Comply with the EPA Signage Guidance. *Objective: During SFY 2018 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.*
- Goal: Update the CWSRF Operating Agreement. *Objective: During SFY 2018 SRF staff will work with EPA Region 7 to update the Clean Water SRF Operating Agreement between DNR and EPA. The agreement has not been updated since 2007.*

Additional long-term goals include:

- Goal: Work with other state and federal agencies to coordinate water quality funding. *Objective: During SFY 2018, SRF staff will meet regularly with staff from the Community Development Block Grant program, and USDA Rural Development. SRF staff will also coordinate funding with new state Water Quality Initiative grants for nonpoint source projects.*
- Goal: Apply program requirements that are simple and understandable and do not add unnecessary burdens to applicants or recipients. *Objectives: During SFY 2018 SRF staff will continue to assist applicants with completing the federal cross-cutting requirements for environmental and historical review. Staff will not be responsible for Davis-Bacon compliance but will advise borrowers as needed. Borrowers will be responsible for compliance and may hire outside consultants to assist.*
- Goal: Continue the option of extended financing terms for CWSRF infrastructure projects. *Objective: During SFY 2018 this option will be offered to current and new projects on the project priority list. Applicants seeking extended financing must complete a worksheet outlining the anticipated life of the project components, which can be averaged to determine the extended term.*

- Goal: Maintain mechanisms for funding the on-going administration of the program if federal funding is reduced or eliminated. *Objective: During SFY 2018 initiation and servicing fees will be collected on CWSRF loans for deposit to administrative accounts. SRF staff will develop short and long-term plans for administrative budgets.*
- Goal: Manage the CWSRF to maximize its use and impact through sound financial management. *Objective: During SFY 2018 SRF staff and financial advisors will continue to conduct financial analysis and develop innovative approaches to financial management.*
- Goal: Implement programs that effectively address water quality needs and target appropriate audiences. *Objective: During SFY 2018 SRF staff will continue to educate users and potential users about the program offerings through presentations, displays, program materials, and the IowaSRF.com website.*

Current and Projected Financial Capacity of the CWSRF

Appendix A, the Estimated Sources and Uses table, shows that funds are available to fund current requests as of the date specified. The Iowa CWSRF program uses its equity fund to originate loans. When a sufficient number of loans have been made, the SRF program issues bonds, backed by those CWSRF loans, and uses the bond proceeds to replenish the equity fund. A bond issued was completed in SFY 2017 and included state match for the FFY 2017 capitalization grant.

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. Using relatively conservative assumptions, it is projected that the CWSRF could loan an average of \$300 million per year over the next 10 years, or a total of \$3 billion. Analysis is done based on a financial model developed by IFA’s financial advisor, using scenarios with and without capitalization grants.

Financial Management Strategies

The CWSRF Project Priority List (attached) show total loan requests for wastewater projects. Because many of these projects are in the planning phase, they are not expected to sign a binding loan commitment during this fiscal year. The projected timing and demand for loan draws is reflected in the sources and uses table (Appendix A). Other uses for CWSRF funds in SFY 2018 include \$22.8 million for nonpoint source set-asides.

The cash draw procedure used is the direct loan method. State match is fully disbursed prior to drawing EPA capitalization grant funds. The EPA capitalization grant funds will be drawn at a 100% proportionality ratio. Iowa’s bonds are cross-collateralized across both the Clean Water and Drinking Water SRF accounts.

SFY 2018 Project Priority List

The management of the CWSRF program includes a priority list of projects for loan assistance, which has been developed according to DNR rules 567 IAC 92 (455B).

With the available CWSRF funds, this IUP provides a projection of loan funding assistance for applications in priority order determined by point source rating criteria defined in 567 IAC 91 (455B). This priority list will be amended on a quarterly basis during SFY 2018. Chart 1 (attached) constitutes the project priority list.

Due to the project workload and for planning purposes, the CWSRF staff may evaluate projects that have been on the IUP list for more than three years. A notification will be sent to the applicants that their project may be

dropped if there is no progress in the six months following the notice. If a project is dropped, the applicant may reapply when the project is ready to move ahead.

For program planning purposes, the fundable projects are further identified as “R – ready for loan” (indicating that the construction permit and environmental review have been completed), and “P – in planning.”

The following categories of projects will be included for funding during SFY 2018 and are included on Chart 1:

Unfunded Prior Years’ Section 212 Projects: These are loan requests remaining on the project priority list from previous years’ IUPs. It is Iowa’s intention to make CWSRF loans to these projects during SFY 2018 if they are ready for a binding loan commitment.

Segments of Previously Funded Section 212 Projects: State rules provide that subsequent segments of a project, which has previously received funding priority or assistance, be placed on the project priority list ahead of new projects. Segmented projects will be added to the SFY 2018 project priority list as received.

New Section 212 Projects: New applications for assistance during SFY 2018 will be added to the project priority list. Applications will be accepted on a continuous basis during SFY 2018 with quarterly updates completed as needed.

Supplemental Financing: Supplemental financing for projects listed in previously approved IUPs are added to the IUP as they are requested unless the additional funds will be used for improvements that would significantly change the scope of the project. Additional environmental review may be required. Supplemental loans will not be provided for changes that are ineligible for funding.

Planning and Design Loans: Planning and design loans are provided at 0% interest for up to three years to cover the costs of preparing facility plans and project specifications. The loans will be rolled into CWSRF construction loans or repaid by another source of permanent financing.

Capitalization Grant Requirements: The FFY 2010 - 2016 capitalization grants include requirements for certain percentages of the funds to be allocated for additional subsidization and/or green projects (note: the FFY 2015 cap grant required GPR but not add subs).

	Add Subs Req.	Add Subs Actual	%	GPR Req.	GPR Actual	%
2010	\$ 4,129,860	\$ 4,491,676	109%	\$ 5,515,000	\$ 5,516,792	100%
2011	\$ 1,851,928	\$ 2,918,377	158%	\$ 3,997,000	\$ 12,042,485	301%
2012	\$ 1,053,065	\$ 1,548,000	146%	\$ 1,912,800	\$ 3,924,050	205%
2013	\$ 851,127	\$ 1,276,000	150%	\$ 1,806,900	\$ 3,477,000	192%
2014	\$ 1,032,630	\$ 1,548,000	150%	\$ 1,897,600	\$ 2,480,000	131%
2015	N/A	N/A	N/A	\$ 1,900,300	\$ 28,923,179	1522%
2016	\$ 1,808,300	\$ 1,838,300	102%	\$ 1,808,300	\$ 5,691,797	315%
TOTAL	\$ 10,736,910	\$ 13,620,353	127%	\$ 18,837,900	\$ 62,055,313	329%

The specific projects that have received add subs or been counted for the GPR are listed in Appendix C. Iowa will satisfy the amounts required in the FFY 2017 capitalization grants.

Water Resource Restoration: In 2009, the Iowa General Assembly amended Iowa Code chapter 384.84 to add a new category of projects that can be financed with sewer revenues. This new category, called “water resource

restoration” sponsored projects, includes locally directed, watershed-based projects to address nonpoint source water quality issues.

On a typical CWSRF loan, the utility borrows principal and repays principal plus interest. On a CWSRF loan with a sponsored project, the utility borrows for both the wastewater improvement project and the sponsored project. 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. Instead, two water quality projects are accomplished for the cost of one.

The map shows the project locations for approved sponsored projects as of April 2017.

The applications proposed for funding in SFY 2018 are listed in Appendix D.

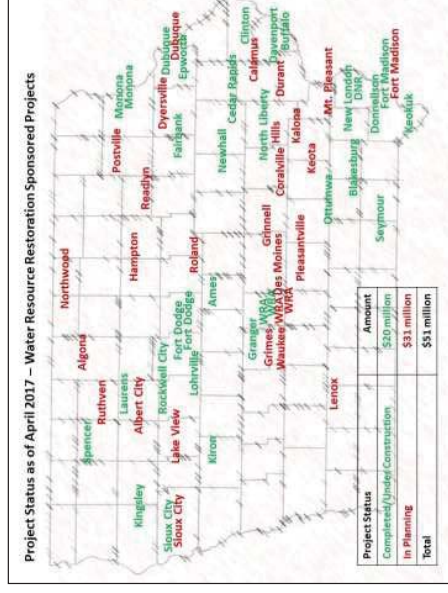
Applications will be taken during SFY 2018 on September 1, 2017 and March 1, 2018. The same requirements apply.

- For loans up to 20 years, the interest rate on the combined infrastructure/sponsored project loan will be reduced to not lower than 0.75%. The equivalent of the amount that would be generated by a 1% interest rate (approximately \$100,000 per \$1 million borrowed) will be available for eligible sponsored project costs. Loans between 20-30 years can also be used but the dollar amount for sponsored projects will also be \$100,000 per \$1 million.
- The amount set aside for interest rate reductions for the in FY 2018 is ~~\$40.12~~ million (on up to ~~\$400.120~~ million worth of future CWSRF infrastructure loans). If sponsored project requests exceed that amount, DNR reserves the right to cap the dollar amount of a single project to a percentage of the total allocated.

Explanations of eligible applicants and projects, as well as specific application requirements, are outlined in the SFY 2018 Sponsored Project Application Packet, available online at: http://www.iowasrf.com/about_srf/sponsored_projects_home_page.cfm.

Plan for Nonpoint Source Set-Asides

Iowa authorizing legislation and state administrative rules allow the use of CWSRF funds for nonpoint source pollution control projects. Four set-asides for nonpoint source program assistance have been established which



target areas of need allowed under federal guidance and identified in the state nonpoint source water quality management plan:

- The On-Site Wastewater Systems Assistance Program (OSWAP), providing loans to homeowners to replace inadequate septic systems. New systems are certified by county sanitarians and loans are made through participating lenders through a linked deposit arrangement.
- The Local Water Protection (LWP) Program, addressing soil, sediment, and nutrient control practices on agricultural land. DNR contracts with the Iowa Department of Agriculture and Land Stewardship, which operates the program through local Soil and Water Conservation Districts. Loans are made through participating lenders through a linked deposit arrangement.
- The Livestock Water-Quality Facilities (LWQ) Program, assisting livestock producers with manure management plans, structures, and equipment. Facilities with fewer than 1,000 animal unit capacity are eligible. DNR contracts with the Iowa Department of Agriculture and Land Stewardship, which operates the program through local Soil and Water Conservation Districts. Loans are made through participating lenders through a linked deposit arrangement.
- The General Nonpoint Source (GNS) Program, for a wide variety of other water quality protection efforts. Projects include habitat and wetland restoration, landfill closure, lake restoration, and watershed planning. Funding for Storm Water Best Management Practices loans is also included in this set-aside amount. Projects that involve purchase of land require separate approval by the EPC. These projects are listed in Appendix E.

The table below outlines the current and proposed set-aside amounts planned for the four programs. These set-aside amounts may be amended based on need and the financial capacity of the CWSRF.

Program	Proposed SFY 2018 Set-Aside Amount
Onsite Wastewater Assistance Program (OSWAP)	\$1.8 million
Local Water Protection Program (LWPP)	\$5.0 million
Livestock Water Quality Facilities Program (LWQ)	\$6.0 million
General Nonpoint Source Program (GNS)	\$10.0 million
TOTAL	\$22.8 million

Plan for Use of Administrative Accounts

There are three distinct funding sources for CWSRF administrative expenses:

- The CWSRF administrative set-aside. Iowa intends to take or reserve 4% of the federal capitalization grant funds for program administration. The Iowa SRF program did not take any administrative set-aside from the ARRA capitalization grant. The administrative set-aside of \$2,122,000 from the ARRA cap grant is reserved for future use. Any unused administration commitments from other capitalization grants are reserved for use in future years as necessary should capitalization grants be reduced, or actual costs increase.
- Loan initiation fees. A 0.5% loan origination fee will be charged on new CWSRF loans. The maximum amount to be paid will be \$100,000. Under EPA rules, because Iowa's origination fees are financed

through the loans, the proceeds are considered program income. Program income can only be used for the purposes of administering the CWSRF program or for making new loans. There is approximately \$3 million available in funds considered program income. A portion of these funds will be used in SFY 2018 for program administration, and the remainder will be reserved for future administrative expenses.

- Loan servicing fees. A fee of 0.25% on principal is charged on CWSRF loans. Under EPA rules, only servicing fees charged on loans made above and beyond the amount of the capitalization grant and fees collected after the capitalization grant under which the loan was made has been closed are considered non-program income. Non-program income can be used to administer the program or for other water quality purposes. The uses of non-program income are discussed below.

Program Income. CWSRF program expenses are currently approximately \$2.6 million per fiscal year. This includes the work of wastewater engineering section project managers, specialists in environmental review, nonpoint source program administrators, financial officers, loan coordinators, and program managers. It also covers expenses for financial and legal advisors.

Non-Program Income. There is approximately \$8 million available in funds considered non-program income. The DNR proposes the following uses for a portion of these funds during SFY 2018:

Purpose	Explanation	Amount
To support wastewater compliance activities	SRF non-program income will be used in place of state general fund dollars for three FTEs in the field office wastewater staff. The field offices will be doing inspections to ensure compliance with the NPDES permit, assisting permit holders with staying in compliance with their permit, investigating complaints from the public related to wastewater treatment and offering technical assistance to wastewater facility operators. Another task is working with unsewered communities to become properly sewered.	\$328,000
To provide staffing in the Water Quality Bureau	This funding will replace state general funds for up to three environmental engineers that review construction projects in the Wastewater Engineering section, up to four permit writers in the National Pollution Discharge Elimination System (NPDES) section, up to three water quality monitoring staff, the Water Quality Resource Coordinator position, half the time of a business analyst to update Bureau databases, and engineering interns.	\$1,400,000
To support the development of a stream mitigation program	The funding will be used to fund staff time to develop a stream mitigation banking effort.	\$32,500
TOTAL	TOTAL	\$1,760,500

II. INFORMATION ON THE CWSRF ACTIVITIES TO BE SUPPORTED

Allocation of Funds

Allocation of funds to eligible projects was based on a four-step process:

				Administrative Code 567 Chapter 64.2(9).
Extended (21 to 30 years based on useful life)	Non-Disadvantaged	2.75%	0.25%	3.00%

Interest rate for CWSRF planning and design loans will be 0% for up to three years.

Loan Fees. A 0.5% origination fee is charged on the full loan amount for new CWSRF construction loans, with a maximum amount of \$100,000. No origination fees will be charged on planning and design loans. A 2.5% servicing fee will be charged on construction loans. Payment of the loan servicing fee is semi-annual with interest payments for all new SRF loans. Loan servicing fees are only charged on the principal amount disbursed during construction (not the entire original loan amount).

Financing Term. The financing term will be up to 30 years. Current and new projects on the project priority list may request an extended term. The length of the term will be based on calculation of the average useful life of the entire project, to be determined by the applicant's consulting engineer and approved by DNR.

Maximum Financing. There is no maximum financing amount.

Project Readiness. Applicants cannot be offered assistance until they meet program requirements.

Funding Limitations. Pending loans identified in this IUP do not exceed funds obtainable for the CWSRF program.

Plan for Efficient and Timely Use of CWSRF Funds

The State of Iowa's Clean Water State SRF uses federal capitalization grant funds as expeditiously as possible. Iowa has been able to use its federal capitalization grant funds in a timely way due to a robust and sustained demand for loans. A number of program features have spurred the growth in loan demand. These include:

- Improvements and streamlining in the wastewater construction permitting process, which reduced timelines for project review and approval;
- Allow applicants to pursue phased approach for projects to enable individual phased projects proceed timely to construction instead of waiting on approval on a large project;
- Planning and design loans at 0% interest for three years to provide upfront capital to get projects started and ready for construction and loan closing;
- Year-round application process with quarterly updates to the Intended Use Plan, which keeps projects in the loan pipeline on a continual basis;
- Expansion of nonpoint source and green infrastructure programs to include loans for farmers, livestock producers, watershed organizations, and others;
- Extended term financing, based on project useful life, which allows more utilities to benefit from the CWSRF;
- Environmental review services to complete assessments of impacts to natural and cultural resources, reducing costs and barriers to participating in the loan program; and
- Focus on marketing, customer and consultant education, and coordination with other funders.

1. The amount of financial assistance needed for each application was estimated;
2. The sources and allowable uses of all CWSRF funds were identified; and
3. The CWSRF funds were allocated among the projects, consistent with the amount available and the financial assistance needed.
4. A designated amount was selected as reasonable and manageable for each set-aside.

Information pertinent to each CWSRF project is contained in Chart 1, pursuant to Section 606(c)(3) of the Clean Water Act.

Sources and Uses of Available CWSRF Funds

Appendix A to the Intended Use Plan illustrates potential sources and uses of funds in the CWSRF for SFY 2018. As shown, all pending loan requests and program administration needs can be funded. Projects will draw on their funding at different intervals based on their construction cycles. These differences are used to estimate cash needs throughout the year. Appendix A will be updated quarterly as needed to provide an ongoing view of the financial plan for meeting loan requests.

Section 212 Projects Program Policies

Project Scope. The scope of the project must be outlined on the Intended Use Plan application and in the facility plan. Changes to the scope are allowed prior to loan closing. Significant changes in scope may cause delays if additional work is required by the project manager or environmental review specialist. Once a loan is signed, only minor changes to the scope will be allowed and only if they do not require additional technical or environmental review.

Loan Interest Rates. The interest rates for construction loans made from the CWSRF are as follows:

Loan Term	Applicant Type	Interest Rate	Servicing Fee	Total	Additional Information
Standard (up to 20 years)	All	1.75%	0.25%	2.00%	
Extended (21 to 30 years based on useful life)	Disadvantaged	1.75%	0.25%	2.00%	Communities must be determined to be disadvantaged based on criteria in Iowa Code section 455B.199B, Disadvantaged Communities Variance, as amended by Senate File 407 on April 28, 2011. These criteria include income and unemployment data. SRF staff will also consider population trends, providing 1 point for communities with projected increases or decreases in population. Population trends are also reviewed as part of the construction permitting process as required in Iowa

Financial management also contributes to the timely use of federal funds. The Iowa CWSRF program uses its Equity Fund to originate new loans. This fund consists of principal and interest repayments. When additional funds are needed, the SRF program issues bonds, backed by those CWSRF loans, and uses the bond proceeds to replenish the equity fund.

Iowa's SRF program issues bonds annually or as needed. These bond issues include the state match for the next federal capitalization grants. After the bonds are issued, the state match is spent first so the cap grant can be drawn down at 100% when it is received. Due to equivalency guidance from the U.S. EPA, cap grant dollars can be directed on a first in, first out basis. That allows the cap grant to be drawn down more quickly. Equivalency projects are chosen to meet the full range of SRF requirements. Loan disbursements are made weekly. Iowa's CWSRF disbursements average \$10.6 million per month.

With a return of \$3.34 for every dollar of federal investment (compared to the national average of \$2.63), Iowa's CWSRF is an efficient and effective delivery mechanism for water infrastructure funding.

The practices described above are currently working well for Iowa and will be continued through FY 2018.

Water Quality Management Planning

A reserve for water quality management planning as required by Title VI of the Clean Water Act 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 taken into account in projecting Iowa's available capitalization grant.

SEE Salary Funds Deducted from Cap Grant

The Iowa DNR may request U.S. EPA to deduct funds from FFY 2017 capitalization grants which could be included in Iowa's next grant applications to EPA after receiving notification of availability of the CWA Title VI Funds and evaluating the state allotment amount. These positions could be 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 could help provide staffing at Iowa DNR to maintain the CWSRF program and keep up with the increasing CWSRF 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."

III. ASSURANCES AND SPECIFIC PROPOSALS

Iowa will provide the necessary assurances and certifications according to the Operating Agreement between the State of Iowa and the U.S. EPA. Iowa's Operating Agreement was amended in April 2007 and will be updated during SFY 2018.

IV. CRITERIA AND METHOD FOR DISTRIBUTION OF FUNDS

Section 212 Infrastructure Projects

The following approach was used to develop Iowa's proposed distribution of CWSRF funds for Section 212 infrastructure projects: (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 pay the project costs as incurred.

Allocation of Funds Among Projects. All projects listed in the CWSRF Project Priority List (attached) are eligible for assistance and may be funded from the CWSRF subject to available funds.

All projects scheduled for funding with Iowa's CWSRF will be reviewed for consistency with appropriate plans developed under sections 205(j), 208, 303(e), 319 and 320 of the Clean Water Act, as amended. Evidence of this review and finding of consistency will be documented in each CWSRF project file. Should a project fail to meet this review criterion, it may be bypassed as allowed by State rules. The Project Priority List provides for contingency projects, which may be considered for loan assistance as bypass projects according to state rules without formal amendment of this intended use plan.

Priority of Communities and Financial Assistance Needed. Iowa law provides only for loan assistance. Additional subsidization required by federal capitalization grant conditions will be through forgivable loans. The state's CWSRF rules identify the priority rating system used to establish priorities for loan assistance.

Nonpoint Assistance Programs

Nonpoint source assistance includes set-asides for the Onsite Wastewater Assistance Program (OSWAP), Livestock Water Quality Facilities (LWQF), Local Water Protection (LWP) and General Nonpoint Source (GNS). These funds implement the intent of Iowa statute to use CWSRF funds to improve residential wastewater systems, to assist owners of existing animal feeding operations to meet state and federal requirements, for local water protection projects that will provide water quality improvement or protection and for general nonpoint source projects that will provide water quality improvements or water quality protection. These systems are addressed as a need by Iowa's State Nonpoint Source Management Plan. Individual loan applicants for all set-asides are not identified in this IUP. These programs will be operated as linked deposit, loan participation, or direct loan programs.

V. METHOD OF AMENDMENT OF THE INTENDED USE PLAN

This IUP will be followed by the State in administering CWSRF funds in SFY 2018. Federal and state law requires, and Iowa welcomes, opportunity for public participation in the development of the IUP. Any revisions of the goals, policies and method of distribution of funds, must be addressed by a revision of the IUP, including opportunity for public participation. Updates to the IUP to add projects to the priority list, to make program changes, or to adjust dollar amounts in set-asides, will be made quarterly as needed. Minor adjustments in funding schedules, loan amounts and use of bypass provisions including funding of projects on contingency status are allowed by the procedures of this IUP and state rules for administration of the CWSRF without public notification.

VI. PUBLIC REVIEW AND COMMENT

A public meeting to allow input to Iowa's SFY 2018 IUP and Project Priority List was held May 11, 2017, 10:00 a.m., at the Wallace State Office Building, Conference Room 5E, 502 E. 9th Street, Des Moines. This meeting was announced in a notice provided to stakeholder organizations representing city officials, consulting engineers,

county governments, councils of government, area planning agencies, US EPA Region VII and other groups which might have an interest. There were no attendees. The public comment period was open until May 18, 2017. Written comments were received from the U.S. Environmental Protection Agency Region 7 SRF staff. Comments will be addressed in the next quarterly update.

A public meeting to allow input to Iowa's SFY 2018 IUP and Project Priority List was held August 10, 2017, 10:00 a.m., at the Wallace State Office Building, Conference Room 2W, 502 E. 9th Street, Des Moines. This meeting was announced in a notice provided to stakeholder organizations representing city officials, consulting engineers, county governments, councils of government, area planning agencies, US EPA Region VII and other groups which might have an interest. There were no attendees. The public comment period was open until August 17, 2017. There were no written comments.

A public meeting to allow input to Iowa's third quarter updates to the SFY 2018 IUP and Project Priority List was held November 9, 2017, 10:00 a.m., at the Wallace State Office Building, Conference Room 2W, 502 E. 9th Street, Des Moines. This meeting was announced in a notice provided to stakeholder organizations representing city officials, consulting engineers, county governments, councils of government, area planning agencies, US EPA Region VII and other groups which might have an interest. There were no attendees. The public comment period was open until November 16, 2017.

Comment: One comment was received regarding the sponsored project application from the City of Roland. The City's engineering consultant questioned why the application was not recommended for funding, and stated that the application should have been considered complete since the application used the same information as a previous project that was funded.
DNR Response: The DNR received \$24 million worth of sponsored project applications during SFY 2018, with only \$10 million set aside for this purpose. Applications that might have been able to be funded in previous rounds were scrutinized more closely, in particular, the connections made between the watershed assessment and the proposed practices. Other applications were evaluated to be more robust in their assessment of water quality issues and in their approach to potential solutions.

VII. PROJECT PRIORITY LIST

Chart 1, the CWSRF Project Priority List is included in a separate, sortable Excel file.

APPENDIX A Iowa CWSRF State Fiscal Year 2018 3Q Estimated Funding Sources and Funding Uses As of 10/25/2017

Funding Sources	\$115,630,000 *
Funds Available in Equity Fund and Program Accounts	\$0
FFY 2017 Capitalization Grant	\$0
State Match for FFY 2017 Capitalization Grant	\$39,889,000
Issuance of Leveraged Bonds (next bond issue expected SFY 2018)	\$450,000
Equity Fund and Program Interest Earnings	\$83,702,000
Loan Repayments	\$239,671,000
Total Funding Sources	
Funding Uses	
Undisbursed Amounts Committed to Existing Loans (35% disbursement rate)	\$61,146,000
Section 212 Project Requests (FNSI/CX issued; 20% disbursement rate)**	\$59,156,000
Section 212 Project Requests (FNSI/CX not issued; 10% disbursement rate)**	\$23,358,000
Planning & Design Requests (60% disbursement rate)	\$4,590,000
Non-Point Source Program Assistance	\$19,357,000
Principal Payments on Outstanding Bonds	\$38,500,000
Interest Payments on Outstanding Bonds	\$31,053,000
Program Administration from FFY 2017 Capitalization Grant	\$389,000
Program Administration From ARRA Capitalization Grant	\$2,122,000
Total Funding Uses	\$239,671,000

* Funds Available for disbursements as of 10/25/2017
 All amount are rounded to the nearest \$1,000

** Loan disbursement rates are estimated based on previous experience with project pace. For projects that currently have not had a Finding of No Significant Impact or Categorical Exclusion issued, it is expected that up to 10% of the total project amounts may be disbursed during SFY 2018 once environmental review is completed, construction permit issued, and binding loan commitment signed. For those projects with FNSI/CX clearance, the disbursement rate is estimated at 20% of the loan request amount.

**APPENDIX B-1
PROCEDURES TO DETERMINE SECTION 212 PROJECT PRIORITY LIST**

Project rankings were determined by the following procedures:

Cost eligibility of projects was determined as per 567 IAC 92.7(6)(455B). Applications were evaluated using the priority point system in 567 IAC 91.8(455B).

The final project priority list for a fiscal year's project pool is compiled in the following manner: 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 then be added.

Projects on the project priority list will be given contingency status should the total amount of needs exceed the year's CWSRF staff resources capability and loan funding or if the projects have not met the fundable criteria described in 567 IAC 92.6(2)(455B). Projects will be funded from the top down in the ranking order of the project priority list. Projects are ranked similarly in the contingency project list. The top project in the contingency list can be moved to the funding list when funds are available or it has met the fundable criteria. Funds can be made available due to a number of reasons including project bypasses, loan application withdrawal of other projects, reduction in loan amount requests, an increase in available funds, or progress in meeting program requirements.

**APPENDIX B-2
CRITERIA TO DETERMINE PROJECT PRIORITY LIST**

In April 2010 Iowa adopted revised rules for the Clean Water State Revolving Fund (CWSRF). 567 IAC 91 provides the criteria for scoring and ranking CWSRF projects. The new system uses an integrated approach which allows comparison of Section 212 POTW (publicly owned wastewater treatment works) projects as well as nonpoint source pollution control projects. The goal of the new system is gain the highest water quality benefits for the funding available.

Currently Iowa is able to fund all projects that are eligible, but the priority system will be available to use in the case that demand for CWSRF loans exceeds supply of funds.

Section 212 POTW Projects

The rating criteria consider the use classification of the receiving waters, water quality of the receiving waters, groundwater protection, project type, project purpose, and a tiebreaker; defined in 567 IAC 91.8 (455B). Priority ranking for the projects shall be 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. The tie breaker category will be used when necessary.

Nonpoint Source Set-Aside Programs

The rating criteria consider the use classification of the receiving waters, water quality of the receiving waters, groundwater protection, project type, project purpose, and a tiebreaker; defined in 567 IAC 91.8 (455B). 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 priority system for nonpoint source will not be implemented until 90 percent of a nonpoint source set-aside is allocated and no additional funds are available. If that occurs, ranking will be done at the time that a new project application is received.

**APPENDIX C
BORROWERS RECEIVING ADDITIONAL SUBSIDIZATION OR COUNTED FOR GREEN PROJECT RESERVE (GPR)**

Some GPR projects received additional subsidization. Other projects received add subs based on their disadvantaged community status.

Project	Loan Amount	Amount Green Project Reserve	Amount Additional Subsidization	Grant Year Reported
Charles City	1,400,000	1,400,000	409,372	2010
Conesville	1,350,000		230,689	2010
Lohrville	3,724,000		1,077,900	2010
McCallsburg	810,000		147,400	2010
INHF	1,975,574	1,975,574		2010
Private Borrower	10,024	10,024		2010
INHF	1,435,320	1,435,320		2010
Private Borrower	189,874	189,874		2010
INHF	403,000	403,000		2010
Ocheyedan	2,065,000		227,398	2010
Odebolt	1,599,000		387,857	2010
Odebolt	500,000		100,000	2010
Pisgah	650,000		181,200	2010
Spirit Lake	103,000	103,000	30,900	2010
Terril	1,077,000		278,144	2010
Walker	2,158,000		420,816	2010
Washington	16,316,000		1,000,000	2010
Coraville	1,751,000	1,751,000	481,480	2011
Dubuque (sponsored)	9,400,000	9,400,000		2011
Meriden	329,000	64,485	12,897	2011
INHF	827,000	827,000		2011
Ottumwa	4,800,000		740,000	2011
Dubuque (Upper Bee Branch)	28,923,179		1,684,000	2011
Albert City	400,000		120,000	2012
Dubuque (methane)	3,048,000	3,048,000		2012
INHF	647,700	647,700		2012
INHF	129,420	129,420		2012
INHF	98,940	98,940		2012
Dubuque (Upper Bee Branch)			1,400,000	2012
INHF	300,000	300,000		2013
INHF	342,000	342,000		2013
INHF	2,835,000	2,835,000		2013
Dubuque (Upper Bee Branch)			1,276,000	2013
Buffalo (sponsored)	35,000	35,000		2014

Monona (sponsored)	245,000	245,000	2014
WRA WRR	2,200,000	2,200,000	2014
Dubuque (Upper Bee Branch)		1,584,000	2014
Dubuque (Upper Bee Branch)		28,923,179	2015
Ottumwa		700,000	2016
Albert City	1,000,000	300,000	2016
Albert City	2,796,000	838,800	2016
WRA (sponsored)	1,070,000	1,070,000	2016
INHF	430,000	430,000	2016
INHF	903,297	903,297	2016
INHF	729,000	729,000	2016
INHF	1,125,000	1,125,000	2016
INHF	277,500	277,500	2016
INHF	611,000	611,000	2016
INHF	546,000	546,000	2016
TOTAL	101,564,828	62,055,313	13,628,853

INHF = Iowa Natural Heritage Foundation
WRA = Wastewater Reclamation Authority

**APPENDIX D
FY 2018 Sponsored Project Funding Recommendations**

Applicant	Proposed Watershed and Project Description	Proposed Partners	Date Approved
Fayette	Volga River -- install bioretention cells as part of downtown revitalization to reduce pollutant and quantity of runoff	Turkey River Watershed Management Authority, Fayette SWCD	6/20/2017
Greenfield	Greenfield Lake and Nodaway Lakes -- lake improvements for water quality and source water protection practices	IDALS, Adair CCB, NRCS, SWCD	6/20/2017
Johnston	Beaver Creek/Des Moines River - improve water quality and mitigate the amount of stormwater runoff through best management practices	Polk SWCD, IDALS	6/20/2017
Lake View	Black Hawk Lake -- urban practices to reduce sediment and nutrient loadings to the lake	Black Hawk LPA, Sac Co. SWCD, IDALS, DNR	6/20/2017
Ogden	East Beaver Creek -- reduce sediment and nutrient transport through both agricultural and urban practices to prevent runoff	Beaver Creek Watershed Management Authority, Boone SWCD	6/20/2017
Slater	Fourmile Creek -- manage sediment and bacteria loading through practices to address urban runoff	Polk SWCD	6/20/2017
Tiffin	Clear Creek -- install green infrastructure practices for infiltration, runoff volume, and rate reduction for streambank protection; implement residential soil quality restoration program	Clear Creek Watershed Coalition, Shelby Builders, Hochstedler Building & Development	6/20/2017
West Burlington	Mississippi River - implement stormwater best management practices in the Flint-Henderson watershed	IDALS, NRCS	6/20/2017
West Union	Otter Creek -- install permeable pavers at City Hall to reduce stormwater runoff to nearby Otter Creek which is a designated cool water stream	Turkey River Watershed Management Authority, Fayette SWCD	6/20/2017
Wastewater Reclamation Authority	Sugar Creek/Raccoon River- improve stream corridor stability in support of Raccoon River Water Quality Master Plan	Polk SWCD (assisting with urban practices in Dallas Co.)	6/20/2017
<u>Burlington</u>	<u>Mississippi River- install distributed stormwater infiltration practices in areas of the city undergoing combined sewer separation to capture urban pollutants and reduce volume and rate of runoff</u>	<u>Des Moines County SWCD, IDALS</u>	<u>12/19/2017</u>

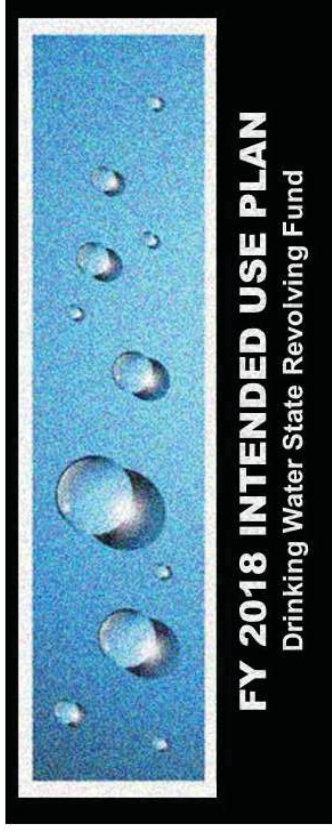
<u>Central City</u>	<u>Wapsipicon River-install urban and agricultural best management practices to slow the flow of residential and row-crop runoff and decrease erosion, sedimentation, and nutrient discharge downstream.</u>	<u>Linn SWCD, IDALS</u>	<u>12/19/2017</u>
<u>Creston</u>	<u>Summit Lake and Hurley Creek/Lake McKinley-Install urban and agricultural best management practices to reduce sediment, nutrients, and bacteria entering Summit Lake and Lake McKinley.</u>	<u>Union SWCD, DNR Wildlife Bureau, Iowa Natural Heritage Foundation, High Lakes Outdoor Alliance, NRCS, IDALS</u>	<u>12/19/2017</u>
<u>Dubuque</u>	<u>Bee Branch and Mississippi River-execute water quality practices identified in the Eagle Point Park Environmental Restoration Management Plan to reduce volume and velocity of runoff and increase infiltration of stormwater.</u>	<u>Dubuque SWCD, IDALS</u>	<u>12/19/2017</u>
<u>Eagle Grove</u>	<u>Boone River-install urban and agricultural practices identified in watershed assessment prepared by the Iowa Soybean Association. Co-funding with Wright County.</u>	<u>Iowa Soybean Association, The Nature Conservancy, Wright County CCB, Wright SWCD, Iowa Agricultural Water Alliance, IDALS</u>	<u>12/19/2017</u>
<u>Indianola</u>	<u>Middle River and South River-install distributed urban best management practices to increase infiltration and reduce peak and total flows and pollutant discharge in stormwater runoff.</u>	<u>Warren SWCD, IDALS</u>	<u>12/19/2017</u>
<u>Marshalltown</u>	<u>Iowa River-install urban stormwater best management practices to reduce sediment load downstream, decrease nutrient transport, and restore project areas to more sustainably diverse ecological environments.</u>	<u>Marshall CCB, DNR 319, NRCS, IDALS</u>	<u>12/19/2017</u>
<u>Sioux Center</u>	<u>West Branch, Floyd River and Sioux Center Source Water Protection Area-implement appropriate water quality improvement practices and stretch impact of Water Quality Initiative funds</u>	<u>Sioux SWCD, NRCS, IDALS</u>	<u>12/19/2017</u>
<u>Wilton</u>	<u>Otter Creek and Mud Creek-implement urban and agricultural best management practices to infiltrate runoff, reduce sedimentation, and protect and restore stream corridors</u>	<u>DNR 319, NRCS, IDALS</u>	<u>12/19/2017</u>
<u>Wright County</u>	<u>Boone River-install urban and agricultural practices identified in watershed assessment prepared by the Iowa Soybean Association. Co-funding with City of Eagle Grove.</u>	<u>Iowa Soybean Association, The Nature Conservancy, Wright County CCB, Wright SWCD, Iowa Agricultural Water Alliance, IDALS</u>	<u>12/19/2017</u>

**APPENDIX E
General Nonpoint Source Set-Aside Projects for Approval of Land Purchase**

Per Iowa Administrative Code 567 Chapter 93.7(5) Ineligible costs. Costs for livestock water quality facilities are not eligible under this set-aside and are provided for in rule 567—93.5(455B). Costs for the purchase of land are not eligible costs unless specifically approved by the commission.

Applicant	Project Description	Water Quality Benefit	Amount	IUP Year and Quarter
Iowa Natural Heritage Foundation	Purchase of 319 acres through three properties along the North Raccoon River in Greene County.	The three properties contain upland floodplain habitats of mostly woodland. On the Bannister property, 89 acres has already been designated as the Eureka Woods State Preserve. One mile of the North Raccoon river will be protected. This river watershed is identified in the Upper Mississippi River Basin Initiative as a priority for conservation and reduction of sediment and nutrients. This segment of the North Raccoon is classified as a category 4 impaired water.	\$786,000	FY 2018 Q1
Iowa Natural Heritage Foundation	Purchase of 110 acres of property along the Wapsipicon River on the Buchanan/Black Hawk County line.	Permanent protection of the Harris Estate property will benefit water quality in the Wapsipicon River, a Protected Water Area. All crop fields have been planted to permanent cover through CRP. The Corn Suitability Rating is 50. The land will also serve as a buffer to an animal feeding operation. About two miles downstream from this reach the Wapsi is designated a category 5 impaired water for bacteria.	\$313,500	FY 2018 Q1
Iowa Natural Heritage Foundation	Purchase of 73 acres in Polk County to add to the Chichaqua Bottoms Greenbelt.	The Woolsey property is a mix of upland, steep slopes, and ravines that drain to the South Skunk River valley. The tributary on the property contributes significant sediment to the Southpoint wetland downstream. The slopes will be restored to native vegetation to prevent erosion. The South Skunk River in Polk, Story, and Jasper Counties is a category 5 impaired water.	\$500,000	FY 2018 Q1
Iowa Natural Heritage Foundation	Purchase of 348 acres in Polk County to add to the Chichaqua	The Kimberley property is on the north edge of the current greenbelt. The family owners are selling the property for conservation purposes. It contains 8/10 of a mile of former river channel which	\$2,401,200	FY 2018 Q2

Iowa Natural Heritage Foundation	Bottoms Greenbelt. Purchase of 392 acres in Humboldt County along Prairie Creek before the confluence with the Boone River	will allow restoration of the former river channel and adjacent oxbows to wetlands. The Kiburz property contains 234 acres of timber and Conservation Reserve Program and 158 acres of irregular and wet agricultural fields. Prairie Creek floods regularly, providing habitat for Topeka Shiner, an endangered fish, and migratory wildfowl. The Boone River is one of only five Protected Water Areas in Iowa.	\$1,755,000	FY 2018 Q2
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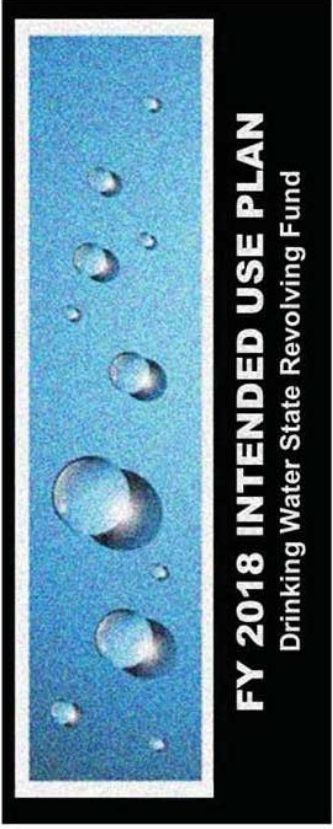
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I. STATE FISCAL YEAR 2018 PLAN OF ACTION

The plan is based on anticipated use of new and revolved funds available in the DWSRF for construction of treatment plants or improvements to existing facilities, water storage facilities, wells, and source water protection efforts.

The SFY 2018 Plan of Action covers the following areas:

- DWSRF goals and objectives;
- Current and projected financial capacity of the DWSRF;
- Financial management strategies;
- Plan for the SFY 2018 project priority list;
- Plan for use of DWSRF set-aside funds; and
- Plan for use of administrative accounts.

DWSRF Goals and Objectives

The primary long-term goal of the Iowa DWSRF is to support the protection of public health through a perpetual program of financial assistance for the purposes of ensuring the provision of an adequate quantity of safe drinking water to consumers of public water supplies, protecting source water for drinking water systems, and ensuring the long-term viability of existing and proposed water systems.

The SFY 2018 short-term goals and objectives are as follows:

- Goal: Commit loan funds to as many recipients as possible in accordance with the state priority rating system, the IUP, staff resources, and available funding. *Objective: During SFY 2018, quarterly updates to the IUP will be prepared to add projects and update program financial information.*
- Goal: Ensure that borrowers are able to provide safe drinking water at a reasonable cost for the foreseeable future. *Objectives: During SFY 2018, viability assessments will be completed by each applicant and reviewed by SRF staff prior to signing of the loan agreement. Systems determined*

nonviable or systems with EPA's Enforcement Targeting Tool (ETT) scores above 11 will be provided with an enforceable compliance schedule listing all actions that must be completed to return the system to viable status. Extended term financing will be offered to disadvantaged communities. SRF staff will coordinate efforts with other funders such as the Community Development Block Grant program. We will continue to educate and inform public water supplies, engineering consultants, and financial advisors on the financing savings available by using the DWSRF.

- Goal: Require applicants to engage a registered Municipal Advisor (MA). *Objective: During SFY 2018, all applicants submitting an Intended Use Plan application must demonstrate that they have hired an MA to assist with cash flows, rate setting, debt service coverage, and other financial aspects of their water utility. The reports provided by the MAs will be used in the viability assessment review.*
- Goal: Implement the "Use of American Iron and Steel (AIS)" requirements enacted by Congress on January 17, 2014. *Objective: During SFY 2018, SRF staff will help applicants determine eligibility for the exemptions and waivers provided for in the Act and EPA guidance. SRF staff will provide information to those applicants required to comply on necessary documentation and inspection procedures. SRF will engage DNR Field Office staff to conduct site visits and provide technical assistance.*
- Goal: Apply additional subsidization available in FFY 2015 - 2016 capitalization grants to disadvantaged community projects and public health projects. *Objective: During SFY 2018 SRF staff plans to approve plans and specifications and execute loans or loan amendments with loan forgiveness for the amounts required in the FFY 2015 - 2016 cap grants.*
- Goal: Promote and identify sustainable practices in projects proposed for funding. *Objective: During SFY 2018 SRF staff will provide information on the EPA's Sustainability Policy to applicants and include sustainability features in project descriptions.*
- Goal: Comply with EPA guidance on reporting under the Federal Funding Accountability and Transparency Act (FFATA). *Objective: In the Annual Report, SRF staff will list loans that met the several requirements of FFATA for open capitalization grants. Grants may not be closed out until equivalency amounts can be reported.*
- Goal: Comply with the EPA Signage Guidance. *Objective: During SFY 2018 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.*
- Goal: Update the DWSRF Operating Agreement. *Objective: During SFY 2018 SRF staff will work with EPA Region 7 to update the Drinking Water SRF Operating Agreement between DNR and EPA. The agreement has not been updated since 2007.*

Additional long-term goals include:

- Goal: Prioritize the provision of funds, to the extent practicable, to projects that address the most serious risk to human health and are necessary to ensure compliance with the national primary drinking water standards. *Objectives: Priority will be assigned to projects that address human health risks or compliance issues by the provision of points assigned during the DWSRF scoring process as outlined in 567 IAC Chapter 44.*

- Goal: Apply program requirements that are simple and understandable and do not add unnecessary burdens to applicants or recipients. *Objectives: During SFY 2018 SRF staff will continue to assist applicants with completing the federal cross-cutting requirements for environmental and historical reviews. Staff will not be responsible for Davis-Bacon compliance but will advise borrowers as needed. Borrowers will be responsible for compliance and may hire outside consultants to assist.*
- Goal: Continue the option of extended financing terms for DWSRF infrastructure projects. *Objective: During SFY 2018 this option will be offered to current and new projects on the project priority list. Applicants seeking extended financing must complete a worksheet outlining the anticipated life of the project components, which can be averaged to determine the extended term.*
- Goal: Maintain mechanisms for funding the on-going administration of the program if federal funding is reduced or eliminated. *Objective: During SFY 2018 initiation and servicing fees will be collected on DWSRF loans for deposit to administrative accounts. SRF staff will develop short and long-term plans for administrative budgets.*
- Goal: Manage the DWSRF to maximize its use and impact through sound financial management. *Objective: During SFY 2018 SRF staff and financial advisors will continue to conduct financial analysis and develop innovative approaches to financial management.*
- Goal: Implement programs that effectively address water system needs and target appropriate audiences. *Objective: During SFY 2018 SRF staff will continue to educate users and potential users about the program offerings through presentations, displays, program materials, and the IOWASRF.com website.*

Current and Projected Financial Capacity of the DWSRF

Appendix A, the Estimated Sources and Uses table, shows that available funds are sufficient to fund current requests.

SRF staff has analyzed the future financial capacity of the DWSRF. Using relatively conservative assumptions, it is projected that the DWSRF could loan an average of \$150 million per year over the next 10 years, or a total of \$1.5 billion. Analysis is done based on a financial model developed by IFA's financial advisor, using scenarios with and without capitalization grants.

Financial Management Strategies

The DWSRF Project Priority List (attached) show total loan requests for water supply projects. Because many of these projects are in the planning phase, they are not expected to sign a binding loan commitment during this fiscal year. The projected timing and demand for loan draws is reflected in the sources and uses table (Appendix A).

Iowa will apply for the FFY 2017 capitalization grant as soon as notified by the U.S. EPA. State match funds based on an estimated FFY 2017 cap grant amount were obtained and have already been expended. State match bonds are issued at the same time that leveraged bond issues are done for greater cost effectiveness.

The cash draw procedure used is the direct loan method. State match is fully disbursed prior to drawing EPA capitalization grant funds. The EPA capitalization grant funds will be drawn at a 100% proportionality ratio. Iowa's bonds are cross-collateralized across both the Clean Water and Drinking Water SRF accounts.

SFY 2018 Project Priority List

The management of the DWSRF program, including development of a project priority list for financing assistance, was developed according to Part 567 of the Iowa Administrative Code (IAC), Chapter 44. This IUP indicates the intent to provide funds to projects ranked in priority order according to scoring criteria contained in Chapter 44 of the IAC.

In the event that projects identified for funding in the IUP do not attain readiness for a loan commitment by projected dates, these delayed projects may be bypassed. Other projects may be added to the project priority list to be funded based on the State's implementation rules for the DWSRF program (567 IAC 44). Applications that are in excess of available DWSRF assistance may be placed on Contingency status according to priority.

Projects will be funded as ranked on the project priority list. 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 Act. Financing may be provided for up to 100% of project costs if the costs are eligible for funding based on engineering, environmental, and financial review and project readiness to proceed as described above.

Due to the project workload and for planning purposes, the DWSRF staff will evaluate projects that have been on the IUP list for more than three years. A notification will be sent to the applicants that their project may be dropped if there is no progress in the six months following the notice. If a project is dropped, the applicant may reapply when the project is ready to move ahead.

For program planning purposes, the fundable projects are further identified as "R – ready for loan" (indicating that the construction permit and environmental review have been completed), and "P – in planning."

The following categories of projects will be included for funding during SFY 2018:

Unfunded Prior Years' Projects. All projects from prior years that have not entered into a binding commitment are included in this IUP.

Segments of Previously Funded Projects. State rules provide that subsequent segments of a project which has previously received funding priority or assistance be placed on the project priority list with the original project score.

New Projects. New applications for assistance during SFY 2018 will be added to the project priority list. Applications will be accepted on a continuous basis and quarterly updates completed as needed.

Supplemental Financing. Supplemental financing for projects listed in previously approved IUPs are added to the IUP as they are requested unless the additional funds will be used for improvements that would significantly change the scope of the project. Additional environmental review may be required. Supplemental loans will not be provided for changes that would lower the original score of the project to a point where the application is no longer competitive or is ineligible for funding.

Planning and Design Loans. Requests for planning and design loans are listed on the project priority list but have not been assigned priority points.

Source Water Protection Loans. Iowa's DWSRF no longer has adequate funding from the 15% Other Authorized Activities set-aside to offer loans for source water protection. All outstanding requests have been satisfied and no further applications will be taken. Source water loans are not eligible projects under the regular DWSRF loan program.

Capitalization Grant Requirements. The FFY 2010 - 2016 capitalization grants include requirements for certain percentages of the funds to be allocated for additional subsidization and/or green projects under the Green Project Reserve (GPR).

	Add Subs Req'd.	Add Subs Actual	%	GPR Req'd.	GPR Actual	%
2010	\$ 6,950,000	\$ 7,206,307	100%	\$ 4,633,000	\$ 5,633,568	122%
2011	\$ 4,746,300	\$ 4,741,518	100%	\$ 3,164,000	\$ 5,260,000	166%
2012	\$ 3,064,400	\$ 3,064,000	100%	\$ -	\$ -	N/A
2013	\$ 2,875,000	\$ 2,896,004	101%	\$ -	\$ -	N/A
2014	\$ 2,645,800	\$ 2,656,838	100%	\$ -	\$ -	N/A
2015	\$ 2,645,800	\$ 3,092,475	117%	\$ -	\$ -	N/A
2016	\$ 2,486,400	\$ -	0%	\$ -	\$ -	N/A
TOTAL	\$ 25,413,700	\$ 23,657,142	93%	\$ 7,797,000	\$ 10,893,568	140%

The specific projects that have received add subs or been counted for the GPR are listed in Appendix C. Additional projects identified for loan forgiveness to meet the FFY 2015 and 2016 capitalization grant requirements are listed on the DWSRF Project Priority List (Chart 1). Iowa will also plan to meet the requirements in the FFY 2017 capitalization grant.

II. INFORMATION ON THE DWSRF ACTIVITIES TO BE SUPPORTED

Allocation of Funds

Allocation of funds to eligible projects is based on a three-step process:

1. The amount of financial assistance needed for each application is estimated;
2. The sources and spending limits for all DWSRF funds are identified; and
3. The DWSRF funds are allocated among the projects, consistent with the financial assistance needed.

Information pertinent to each DWSRF project is contained in the attached Project Priority List.

Sources and Uses of Available DWSRF Funds

Appendix A to the Intended Use Plan illustrates potential sources and uses of funds in the DWSRF for SFY 2018. As shown, all pending loan requests and program administration needs can be funded. Projects will draw on their funding at different intervals based on their construction cycles. These differences are used to estimate cash needs throughout the year. Appendix A will be updated quarterly as needed to provide an ongoing view of the financial plan for meeting loan requests.

The Iowa DWSRF program uses its equity fund to originate loans. When the number of loans that have been made creates a need for additional funds, IFA issues bonds, backed by those DWSRF loans, and uses the bond proceeds to replenish the equity fund.

DWSRF Loan Policies

Project Scope. The scope of the project must be outlined on the Intended Use Plan application and in the preliminary engineering report. Changes to the scope are allowed prior to loan closing. Significant changes in scope may cause delays if additional work is required by the project manager or environmental review specialist. Once a loan is signed, only minor changes to the scope will be allowed and only if they do not require additional technical or environmental review.

Loan Interest Rates. The interest rate for DWSRF construction loans are shown in the table below:

Loan Term	Applicant Type	Interest Rate	Servicing Fee	Total	Additional Information
Standard (up to 20 years)	All	1.75%	0.25%	2.00%	
Extended (21 to 30 years based on useful life)	Disadvantaged	1.75%	0.25%	2.00%	Please see below, "Extended Financing and Disadvantaged Status," for an explanation.
Extended (21 to 30 years based on useful life)	All	2.75%	0.25%	3.00%	Please see below, "Extended Financing and Disadvantaged Status," for an explanation.

Interest rates for DWSRF planning and design loans will be 0% for up to three years. Source water protection loans are no longer offered as of April 2017.

Loan Fees. A 0.5% origination fee is charged on the full loan amount for new DWSRF construction loans, with a maximum amount of \$100,000. No origination fees will be charged on planning and design loans. A .25% servicing fee will be charged on construction loans and source water protection loans. Payment of the loan servicing fee is semi-annual with interest payments for all new SRF loans. Loan servicing fees are only charged on the principal amount disbursed during construction (not the entire original loan amount).

Maximum Financing. There is no maximum financing amount.

Project Readiness. Applicants cannot be offered assistance until they meet program requirements.

Funding Limitations. All program requests for disbursements from DWSRF projects can be met. These estimates are based on the projections that, for projects that have completed program requirements and are ready for funding, only 55% of the loan amount will be disbursed this fiscal year. For projects that are currently in the planning phase but may be ready for funding during SFY 2018, it is projected that only 50% of total funds will be disbursed to the project this fiscal year.

Extended Financing and Disadvantaged Status. During SFY 2015 the Iowa SRF received approval from the U.S. EPA to provide extended terms for a loan to any borrower as long as the extended term does not terminate more than 30 years after project completion and the loan term does not exceed the expected design life of the

project. For borrowers designated as disadvantaged, the interest rate on extended term loans will be 1.75%. For non-disadvantaged borrowers, the interest rate will be 2.75%.

The Safe Drinking Water Act defines a disadvantaged community as the service area of a public water system that meets affordability criteria established after public review and comment. Community public water systems serving populations that contain a majority (51 percent) of Low to Moderate Income (LMI) persons will be considered disadvantaged for the purpose of receiving the 1.75% interest rate on an extended term loan. This criterion does not apply to any other DWSRF assistance such as additional subsidization. Low to moderate income is defined as 80 percent of the median household income in the county or state (whichever is higher) using the most recent federal census or income survey data. Privately owned community public water systems will be considered eligible for disadvantaged community status if an income survey indicates that the service area meets the LMI criteria. Rural water systems will be considered eligible for disadvantaged community status if an income survey indicates that the area benefiting from the improvements meets the LMI criteria. Income surveys must be done according to the protocol specified by the Community Development Block Grant program.

Extended term loans are limited to public water supply infrastructure improvements. Projects eligible for funding from set-asides, such as source water protection projects, are not eligible in accordance with federal program requirements.

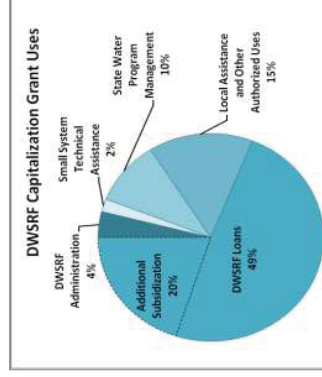
Only those portions of a project that have a design life or life cycle exceeding 20 years are eligible for extended terms. The department will use the table of estimated useful lives from EPA's publication 816-R-03-016 to determine the length of the loan for eligible expenses. The consulting engineer for the project will be required to separate and itemize costs so that a weighted maturity may be calculated for loan repayment. The list of itemized costs and expected useful lives will be required prior to signing of the loan agreement.

Intended Use of Set-Asides

States are allowed to take or reserve set-aside amounts from each federal capitalization 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 2017 workplan. Iowa plans to take or reserve the allowed amount in each set-aside as shown in the chart.

DNR has two options for addressing the amounts available each year in set-asides. Set-aside funds may be 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 capitalization grant when they are ready to be taken. Funds that are taken from an available capitalization grant must be applied to planned work efforts approved by EPA.



In recent years, 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 capitalization grant.

DWSRF Program Administration Set-Aside: Iowa intends to use this set-aside including loan administrative fees to pay the costs of administering the State Revolving Fund loan program. Among the uses for the set-aside are:

- Portfolio management, debt issuance, and financial, management, and legal consulting fees;
- Loan underwriting;
- Project review and prioritization;
- Project management;
- Environmental review services;
- Technical assistance to borrowers;
- Database development and implementation; and
- Program marketing and coordination.

Unused commitments are reserved for use in future years as necessary.

Small System Technical Assistance Set-Aside: Iowa intends to use DWSRF funds equivalent to 2% of the federal capitalization grant funds to provide technical assistance to public water supplies (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 including the administration and proctoring of examinations in all six regions of the state, and to provide training for new Grade A water system operators and continuing education for existing Grade A water system operators. Grade A is the certification grade for the smallest public water supply systems, with only disinfection treatment.

Unused commitments are reserved for use in future years for DNR staff and other purposes as necessary.

State Program Support Set-Aside: The primary uses of this set-aside are to assist with the administration of the Public Water Supply Supervision program, to review engineering documents for non-DWSRF construction projects, to provide wasteload allocations at public water systems with loans, 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 final federal rules and revisions to the Iowa Administrative Code.

Fifty percent of the budget amount will be funded from the capitalization grant and the remaining 50% will be funded from State sources as required under the 1:1 State match provision in SDWA. Starting with the FFY 2017 capitalization grant, as amended through the Water Infrastructure Improvements for the Nation Act of 2016, the state match will no longer be required. Unused commitments are reserved for use in future years for DNR staff and other purposes as needed.

	purposes under SDWA 1452 3) State match for the capitalization grant	The funds are deposited outside the Fund.	open for administration of the DWSRF program. Servicing fee receipts collected after the cap grant is closed are used for other purposes under SDWA 1452.
Fees included as principal and deposited outside the Fund	1) Fund administration 2) All other capitalization grant purposes under SDWA 1452 3) Cannot be used for state match for the capitalization grant	Iowa charges a 0.5% initiation fee on all new loans which is included in loan principal. The fees are deposited outside the Fund.	Iowa uses initiation fee receipts for administration of the DWSRF program.
Fees included as principal and deposited into the Fund	Authorized uses of the Fund	N/A	N/A

- Coordination and administration of the Source Water Protection program;
- Contracts for services to develop SWP plans and review implementation of Best Management Practices;
- Development of data for Phase 1 SWP assessments for all new systems and new wells at existing public water supply systems;
- Technical assistance for well siting; and
- Maintenance of the *Source Water Mapper and Tracker* online database.

Plan for Use of Administrative Accounts

There are three distinct funding sources for DWSRF administrative expenses:

- The DWSRF administrative set-aside. Four percent of the cumulative amount of federal capitalization grants received may be used for program administration as discussed in the set-aside section above.
- Loan initiation fees. A 0.5% loan origination fee is charged on new DWSRF loans.
- Loan servicing fees. A fee of 0.25% on principal is charged on DWSRF loans.

The U.S. EPA issued fee guidance in March 2017 with a matrix showing the relationship between how fees are assessed and for what purposes they can be used. The following table shows how Iowa's fee policies comply with the guidance:

EPA Fee Category	Allowable Uses	Iowa DWSRF Fee Policy	Iowa DWSRF Fee Usage
Fees not included as principal and deposited into the Fund	Authorized Uses of the Fund	N/A	N/A
Fees not included as principal and deposited outside the Fund	1) Fund administration 2) All other capitalization grant	Iowa charges a 0.25% servicing fee annually on outstanding principal.	Iowa uses servicing fees collected during the time the capitalization grant is

Fees Included as Principal. As of April 2017, there was approximately \$4.6 million in the fee account from fees included as principal and deposited outside the fund (the initiation fee). A portion of these funds will be used in SFY 2018 for program administration, and the remainder will be reserved for future administrative expenses.

Fees Not Included as Principal. As of April 2017, there was \$6.1 million available from fees not included as principal and deposited outside the fund (servicing fee). A portion of these funds may be used in SFY 2018 to provide part of the required state match for the State Program Management set-aside.

SEE Salary Funds Deducted from Cap Grant

The Iowa DNR may request U.S. EPA to deduct funds from FFY 2017 capitalization grants which could be included in Iowa's next grant applications to EPA after receiving notification of availability of the funds. These positions could be filled by EPA Region 7 and assigned to the DNR's Water Supply engineering section to provide administrative assistance to the DWSRF projects and program. The SEE enrollees could help provide staffing at Iowa DNR to maintain the DWSRF program and keep up with the increasing DWSRF project 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."

Plan for Efficient and Timely Use of DWSRF Funds

In recent years, the processes of the DWSRF have been streamlined, and the marketing and education enhanced. These improvements have resulted in more efficient and timely use of the DWSRF and full utilization of available funds. In particular, Iowa applies for and draws federal capitalization grants as expeditiously as possible. Average monthly DWSRF disbursements are \$6 million.

Rather than doing one annual funding solicitation, with a discrete set of projects identified for funding that year, the Iowa SRF does quarterly updates to its intended Use Plan. This creates a continuous pipeline of projects at

different stages of readiness. Communities determine when they need their funding; the program does not set deadlines on loan execution as long as projects are making progress toward a loan.

With a return of \$2.63 for every dollar of federal investment (compared to the national average of \$1.80), Iowa's DWSRF is an efficient and effective delivery mechanism for water infrastructure funding.

DWSRF set-asides are typically fully utilized within a two-year planning and budgeting period. Iowa draws grant funds on a first-in, first-out basis in order to close out the capitalization grants. Funds still remaining in the FFY 2013-2015 Other Authorized Uses set-asides for source water protection loans will be reallocated and used for other purposes in order to more quickly close out those cap grants. Due to increased water program budget needs and reduced funding from other sources, Iowa is spending reserved set-aside capacity at a faster rate than in the early years of the DWSRF program.

III. ASSURANCES AND SPECIFIC PROPOSALS

Iowa will provide the necessary assurances and certifications according to the Operating Agreement between the State of Iowa and the U.S. EPA. Iowa's Operating Agreement was amended in April 2007 and will be updated during SFY 2018.

IV. CRITERIA AND METHOD FOR DISTRIBUTION OF 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 pay the project costs as incurred.

Priority of Communities and Financial Assistance Needed

Iowa law provides only for loan assistance. Additional subsidization required by the FFY 2010-2016 capitalization grants will be through forgivable loans. The state's DWSRF rules identify the priority rating system used to establish priorities for financial assistance.

Projects are considered eligible for financial assistance for all planning and project costs providing the project is on the project list of an approved IUP.

Allocation of Funds among Projects

All projects listed in the Project Priority List are eligible for assistance and may be funded from the DWSRF subject to available funds.

All projects scheduled for funding with Iowa's DWSRF will be reviewed for consistency with the Safe Drinking Water Act, as amended. Should a project fail to meet this review criterion, it may be bypassed or deleted from the funding list. Projects may be added to the Project Priority List in priority order as applications are received.

V. METHOD OF AMENDMENT OF THE INTENDED USE PLAN

The State will follow this IUP in administering DWSRF funds in FY 2018. Federal and state law requires, and Iowa welcomes, opportunity for public participation in the development of the IUP. Any revisions of the goals, policies and method of distribution of funds must be addressed by a revision of the IUP, including public participation. Minor adjustments in funding schedules, loan amounts, and use of bypass provisions including funding of projects on the contingency list are allowed by the procedures of this IUP and state rules for administration of the DWSRF without public notification. Adjustments to the Project Priority List to utilize actual funds available to the DWSRF for FY 2018 will be considered minor and only affected applicants will be notified. Public notice of amendments will be made if municipalities are added to or removed from the Project Priority List.

VI. PUBLIC REVIEW AND COMMENT

A public meeting to allow input to Iowa's SFY 2018 IUP and Project Priority List was held May 11, 2017, 10:00 a.m., at the Wallace State Office Building, Conference Room 5E, 502 E. 9th Street, Des Moines. This meeting was announced in a notice provided to stakeholder organizations representing city officials, consulting engineers, county governments, councils of government, area planning agencies, US EPA Region VII and other groups which might have an interest. There were no attendees. The public comment period was open until May 18, 2017. Written comments were received from the U.S. Environmental Protection Agency Region 7 SRF staff. Comments will be addressed in the next quarterly update.

A public meeting to allow input to Iowa's SFY 2018 IUP and Project Priority List was held August 10, 2017, 10:00 a.m., at the Wallace State Office Building, Conference Room 2W, 502 E. 9th Street, Des Moines. This meeting was announced in a notice provided to stakeholder organizations representing city officials, consulting engineers, county governments, councils of government, area planning agencies, US EPA Region VII and other groups which might have an interest. There were no attendees. The public comment period was open until August 17, 2017. There were no written comments.

A public meeting to allow input to Iowa's third quarter updates to the SFY 2018 IUP and Project Priority List was held November 9, 2017, 10:00 a.m., at the Wallace State Office Building, Conference Room 2W, 502 E. 9th Street, Des Moines. This meeting was announced in a notice provided to stakeholder organizations representing city officials, consulting engineers, county governments, councils of government, area planning agencies, US EPA Region VII and other groups which might have an interest. There were no attendees. The public comment period was open until November 16, 2017. There were no comments on the DWSRF update.

VII. PROJECT PRIORITY LIST

The DWSRF Project Priority List is included in a separate, sortable Excel file.

APPENDIX A

Iowa DWSRF State Fiscal Year 2018 3Q

Estimated Funding Sources and Funding Uses

As of 10/25/2017

Funding Sources for Loans

Funds Available in Equity Fund and Program Accounts

FFY 2017 Capitalization Grant

State Match for FFY 2017 Capitalization Grant

Issuance of Leveraged Bonds (next bond issue expected SFY 2018)

Equity Fund and Program Interest Earnings

Loan Repayments

Total Funding Sources for Loans

\$45,882,000 *

\$5,470,000 **

\$0

\$6,642,000

\$270,000

\$40,930,000

\$99,464,000

Funding Uses for Loans

Undisbursed Amounts Committed to Existing Loans (40% disbursement rate)

Project Requests (FNSI/CX issued; 40% disbursement rate)***

Project Requests (FNSI/CX not issued; 35% disbursement rate)***

Planning & Design Requests (50% disbursement rate)

Principal Payments on Outstanding Bonds

Interest Payments on Outstanding Bonds

Total Funding Uses for Loans

\$26,721,000

\$16,319,000

\$27,170,000

\$2,331,000

\$16,550,000

\$10,373,000

\$99,464,000

* Funds Available for disbursements as of 10/25/2017

All amounts are rounded to the nearest \$1,000

**Estimated amount

*** Loan disbursement rates are estimated based on previous experience with project pace. For projects that currently have not had a Finding of No Significant Impact or Categorical Exclusion issued, it is expected that up to 35% of the total project amounts may be disbursed during SFY 2018 once environmental review is completed, construction permit issued, and binding loan commitment signed. For those projects with FNSI/CX clearance, the disbursement rate is estimated at 40% of the loan request amount.

Funding Sources for Set Asides (Includes FFY 2016 & previous Cap Grants)

Available Balance under Existing Capitalization Grants for set asides:

Administration

Small Systems Technical Assistance

State Program

Other Authorized Activities

Total Funding Sources for Set-Asides

\$1,108,000

\$388,000

\$1,716,000

\$2,796,000

\$6,008,000

Funding Uses for Set Asides

Administration

Small Systems Technical Assistance

State Program

Other Authorized Activities

Total Uses for Set Asides

\$1,108,000

\$388,000

\$1,716,000

\$2,796,000

\$6,008,000

**APPENDIX B
PROCEDURES TO DETERMINE PROJECT PRIORITY LIST**

Project rankings were determined by the following procedures:

- Eligibility of applications were determined by needs criteria identified in IAC 567—44.7(8). In general, most water source, treatment and distribution system improvements are considered eligible.
- Project applications received during the FY 2018 application period were considered for funding in FY 2018; if not funded by the end of FY 2018, these projects will be moved to the FY 2019 project priority list.
- The priority ranking is a total score developed using the scoring criteria listed in IAC 567—44.7(8). Points may be gained in each of five categories: Water Quality and Human Health Risk-Related Criteria (60 point maximum), Infrastructure and Engineering-Related Improvement Criteria (35 point maximum), Affordability Criteria (10 point maximum), Special Category Improvements (15 point maximum), and IDNR Adjustment Factor for Population (10 points). The combined score provides a numerical measure to rank each project within its pool. A project with a larger number receives higher priority.
- The final project priority list for a fiscal year's project pool is compiled in the following manner: Subsequent segments of projects funded by DWSRF loan programs of previous years will retain their original score and be added to the list of the current year's applications.
- Loan-eligible projects submitted will be placed on the IUP each calendar quarter. If the project is anticipated to proceed during FY 2018, the project will be added to the project priority list and the list will be made available for public comment at the end of each calendar quarter in which one or more projects are added to the list.
- Projects on the project priority list will be moved to contingency status if the total amount of needs exceeds the year's DWSRF staff resources capability and loan funding. Projects will be funded from the top down in the ranking order of the project priority list with consideration given to readiness to proceed. Projects are ranked similarly in the contingency project list. Projects on contingency status can be moved to the funding list when funds are available or when the project is ready to proceed. Funds can be made available due to a number of reasons including project bypasses, loan application withdrawal of other projects, reduction in loan amount requests, or an increase in available funds.

**APPENDIX C
BORROWERS RECEIVING ADDITIONAL SUBSIDIZATION OR FUNDED FOR GREEN PROJECT RESERVE**
Loan forgiveness in the DWSRF program has been provided for four categories of projects:

- Public health (PH)
- Green projects (G)
- Disadvantaged communities (D)
- Emergency power generation (EP)

Type	Project	Loan Amount	Amount Green Project Reserve	Amount Additional Subsidization	Grant Year Reported
PH	Charlotte	93,000		46,500	2010
G	Colfax	477,068	477,068	143,120	2010
G	Durant	174,423	182,000	34,885	2010
G	Humboldt	6,814,000	1,800,000	590,274	2010
D	Keokuk	1,600,000		480,000	2010
D	Lidderdale	1,212,461		967,476	2010
G	Lyon-Sioux RWS	455,000	454,500	90,900	2010
G	Maquoketa	492,000	492,000	98,400	2010
D	New Hartford	79,841		15,896	2010
D	Ottumwa	1,400,000		560,000	2010
D	Ottumwa	1,666,000		666,400	2010
D	Rathbun RWA	5,199,541		1,559,862	2010
D	Roife	1,020,790		510,395	2010
G	Shenandoah	14,057,000	2,228,000	1,050,000	2010
D	Union	658,000		190,198	2010
G	Le Mars	1,010,000		202,000	2010
G	Le Mars		1,010,000		2011
PH	College Springs	82,307		41,154	2011
G	Ottumwa	1,250,000	1,250,000	250,000	2011
PH	Timber Ridge Water Utility Corporation	177,158		110,438	2011
G	Shenandoah		3,000,000		2011
PH	Hills	4,064,550		2,032,275	2011

PH Hills	1,588,894		840,000	2011
PH Churdan	928,388		490,255	2011
G Ames	76,325,000	30,000,000	665,996	2011
PH Frankville (Winneshiek Co)	910,000		202,000	2011
G Ames			3,064,000	2012
G Ames			2,869,604	2013
G Wall Lake	132,000		26,400	2013
D Ralston	275,000		110,000	2014
D Ottumwa	4,500,000		1,800,000	2014
PH Frankville (Winneshiek Co BOS)			253,000	2014
EP Marshalltown	8,344,000		442,500	2014
G Solon	1,981,000		51,338	2014
PH Farley	1,200,000		900,000	2015
PH Dyersville	1,373,000		1,029,750	2015
EP Hawkeye	945,000		26,325	2015
G Fort Dodge	3,413,000		1,023,900	2015
EP Wahpeton	1,191,000		112,500	2015
TOTAL	440,544,421 146,093,421	10,893,568	22,494,416 23,657,141	

Project Name	NPDES No.	Project Number	CWSRF No.	Project Description	IUP Yr	Needs Category	Priority Points	Quarter	Project Status	Current Requests	Loan Forgiveness	Loan Signed	Original Request	Loan Amount
Ackley	4201001	S2016-0039	1920863 01	Sanitary sewer relining to address inflow/infiltration which is causing basement backups	2018	IIIA	142	3	P	\$ 3,047,000				
Ackley	4201001	S2016-0039	PD-CW-18-36	Sanitary sewer relining to address inflow/infiltration which is causing basement backups	2018	IIIA	P&D	3	R	\$ 155,000				
Adel	2503001	W2018-0143	PD-CW-18-34	Plan sanitary sewer collection system improvements	2018	IIIB	P&D	3	R	\$ 580,050				
Dallas Center	2520001	S2016-0399	PD-CW-18-33	Plan upgrade to wastewater treatment system to meet new NPDES permit limits on ammonia and bacteria	2018	II	P&D	3	R	\$ 210,000				
Des Moines	772001 (WRA)	S2018-0068	1920858 01	Combined sewer separation in the King-Irving neighborhood to meet the requirements of the City of Des Moines long-term control plan	2018	V	235	3	P	\$ 15,260,000				
DeWitt	2330001		PD-CW-18-37	Plan upgrade to wastewater treatment system to meet new NPDES permit limits on ammonia and bacteria	2018	II	P&D	3	R	\$ 88,750				
Lowden	1656001	S2017-0362	1920862 01	Replace existing treatment works with three continuous discharge lagoons followed by SAGR and UV disinfection to meet new NPDES effluent limits	2018	I,II	274	3	P	\$ 4,059,000				
Lowden	1656001	W2017-0362	PD-CW-18-35	Replace existing treatment works with three continuous discharge lagoons followed by SAGR and UV disinfection to meet new NPDES effluent limits	2018	I,II	P&D	3	R	\$ 399,100				
Montezuma	7950001	S2016-0051	1920859 01	Convert existing aerated lagoon to enhanced treatment with addition of SAGR and UV disinfection to meet new NPDES effluent limits	2018	I,II	267	3	P	\$ 4,589,936				
Schleswig	2446001	W2017-0450	PD-CW-18-32	Plan upgrade to wastewater treatment system to meet new NPDES permit limits on ammonia and bacteria	2018	II	P&D	3	R	\$ 180,000				
Waukee (Little Walnut Creek Trunk Sewer-Ph 3)	2573001	W2018-0084	1920861 01	Construct trunk sewer to provide sanitary sewer service to new high school and northwest area of city	2018	IVB	160	3	P	\$ 2,411,000				
Allerton	9303003	S2015-0086	1920854 01	Sanitary sewer lining and manhole rehabilitation to decrease I/I	2018	IIIA	175	2	P	\$ 271,000				
Eldon	9053001	S2016-0240A	PD-CW-18-22	Disinfection, sewer rehabilitation	2018	II, IIIB	P&D	2	L			9/22/2017	\$ 200,000	\$ 200,000

Estherville	3218002	S2016-0265	1920849 01	Construction of an activated sludge basin, new blower building, new wastewater and air piping. Abandonment of existing tricking filters. New NPDES permit requires upgrades.	2018	II	237	2	P	\$ 15,926,000				
Maxwell	8557001	W2017-0135A	PD-CW-18-23	WWTP improvements to address e. coli and ammonia removal requirements	2018	II	P&D	2	R	\$ 38,000				
Mechanicsville	1667001	W2017-0296A	PD-CW-18-24	WWTP improvements to address e. coli and ammonia removal requirements	2018	II	P&D	2	R	\$ 320,000				
Miles	4953001	S2013-0064	PD-CW-18-25	WWTP upgrade	2018	II	P&D	2	R	\$ 154,000				
Monroe	505001	S2015-0337	1920852 01	Expand lagoon capacity but increasing size of primary cell and adding another secondary cell	2018	I	235	2	P	\$ 3,552,675				
Mount Vernon	5758001	S2017-0177	1920853 01	Installation of UV disinfection to meet effluent limits; replacement of main lift screw pumps and rehabilitation of clarifier mechanisms	2018	II	250	2	P	\$ 1,766,000				
Nora Springs	3423001	S2016-0216A	CS1920857 01	New activated sludge wastewater treatment facility to meet effluent limits	2018	II	295	2	P	\$ 7,497,000				
Pocahontas	7633001	S2017-0028	1920855 01	Sanitary sewer lining to decrease I/I; UV disinfection; and other wastewater treatment plant improvements	2018	II, IIIA	254	2	P	\$ 2,892,000				
Smithland	9783001	S2017-0060	1920856 01	Install UV disinfection to comply with e. coli limits. Implement sewer lining to reduce I/I and increase wastewater treatment efficiency	2018	II, IIIA	285	2	P	\$ 915,000				
Spencer	2171004	S2016-0203B	1920745 03	Combined sewer separation, Phase II	2018	V	174	2	P	\$ 2,148,000				
Tipton	1689001, 1689002		PD-CW-18-26	Sanitary sewer rehabilitation	2018	IIIB	P&D	2	R	\$ 500,000				
Wayland	4490001	W2017-0271A	PD-CW-18-27	WWTP improvements to address e. coli and ammonia removal requirements, I/I reduction in sanitary sewers	2018	II, IIIA	P&D	2	R	\$ 180,000				
Wilton	7078801	S2015-0204	1920850 01	Construction of new WWTP to meet new effluent limits, including UV disinfection.	2018	I, II	282	2	P	\$ 6,211,000				
Wright County (Eagle Grove)	9926001	S2015-0355	1920851 01	Finance county share of wastewater treatment system upgrade in Eagle Grove	2018	I, II	174	2	P	\$ 4,046,000				
Blairstown	607001		PD-CW-18-15	Improvements to an aerated lagoon	2018	I	P&D	1	R	\$ 147,500				
Burlington	2909001	S2017-0262	1920843 01	Replacement of a new sanitary sewer along the existing combined sewer alignment	2018	V	247	1	P	\$ 6,197,000				

Central City	5720001	2017-0057A	1920836 01	WWTP Expansion to include ammonia removal and disinfection. Gravity sewer expanded to allow for removal of lift station	2018	II, IV-A	259	1	P	\$ 3,122,000				
Eagle Grove	9926001	S2015-0355	1920841 01	Wastewater Treatment System Upgrade	2018	I, II	264	1	P	\$ 19,576,000				
Gilbert	8531001	S2010-0025	1920844 01	Convert existing controlled lagoon system to continuous discharge aerated lagoon system. Supplemental ammonia removal process and UV disinfection will be included	2018	I, II	274	1	P	\$ 3,819,000				
Glidden	1438001		PD-CW-18-07	Construction of a new aerated lagoon facility	2018	I	P&D	1	R	\$ 215,000				
Indianola	9133001	S2017-0298	1920848 01	Morlock Lift Station Sanitary Sewer Improvements	2018	IVA, IVB	129	1	P	\$ 3,291,375				
Lisbon	5748001	S2017-0295	1920839 01	Rehabilitation of existing sanitary sewer collection system to reduce I&I	2018	III-A	155	1	P	\$ 1,489,000				
Madrid	0848001		PD-CW-18-13	Wastewater Treatment Facility upgrade	2018	II	P&D	1	L			8/25/17	\$ 460,000	\$ 460,000
Marshalltown	6469001	S2017-0286	1920840 01	Lamp hole, tee, and manhole replacements with new manholes, along with pipe point repairs	2018	III-A	165	1	P	\$ 2,900,000				
Merrill	7548001	S2015-0366	1920846 01	Wastewater treatment facility improvements	2018	I, II	295	1	P	\$ 2,514,000				
Oskaloosa	6273001	S2017-0294	1920845 01	Wastewater Collection System Improvements	2018	IIIA	142	1	D					
Roland	8570001	S2016-0050	1920826 01	Convert existing aerated lagoon to enhanced treatment aerated lagoon with the addition of Lemna system to meet new effluent ammonia limits. Addition of UV disinfection.	2018	II	242	1	P	\$ 2,886,360				
Scranton	3759001	S2016-0048	1920847 01	Convert existing aerated lagoon to an enhanced one with the addition of a SAGR system	2018	I, II	290	1	P	\$ 2,137,133				
Sioux Center	8486002	S2016-0169	1920838 01	Construction of a new main lift station, preliminary treatment, activated sludge with biological nutrient removal, UV disinfection, and aerated digestion	2018	I, II, IVB	297	1	P	\$ 28,140,000				
Stanwood	1681001	S2017-0085A	1920835 01	Improvements include Submerged Attached Growth Reactors installation for removal of ammonia nitrogen with recycle loop for total nitrogen removal. New diffused aeration system.	2018	II	224	1	P	\$ 2,280,646				
Sully	5076001	S2016-0092	1920837 01	Sewage Treatment Plant Improvements to comply with new permit list.	2018	II	242	1	P	\$ 1,065,000				
Templeton	1479001	S2017-0101	1920831 01	Expand lagoon capacity but increasing size of primary cell and adding another secondary cell	2018	I	139	1	P	\$ 1,050,225				

Tiffin	5288001	S2015-0202	1920842 01	Wastewater Treatment Plant Improvements - Phase 2	2018	I, II	189	1	p	\$ 5,250,000				
Wastewater Reclamation Authority	7727001		PD-CW-18-14	WRF Phosphorus Recovery Facility project	2018	II	P&D	1	R	\$ 1,600,000				
West-High Amana SSD	4880901		PD-CW-18-12	Improvements to aerated lagoon to comply with e. coli and ammonia standards	2018	II	P&D	1	R	\$ 85,000				
Calmar	9615000	S2015-0451	1920823 01	Utilization of a new Submerged Attached Growth Reactor (SAGR) System for their existing aerated lagoon and a new Ultraviolet (UV) disinfection system	2017	II	240	4	P	\$ 3,501,000				
Creston	8816001	S2015-0383	1920834 01	Repair/replacement of aging infrastructure and addition of disinfection	2017	I, II	232	4	P	\$ 2,686,365				
Garrison	0625001	S2015-0228	1920830 01	Collection System Rehabilitation	2017	IIIA, IIIB	169	4	R	\$ 665,000				
Greenfield	0140001	S2013-0215	1920822 01	Construct a new activated sludge treatment plant at a new site.	2017	I,II	285	4	P	\$ 6,342,000				
Klemme	4155001	S2013-0199	1920833 01	Meet effluent limits by constructing an equalization basin, UV disinfection, and a new outfall	2017	II	240	4	P	\$ 563,000				
Lake View	8127001	S2015-0174	1920828 01	Construction of a new enhanced aerated lagoon system using LEMNA or SAGR	2017	I,II	264	4	P	\$ 4,696,000				
LeGrand	8657001	S2015-0434	1920821 01	Convert existing lagoon to a controlled discharge	2017	I,II	295	4	P	\$ 2,389,000				
Mediapolis	2948001	S2015-0002	1920832 01	WW Lagoon Improvements - Phase 1 Sewer Rehab	2017	II	174	4	P	\$ 1,759,000				
Moville	9753001	S2017-0190	1920825 01	Replacement of a new lift station, sized to account for future growth of the city and increased I/I. Two submersible pumps will be installed, and the City will have option to install a grinder pump	2017	IVB	122	4	L			9/22/2017	\$ 875,000	\$ 856,000
New Sharon	6264001	S2015-0384	1920829 01	Improvements to treatment plant including addition of treatment units to allow facility to meet new discharge limits	2017	I,IIIA	242	4	P	\$ 1,653,000				
Pierson	9766002		PD-CW-17-42	Inflow/infiltration correction	2017	IIIA	P&D	4	R	\$ 96,000				
Pisgah	4364001		PD-CW-17-45	Inflow/infiltration correction	2017	IIIA	P&D	4	R	\$ 43,825				
Sheldahl	8580001		PD-CW-17-41	Analysis of treating own wastewater or continuing to pump to Slater	2017	I	P&D	4	R	\$ 20,000				
Slater	8580001	S2016-0070	1920820 01	Wastewater Treatment Facility Improvements	2017	I,II	267	4	P	\$ 6,650,000				
Springville	5782002	S2016-0174	1920824 01	Sanitary sanitary sewer collection system improvements	2017	IIIA, IVB	144	4	P	\$ 837,000				

Winthrop	1093001	S2016-0312	1920827 01	Converting existing aerated lagoon into covered aerated lagoon followed by a submerged fixed film polishing reactor (Lemna system) to improve ammonia removal, upsizing existing Main lift station.	2017	II	274	4	P	\$ 2,075,000				
Ames	8503001	S2017-0017	1920819 01	Water Pollution Control Facility	2017	I	170	3	P	\$ 625,000				
Corydon	9334004	S2014-0043	1920815 01	Wastewater Treatment Facility Improvements	2017	II	237	3	P	\$ 3,304,000				
Eagle Grove			PD-CW-17-34	Wastewater Treatment System Upgrade	2017	II	P&D	3	R	\$ 1,000,000				
Eldridge	8230003	S2015-0001	CS1920818 01	Change lagoons to equalization basins. New Lift Station, force main, gravity sewer, increased SBR treatment capacity at South Slope, addition of disinfection and sludge treatment improvements	2017	I, II, IVB	264	3	P	\$ 14,970,000				
Hubbard	425001	S2017-0079	1920817 01	Sanitary Sewer Construction and Rehabilitation	2017	IIIA	152	3	R	\$ 2,176,000				
Modale			PD-CW-17-30	Lagoon Rehabilitation	2017	I	P&D	3	R	\$ 60,500				
Ogden	0858001	S2014-0142	1920816 01	Plant upgraded to meet NPDES Permit	2017	I,II	280	3	P	\$ 4,809,126				
Tipton			PD-CW-17-32	Wastewater treatment improvements to meet effluent ammonia, E.coli, and metals requirements in the city's NPDES Permits	2017	II	P&D	3	L			7/7/17	\$ 300,000	\$ 300,000
Allison	1203001	S2014-0095	1920802 01	Wastewater Treatment Facility Improvements	2017	II	260	2	R	\$ 2,367,268				
Fayette	3342001	S2016-0375	1920812 01	Slip lining approximately 5,320 feet of sanitary sewer main and completing spot repairs at 10 locations through the collection system.	2017	IIIA	154	2	P	\$ 319,999				
Moravia			PD-CW-17-31	I&I reduction in sewer collection system	2017	IIIA	P&D	2	R	\$ 115,000				
Shenandoah	3659001	S2016-0002	1920806 01	3 phase wastewater treatment facility improvements - Phase 1: Solids Treatment & Disposal - Phase 2: Collection System and Wastewater Plant Permit Compliance - Phase 3: Wastewater Treatment Facility Nutrient Reduction Strategy	2017	I,II	290	2	L			9/8/17	\$ 643,000	\$ 833,000
Sioux City	9778001	S2016-0389	1920813 01	Improve various treatment plant equipment to renew initial capacity, improve performance, improve reliability and generate biogas.	2017	I,II	217	2	P	\$ 23,096,000				
Wastewater Reclamation Authority	7727001	S2016-0238	1920805 01	Replace with stacked tray (HeadCell) grit removal technology in the vicinity of existing grit aerated grit chambers.	2017	I	180	2	P	\$ 9,500,000				

Waterloo (CIPP Phase III)	0790001	S2016-0285	1920811 01	Excavating and repairing pipe using traditional methods. Rehabilitate sanitary sewers and rehabilitate manholes that have deteriorated.	2017	III-A	185	2	R	\$ 2,498,000				
Waterloo (Dry Run Creek Interceptor)	0790001	S2015-0280	1920807 01	New lift station, force main and gravity sewer are proposed	2017	IV-B	150	2	P	\$ 4,337,000				
Waterloo (Flow Equalization Facility Overflow Connection to Satellite WPCF)	0790001	S2015-0284	1920808 01	Install new gravity line from existing equalization basin to the Satellite Aeration basins. Also include discharge pipe from the Satellite basins to the Easton Aeration Basin	2017	I	170	2	P	\$ 978,000				
Waterloo (Instrumentation & Controls Systems)	0790001	S2015-0365	1920809 01	Upgrade current Programmable Logic Controllers (PLCs). Upgrade current Supervisory Control & Data Acquisition (SCADA) system communication protocol. Add fiber Optic for bringing new systems onto the network	2017	II	180	2	R	\$ 1,089,000				
Waukee	2573001	S2016-0413	1920810 01	Upgrade existing lift station and force main	2017	IV-B	119	2	L			9/1/17	\$ 12,537,000	\$ 12,537,000
Woodward	2576001	S2015-0344	1920814 01	Convert existing aerated lagoon to enhanced treatment aerated lagoon with the addition of a Lemna system. Addition of UV disinfection for new e.coli limits	2017	II	242	2	P	\$ 2,763,750				
Algona	5502001	S2016-0239	1920796 01	Rehabilitation project to address I/I related and structural issues in existing sanitary sewer pipes and manholes	2017	IIIA, IIIB,	195	1	L			8/18/17	\$ 2,396,000	\$ 2,396,000
Algona	5502001	S2016-0239	PD-CW-17-01	Rehabilitation and reconstruction of the sanitary sewer collection system	2017	IIIB	P&D	1	R	\$ 130,000				
Des Moines	77277001 (WRA)	S2016-0194	1920795 01	Near West Side: Construction of some new storm sewer systems, some new sanitary sewer and one pump station. Construction of a regional detention basin to mitigate increase of flooding	2017	IIIA, IIIB, IVA, V, VI	305	1	R	\$ 18,600,000				
Elkhart	7730001	S2015-0187	1920798 01	Construction of an outfall sewer leading from the existing wastewater treatment plant to the new wastewater treatment facility	2017	I, II, IVB	305	1	P	\$ 3,865,000				
Emerson	6520001	S2015-0430	1920790 01	Collection System Improvements	2017	IIIA, IVB	159	1	P	\$ 1,023,200				

Lenox	8748001	S2013-0187	1920799 01	Construction of a submerged attached growth reactor (SAGR) system	2017	II	149	1	P	\$ 2,261,000				
Norway	0656001	S2015-0209	1920794 01	Addition of a secondary treatment that is capable of treating the ammonia-nitrogen. Disinfection facilities will be installed to meet the e.coli effluent limits	2017	I, II	222	1	P	\$ 3,065,000				
Oelwein	3353001	S2016-0256	1920793 01	Installation of two new wastewater pumps to increase capacity of existing 20th Street Lift Station. Improvements to the electrical service, existing control panel and addition of VFDs.	2017	IVB	122	1	R	\$ 248,000				
Slater	8580001		PD-CW-17-07	Wastewater treatment plant improvements necessary in order to meet ammonia-nitrogen, dissolved oxygen and E. coli discharge limits.	2017	II	P&D	1	R	\$ 461,000				
Wastewater Reclamation Authority	7727001	S2016-0243	1920797 01	Biogas Conditioning & Injection Improvements	2017	II	175	1	P	\$ 12,814,000				
Ames	8503001	S2016-0071	1920789 01	To improve screening at the WPCF city intends to replace existing channel grinder with a mechanical bar screen	2016	I	170	4	R	\$ 981,000				
Ames	8503001	S2013-0327	1920741 02	Address Infiltration and inflow into the City's sanitary sewer system utilizing a variety of rehabilitation techniques.	2016	IIIA	145	4	R	\$ 21,432,000				
Bancroft	5507002	S2014-0136	1920777 01	Increase capacity of existing controlled discharge lagoon. Piping improvements within facility will also be done.	2016	I	139	4	P	\$ 848,000				
Brandon	1011001	S2009-0160	1920779 01	Add a UV system (SAGR) to disinfect the effluent and meet the NPDES Permit requirements for E.Coli	2016	II	225	4	P	\$ 1,638,000				
Denison	2424001	S2016-0117	1920778 01	Replacement & Rehabilitation of structures and equipment approaching the end of their service lives	2016	II	190	4	P	\$ 4,020,000				
Des Moines	7727001 (WRA)	S2016-0196	1920781 01	Lower Oak Park/Highland Park: Remove storm sewer inlets within the drainage basin that are connected to combined sewer and either eliminate or tie to dedicated storm sewers. Existing sewers will become dedicated sanitary sewers	2016	V	240	4	R	\$ 12,060,000				
Dubuque	3126001	S2016-0206	1920792 01	Relocation and reconstruction of sanitary sewer along Kerper Blvd.	2016	IIIB	147	4	P	\$ 2,507,000				

Fort Madison	5625001	S2016-0150	1920786 01	Construction of a new gravity sanitary sewer interceptor along H avenue to capture sanitary sewer flows from the north.	2016	IVB	152	4	L			8/18/17	\$ 3,250,170	\$ 2,668,000
Johnston	7727001 (WRA)	S2016-0194	1920782 G1	Installation of sanitary sewer in area currently on septic systems, in the East of Merle Hay Neighborhood	2016	IVA, IVB	230	4	R	\$ 6,076,000				
Manning	1457001	S2016-0188	1920785 01	Replace existing sanitary sewer using materials and construction techniques for reduction in I&I	2016	IIIA	142	4	R	\$ 600,000				
Mt Pleasant	4453001	S2015-0081	1920780 01	Main plant upgrades and sewer system	2016	II	275	4	L			8/25/2017	\$ 3,518,000	\$ 3,500,000
Oelwein	3353001		PD-CW-16-40	Installation of new sanitary sewer	2016	IVA	P&D	4	R	\$ 33,500				
Reinbeck	3870001	S2015-0175	1920776 01	Construct an UV disinfection system to meet the effluent limits dictated by The Iowa Department of Natural Resources and NPDES Permitting.	2016	II	225	4	P	\$ 596,000				
Stanwood	1681001	S2016-0154	1920783 01	Removal, replacement and abandonment of gravity sanitary sewer and replace with a sanitary sewer that will reduce I/I in the collection system	2016	IIIA	127	4	R	\$ 276,800				
West Union	3383303	S2015-0356	1920791 01	Construction of equalization basin and lift station along with installation of ultraviolet disinfection system.	2016	II	225	4	P	\$ 888,000				
Cincinnati	0410001	S2014-0275	DROPPED	SAGR System	2016	II	227	3	D					
Coralville	5208001	S2014-0388	1920767 01	Improvements to the treatment system include expansion of equalization basin; new headworks; new aeration basins; final clarifiers, and replacement of UV disinfection system.	2016	I, II	250	3	P	\$ 27,648,000				
Davis City	2715001	S2016-0072	1920769 01	Rehabilitation of existing sanitary sewer mains and sanitary sewer manholes. Drainage & erosion improvements at the wastewater facility.	2016	IIIA	100	3	P	\$ 457,000				
Fort Atkinson	9641001	S2015-0087	1920770 01	Construct a larger Lagoon that will only discharge once a year. Also includes an ultra violet disinfection system.	2016	I, II	290	3	P	\$ 1,249,000				
Greene	1253001	S2015-0235	1920775 01	Construct a new Submerged Attached Growth Reactor (SAGR) system for existing aerated lagoon and a new UV disinfection system.	2016	II	249	3	P	\$ 3,670,260				

Mapleton	6727001	S2015-0440	PD-CW-16-30	Wastewater Treatment Improvements to comply with ammonia nitrogen limits, maintain TSS limits, and meet new NPDES standards	2016	I	P&D	3	R	\$ 225,000				
Marathon	1150001	S2015-0402	1920771 01	Construct a 3 cell controlled discharge lagoon to meet the NPDES Permit Limits	2016	I	162	3	P	\$ 1,171,000				
New Albin	0370001	S2013-0348	1920768 01	Replacement of secondary treatment facility including new influent pumps, preliminary screening equipment, activated sludge treatment system.	2016	I	185	3	P	\$ 2,185,000				
St Donatus	4979001	S2011-0308	1920773 01	Relining existing two cell lagoon and construction of lift station	2016	I, IVB	185	3	R	\$ 398,000				
West Burlington	2985001	S2014-0456	1920766 01	Improvements include additional activated sludge treatment tankage and conversion of existing aerated lagoon cells in to flow equalization basins. New headworks facility and upgrades to existing aged equipment and standby power.	2016	I	214	3	R		7/21/17	\$ 10,000,000	\$ 10,985,000	
De Soto	2529001	S2014-0066	1920759 G1	Wastewater Treatment Facility Improvements	2016	II	232	2	L		9/1/17	\$ 1,102,000	\$ 1,102,000	
De Soto	2529001	S2014-0066	1920759 R1	Wastewater Treatment Facility Improvements	2016	II	232	2	L		9/1/17	\$ 1,967,000	\$ 1,967,000	
Grinnell	7930001	S2014-0189	1920762 01	Wastewater treatment facility improvements	2016	II	222	2	P	\$ 10,403,000				
Harris	7222001	S2015-0358	1920757 G1/1920757 02	Sanitary Sewer Rehabilitation	2016	IIIA	145	2	R	\$ 582,685				
Keota	5440001	S2015-0069	1920761 01	Construction of Submerged Attached Growth Reactors and UV system	2016	II	142	2	L		9/22/17	\$ 3,127,338	\$ 3,128,000	
Postville	0375001	S2015-0412	1920756 01	Sanitary Sewer Rehabilitation Phase II	2016	IIIA	155	2	P	\$ 1,015,000				
RUSS(Moar/Powdertown)	Unsewered		PD-CW-16-11		2016	I,IVA	P&D	2	R	\$ 100,000				
Sanborn	7165001	S2012-0256	1920752 01	Improvements to Wastewater treatment facility as a result of a new NPDES permit and increase loading from and industrial facility	2016	II	167	2	P	\$ 5,063,000				
Strawberry Point	2279001	S2015-0213	1920753 01	WWTP Disinfection and Ammonia Removal	2016	II	250	2	R	\$ 426,000				
Sabula	4975001	S2015-0208	1920749 01	Collection System Improvements	2016	IIIA	157	1	R	\$ 389,940				
Wastewater Reclamation Authority	7727001	S2015-0261	1920750 01 (Phase 27, Segment 1-8)	Eastside Interceptor	2016	IVB	135	1	R	\$ 28,340,000				
Ames	8503001	S2013-0327	1920741 01	Sanitary Sewer Rehabilitation	2015	IIIA	160	4	R	\$ 2,588,970				
Belle Plaine	0610001	S2012-0141	1920744 01	Wastewater Disposal System Improvements	2015	II,IIIA	259	4	R	\$ 2,448,180				
Granville	8429001	S2015-0163	1920738 01	2015 Sanitary Sewer project	2015	IIIA	152	4	L		10/20/17	\$ 696,968	\$ 448,000	
Keokuk	5640001	S2015-0088	1920732 01	Sewer Rehabilitation - Phase 1	2015	IIIA	237	4	P	\$ 1,484,700				
Keystone	064001	S2014-0164	1920743 01	WWTF Upgrade	2015	II	247	4	L		10/13/17	\$ 3,239,919	\$ 2,303,000	
Pleasantville	6377001	S2013-0174	1920737 01	WWTP Improvements	2015	II	229	4	L		7/7/2017	\$ 4,120,500	\$ 4,544,000	

Readlyn	0965001	S2009-0030	1920736 G1	WWTF Improvements	2015	II	207	4	L			10/6/17	\$ 1,100,000	\$ 868,000
Fort Dodge	9433003	S2015-0080	1920728 02	Sanitary Sewer Rehabilitation	2015	IIIA, IIIB	195	3	L			7/28/17	\$ 10,900,000	\$ 10,900,000
Hospers	8439001		PD-CW-15-17	Wastewater treatment plant expansion	2015	II	P&D	3	R	\$ 277,000				
Blencoe	6709001	S2014-0409	1920720 01	Main Lift Station Improvements	2015	IIIB	142	2	P	\$ 179,694				
New Hampton	1970001	S2014-0034	1920721 01	Wastewater treatment plant improvements	2015	II	224	2	R	\$ 2,095,750				
Fairfield	5131001	S2013-0368	DROPPED	Construction of a forcemain	2015	IVB	157	1	D					
Wastewater Reclamation Authority (supplemental)	7727001	S2009-0219	1920457 05 (Phase 17, multiple phases)	New Main Outfall, supplemental loan to finalize costs	2015	IVB	160	1	R	\$ 3,000,000				
Wastewater Reclamation Authority (supplemental)	7727001	S2009-0219	1920499 02 (Phase 17, Segment 7)	New Main Outfall, Phase 17 Segment 7 final costs	2015	IVB	160	1	R	\$ 10,400,000				
Chariton		S2014-0106A	PD-CW-14-36	Increase capacity of 12th St Lift Station and replace NW Lift Station with new structures and equipment.	2014	IVB	P&D	4	R	\$ 137,900				
Ames	8503001	S2013-0326	1920686 01	WPCF Biosolids Storage Tank	2014	II	180	3	R	\$ 1,885,400				
Coralville	5208001		PD-CW-14-31	Replace manholes, reconstruct sewer lines at Oakdale trunk sewer and replace lift station and force main for Muddy Creek	2014	IIIB	P&D	3	R	\$ 270,263				
Dyersville	3130001	S2013-0342	1920690 01	SE Lift Station & Collection System Improvements	2014	IVB	127	3	P	\$ 1,476,620				
Garnavillo	2234001	S2012-0200	1920684 01	Installation of disinfection and ammonia removal and improvements to collection system	2014	II,IIIB	199	3	R	\$ 4,469,250				
Miles	4953001	S2013-0064	1920688 01	Construction of controlled discharge lagoon	2014	I	227	3	P	\$ 1,932,000				
Martensdale	9147001	S2013-0292	1920682 01	Sewer rehabilitation	2014	IIIB	150	2	P	\$ 833,800				
Marengo	4843001	S2013-0052	1920661 01	Infiltration/inflow correction to address permit violations at treatment facility	2013	IIIA	162	3	R	\$ 883,000				
Mt Pleasant	4453001	S2012-0407	1920665 01	Replacement of remaining portions of Snipe Run Interceptor to transfer flows to new wastewater treatment facility	2013	IIIB	125	3	L			8/25/2017	\$ 1,600,000	\$ 1,600,000
Patterson	6151001	S2011-0078	1920659 01	Upgrade pump station capacity, reduce inflow/infiltration, install new force main with goal of reducing sewer backups	2013	IIIB	165	3	R	\$ 54,540				
Dakota City	4622001		PD-CW-13-15	Infiltration/inflow correction through sewer relining	2013	IIIA	P&D	2	R	\$ 85,000				
Clinton (Phase II, Part 2)	2326001	S2005-0016	1920629 01	US 30/67 and Camanche Avenue (Reconstruction & Sewer Separation)	2012	V	144	4	R	\$ 3,535,000				
Elkhart	7730001	S2012-0137	1920634 01	Inflow and infiltration correction	2012	IIIA	129	4	P	\$ 609,030				
Hamburg	3621001		PD-CW-12-29	Wastewater treatment plant improvements	2012	II	P&D	4	R	\$ 100,000				
La Porte City	0743001	S2009-0187	1920620 01	Wastewater treatment plant improvements	2012	I,II	220	2	P	\$ 917,822				
Nemaha	Unsewered		PD-CW-12-04		2012	I,IIIB	P&D	2	R	\$ 75,000				

North English	4858001		PD-CW-11-36		2012	II,III,IIIB	P&D	1	R	\$ 140,000				
Dubuque (Revised Upper Bee Branch)	N/A	N/A	GNS10-5 (2)	Stream daylighting	2011	VII-K	162	4	R	\$ 7,716,000				
Wastewater Reclamation Authority	7727001	S2010-0310	1920593 03 (Phase 19 Seg 1-4)	Interceptor sewer to convey wastewater from Bondurant to the Wastewater Reclamation Facility	2011	IVB	150	2	R	\$ 16,545,820				
Bennett	1603001	S2010-0120	1920529 01	Sewer rehabilitation, pump station upgrades	2011	IIIA	137	1	R	\$ 1,971,000				
Brighton	9209001	S2009-0288	1920515 01	Sewer rehabilitation, wastewater treatment plant upgrade	2011	II,IIIB	140	1	R	\$ 2,675,000				
Libertyville	5148001		PD-CW-10-51		2011	I,IIIA,IIIB, VI	P&D	1	R	\$ 95,000				
Reasnor	5071001	S2009-0207	1920543 01	Lagoon expansion	2011	I	160	1	R	\$ 737,805				
Spencer	2171004	S2010-0111	1920528 01	Combined sewer separation	2011	V	185	1	R	\$ 2,300,000				
Coralville	N/A	N/A	GNS10-4	Green infrastructure practices at the Iowa River Landing	2010	VIIK	120	4	P	\$ 2,950,000	30%			
Mingo	5052001	S2008-0304	1920510 R1	Lagoon expansion	2010	I	172	3	R	\$ 1,365,000				
Wheatland	2394001		PD-CW-10-10		2010	IIIA, IIIB,V	P&D	3	R	\$ 67,000				
										\$ 527,194,512			\$ 62,032,895	\$ 61,595,000
Project Status						Needs Categories								
			I			Secondary Treatment								
Dropped -- D			II			Treatment more stringent than secondary								
Ready for Loan-- R			IIIA			Infiltration/Inflow rehabilitation								
Loan Signed -- L			IIIB			Major sewer system rehabilitation								
Planning Stage -- P			IVA			New collectors and appurtenances								
			IVB			New interceptors and appurtenances								
Green Projects (*indicates that a business case is required)			V			Correction of combined sewers								
			VI			Stormwater management programs								
Add Subs			VII			Non-point source control projects; subcategories below:								
						VIIA	Agricultural cropland sources							
						VII B	Animal sources							
						VII C	Silviculture							
						VII D	Urban sources							
						VII E	Groundwater protection (unknown sources)							
						VII F	Marinas							
						VII G	Resource extraction							
						VII H	Brownfields							
						VII I	Storage tanks							
						VII J	Landfills							
						VII K	Hydromodification							
						XII	Decentralized septic systems							

Project Name	DWSRF No.	Project Description	IUP Yr	Project Type	Priority Points	Quarter	Population	Project Status	Current Requests	Loan Forgiveness	Loan Signed	Original Request	Loan Amount
Adel	PD-DW-18-31	Plan for water treatment improvements	2018	G	P&D	3	3682	R	\$ 1,025,000				
Bagley	PD-DW-18-28	Plan for new water source and water treatment options	2018	G	P&D	3	303	R	\$ 150,000				
Dunkerton	FS-07-18-DWSRF-014	Construct an iron removal facility on Well #3	2018	B,E	25	3	851	P	\$ 1,181,000				
Grimes	PD-DW-18-29	Plan for new water tower, Jordan well, water mains, and treatment plant expansion	2018	G	P&D	3	8246	R	\$ 1,809,000				
Vail	PD-DW-18-30	Plan for new water source and water treatment options	2018	G	P&D	3	436	R	\$ 50,000				
Cleghorn	FS-18-18-DWSRF-006	Replace aging water tower, install water mains to tower, add emergency generator at water treatment plant	2018	B,E	45	2	247	P	\$ 1,024,000				
Dakota City	PD-DW-18-21	Water treatment facility upgrades	2018	G	P&D	2	858	R	\$ 140,000				
Dubuque	PD-DW-18-20	Pressure zone improvements	2018	G	P&D	2	57852	L			9/22/17	\$ 475,000	\$ 475,000
Fort Dodge	FS-94-18-DWSRF-011	Reduce water hardness, reducing chloride concentrations to sanitary sewer, with construction of new Mississippian well, reverse osmosis process, and waste disposal system	2018	A,B	80	2	25206	P	\$ 20,804,000				
Garwin	PD-DW-18-17	Water main replacement	2018	G	P&D	2	527	L			10/20/17	\$ 100,000	\$ 100,000
Kiron	FS-24-18-DWSRF-013	Water storage	2018	B,C,E	55	2	279	P	\$ 561,000				
Lehigh	FS-94-18-DWSRF-008	Improvements to water filtration system	2018	B,C,E	35	2	416	P	\$ 553,554				
Marble Rock	FS-34-18-DWSRF-010	Address areas of city that experience poor water quality and quantity by looping and installing larger water mains	2018	B,C,E	40	2		P	\$ 482,000				
Marble Rock	PD-DW-18-18	Water main replacement	2018	G	P&D	2	307	L			9/22/17	\$ 108,500	\$ 108,000
Olin	FS-53-18-DWSRF-005	Address system failures resulting in boil orders and poor water quality in Well #2 with system evaluation, addition of emergency generation, upgrade of electrical and control system, and possible construction of new well	2018	B,C,E	50	2	698	P	\$ 514,000				
Pocahontas	FS-76-18-DWSRF-012	Install new well	2018	B,E	45	2	1789	P	\$ 547,000				
Sergeant Bluff	FS-97-18-DWSRF-009	Add new detention tank to provide iron settling and new pressure filter to provide 2-stage iron, manganese, and ammonia removal. Convert existing tank for finished water storage. Upgrade water mains	2018	B,E	25	2	4227	P	\$ 6,096,000				

Sioux City (Grandview Reservoirs)	FS-97-18-DWSRF-007	Demolish and replace South and North Grandview reservoirs which were built in 1941 in order to improve capacity in the Grandview pressure zone	2018	B	35	2	82759	P	\$ 6,535,937				
Woodland Ridge Subdivision	PD-DW-18-19	Address radium MCLs	2018	G	P&D	2	50	R	\$ 66,000				
Armstrong	PD-DW-18-02	Water Treatment Plant Improvements	2018	G	P&D	1	943	L			9/8/17	\$ 238,000	\$ 238,000
Dedham	PD-DW-18-01	Construction of a new well at alternative location to provide city with backup water supply	2018	G	P&D	1	266	R	\$ 50,000				
Donnellson	FS-56-18-DWSRF-003	Connecting to Rathbun Regional Water System	2018	A,C,E	70	1	912	P	\$ 658,000				
Lakota	FS-55-18-DWSRF-002	Install a new Water Treatment Plant	2018	B,C,E	35	1	255	P	\$ 424,000				
Newton	FS-50-18-DWSRF-001	Cover existing backwash tank with new building	2018	B	15	1	16262	P	\$ 402,000				
Sidney	FS-36-18-DWSRF-004	Construction of a new water treatment plant, 2 new water supply wells, high service pumping system and replacement of old 150,000 gallon elevated storage tank	2018	A,B,E	90	1	1138	P	\$ 4,213,000				
Alta	FS-11-17-DWSRF-027	Water main replacement	2017	A,B,E	45	4	1960	P	\$ 820,000				
Dubuque	FS-31-17-DWSRF-026	Construction of a water pumping facility and connection to two homeowners' associations	2017	B,E	40	4	57852	L			7/7/17	\$ 10,801,400	\$ 10,198,000
Fort Dodge	PD-DW-17-55	Addition of water softening process to water treatment plant	2017	G	P&D	4	25206	L			8/11/17	\$ 1,200,000	\$ 1,200,000
Johnston	PD-DW-17-50	New pump station, water main, and emergency generator	2017	G	P&D	4	17306	L			9/29/17	\$ 500,000	\$ 500,000
Olin	PD-DW-17-52	New well, controls, generator	2017	G	P&D	4	698	R	\$ 95,000				
Raymond	FS-07-17-DWSRF-028	Watermain Loop connecting to Waterloo Water Works	2017	B	20	4	788	P	\$ 1,688,400				
Armstrong	FS-32-17-DWSRF-020	Water treatment improvements	2017	A,B,E	70	3	943	P	\$ 1,100,000				
Bellevue	FS-49-17-DWSRF-021	Construction of a water treatment facility	2017	A,E	60	3	2191	P	\$ 1,819,000	75%			
Gallery Acres West HOA (Solon)	FS-52-17-DWSRF-017	Resolve arsenic MCL through connection to another system or construction of new well and treatment	2017	A,E	60	3	43	P	\$ 1,039,000	75%			
Jewell	FS-40-17-DWSRF-015	Replace current filtering system to remove the ammonia, arsenic, and hardness in the water	2017	B,E	25	3	1215	R	\$ 1,847,766				
Lacina Meadows HOA	FS-52-17-DWSRF-022	Connecting to the City of Iowa City water supply to supply drinking water	2017	A,E	60	3	58	R	\$ 939,000	75%			
Raymond	PD-DW-17-25	Construction of water main loop to increase water system flows, pressures, quality and reliability	2017	G	P&D	3	788	R	\$ 150,000				

Sheffield	FS-35-17-DWSRF-024	Watermain replacement of older undersized watermain within the drinking water distribution system with new 6" or 8" watermain	2017	B,C,E	40	3	1172	R	\$ 1,570,000					
Swea City	FS-55-17-DWSRF-023	Replacement of approximately twenty five (25) blocks of undersized, four-inch water main that consist of asbestos cement.	2017	A,B,C,E	55	3	555	P	\$ 1,844,000					
Truro	FS-61-17-DWSRF-016	Replace all AC water distribution piping, increasing size of water mains being replaced, and modifying the height of the existing EST to improve distribution system pressure.	2017	A,B,E	45	3	485	P	\$ 866,000					
Walnut	DROPPED	Addition of a replacement bedrock aquifer (Jordan) well and associated raw water main	2017	B,C,E	55	3	785	D						
Farley	FS-31-17-DWSRF-008	An HMO treatment system is proposed to remove radium from the raw well	2017	A,B,E	70	2	1537	P	\$ 2,311,000					
Janesville	FS-09-17-DWSRF-009	Install new water main that connects the western portion of Janesville to the eastern portion.	2017	B,E	30	2	930	L			9/8/17	\$ 1,015,000	\$ 708,000	
Lyon & Sioux Rural Water	FS-60-17-DWSRF-011	Installation of permanent emergency generators for the Klondike WTP & Larchwood WTP to treat and pump water to the distribution system during power outages	2017	B,E	25	2	1390	P	\$ 131,000	75% of cost of generator equipment and installation				
Rathbun Regional Water (RRWA)	FS-04-17-DWSRF-010	Replacement of aging water meters with a new advanced/smart metering system.	2017	C,D	15	2	28215	R	\$ 2,902,945	30% of cost of water meter equipment and installation				
Sioux City (Western Hills/Indian Hills)	FS-97-17-DWSRF-012	Construction of a new water tank and a large capacity water main	2017	B	20	2	82759	P	\$ 8,000,000					
Sioux City (Zenith Water Treatment Plant)	FS-97-17-DWSRF-013	Add standby generator to Riverside Collector and improvements to the chemical feed systems	2017	B	15	2	82759	P	\$ 1,797,267					
Washington	FS-92-17-DWSRF-007	Construct new treatment plant modifications	2017	B,E	25	2	7266	R	\$ 3,977,790					
Amana Society Service Company	FS-48-17-DWSRF-001	Replace with 250,000 gallon new elevated water storage and construct booster station. New 8-inch main is also proposed	2017	A,B,E	95	1	1224	P	\$ 7,100,000	75%				
Fort Dodge	FS-94-17-DWSRF-006	Upgrade of all water meters and addition of automatic reading system	2017	B	20	1	25,206	L		30% of cost of water meter equipment and installation	10/13/17	\$ 4,347,000	\$ 3,413,000	
Kelley	FS-85-17-DWSRF-005	Connection to Xenia Rural Water System, disconnection of well, water tower rehabilitation	2017	B,E	45	1	310	L			8/4/17	\$ 552,000	\$ 650,000	

Oelwein	FS-33-17-DWSRF-004	Rehabilitation of existing well, new well house, chlorine feed system, emergency generator	2017	B,C,E	55	1	6415	R	\$ 1,033,000	75% of cost of generator equipment and installation			
Osceola County Rural Water System	FS-71-17-DWSRF-003	New treatment plant to remove iron and manganese, generator, ground storage reservoir, well buildings	2017	B,E	40	1	754	R	\$ 6,643,000	75% of cost of generator equipment and installation			
Amana Society Service Company	PD-DW-16-48	Solutions to pressure problems and well replacement	2016	G	P&D	4	1224	R	\$ 1,150,000				
Anamosa	FS-53-16-DWSRF-019	Plant Expansion	2016	B,C,E	50	4	4283	R	\$ 1,660,000				
Anamosa	PD-DW-16-49	Plant Expansion	2016	G	P&D	4	4283	R	\$ 321,350				
New Sharon	FS-62-16-DWSRF-017	Construction of 7,400 I.F. of 8" transmission main along with related valves, booster pump and connections. Water treatment plant improvements and 1,500 I.F. of 6" water main	2016	B,E	30	4	1293	P	\$ 1,319,050				
Osceola County Rural Water System	PD-DW-16-52	Construction of new 2,400 gpm iron and manganese removal water treatment plant	2016	G	P&D	4	4929	R	\$ 465,000				
West Des Moines	FS-77-16-DWSRF-022 (2)	Construction of 1 Jordan aquifer and 2 shallow alluvial aquifer wells to provide redundancy of source water supply	2016	B	35	4	56609	R	\$ 1,891,000				
Cushing	FS-97-16-DWSRF-013	Construction of a new 55,000 gallon standpipe for water storage, water meters, emergency generator	2016	B,E	30	3	220	P	\$ 517,000	30% of cost of water meter equipment and installation, 75% of cost of generator equipment and installation			
Fenton	FS-55-16-DWSRF-012	Install new water tower	2016	B,C,E	55	3	281	R	\$ 392,000				
Livermore	DROPPED	Install a new submersible pump and process piping for Well #5 to tie into existing treatment plant, water meters	2016	B,C,E	55	3	384	D					
Westgate	FS-33-16-DWSRF-015	Construct a new water tower	2016	B,E	45	3	211	P	\$ 568,000				
Farmington	FS-89-16-DWSRF-006	Replace old cast iron water main and underground storage tank with above ground tank	2016	B,C,E	40	2	664	P	\$ 312,000				
Keswick	FS-54-16-DWSRF-009	Replacement of all remaining cast iron main, add system looping and add new flushing hydrants, new isolation valves and service connections.	2016	B,C,E	40	2	246	P	\$ 411,497				
Ridgeway	FS-96-16-DWSRF-007	Water main replacement project, generator	2016	B,C,E	40	2	315	R	\$ 380,000	75% of cost of generator equipment and installation			
Aplington	FS-12-15-DWSRF-017 (2)	New single pedestal elevated tank solution.	2015	B,E	30	4	1158	R	\$ 227,000				
Dakota City	FS-46-15-DWSRF-020	Construct a 2nd well	2015	B,C,E	55	4	843	R	\$ 708,525				

Guthrie Center	FS-39-15-DWSRF-017	Water main replacement and new water service connection	2015	B,C,E	40	4	1569	R	\$ 518,660					
Sabula	FS-49-15-DWSRF-019	Water main replacement on Broad street, water meters	2015	B,C,E	40	4	576	R	\$ 787,920	30% of cost of water meter equipment and installation				
Van Meter	FS-25-15-DWSRF-020	New Water Treatment Plant	2015	B,E	45	4	1054	P	\$ 4,608,000					
Mt Ayr (Revised)	FS-80-15-DWSRF-013	Water main replacement and water plant demolition	2015	B,C,E	40	3	1691	R	\$ 3,651,000					
Sioux Rapids (revised)	FS-11-15-DWSRF-015	New well, new water treatment plant for nitrate removal and iron/manganese removal, replace booster pumps, piping, and controls	2015	B,E	45	3	775	L			10/27/17	\$ 1,269,000	\$ 1,502,000	
Little Sioux	FS-43-15-DWSRF-010 (2)	Water distribution system improvements	2015	B,C,E	40	2	170	R	\$ 84,000					
Ruthven	FS-74-15-DWSRF-006	New well to replace Well #1, aeralator rehab, control panel replacement, water main replacement to improve pressure and add new valves and hydrants	2015	B,C,E	55	2	779	P	\$ 1,316,550					
Asbury	FS-31-15-DWSRF-001 G	Constructing water main looping, installing new well and elevated storage tank	2015	B,E	45	1	4545	L			9/8/17	\$ 1,807,000	\$ 1,807,000	
Asbury	FS-31-15-DWSRF-001 R	Constructing water main looping, installing new well and elevated storage tank	2015	B,E	45	1	4545	L			9/8/17	\$ 1,200,000	\$ 1,200,000	
Muscatine Power & Water	FS-70-14-DWSRF-022	Watermain replacement project, generator	2014	B	15	4	24386	R	\$ 2,432,416	75% of cost of generator equipment and installation				
Muscatine Power & Water	PD-DW-14-44	Water main replacement, generator	2014	G	P&D	4	24386	R	\$ 215,915					
De Soto	FS-24-14-DWSRF-011	New water treatment facility	2014	B,E	25	3	1050	P	\$ 3,295,000					
Ida Grove	FS-47-14-DWSRF-008	Add new permanent well	2014	B,E	45	3	2158	P	\$ 339,017					
Stanwood	FS-16-13-DWSRF-021	Construction of approx 2700 lineal feet of new 6 inch PVC pipe, including new valves, hydrants.	2013	B,C,E	40	4	684	R	\$ 786,841					
Cedar Falls Utilities	FS-07-12-DWSRF-028	Water main extension to connect homes with nitrate contaminated private wells	2012	A	35	4	39260	P	\$ 1,380,670	75%				
Mt Ayr (supplemental)	FS-80-12-DWSRF-014 (2)	Movement of prefabricated booster pump station to new location to improve pressures	2012	B,E	20	4	1691	P	\$ 275,000					
Shenandoah	FS-73-12-DWSRF-020	Water meter replacement	2012	B,C,D,E	45	4	5546	R	\$ 80,800	20%				
Albia	FS-68-12-DWSRF-008	Water main replacement	2012	B,C,E	40	2	3706	P	\$ 350,000					
									\$ 125,403,870			\$ 23,612,900	\$ 22,099,000	
Project Status	Project Type													
Dropped -- D	A = Water Quality and Human Health Risk-Related Criteria													
Ready for Loan -- R	B = Infrastructure and Engineering-Related Improvement													
Loan Signed -- L	C = Affordability Criteria													
Planning Stage -- P	D = Special Category Improvements													
	E = Project Serves Population less than 10,000													
Water and Energy Efficiency	F = Supplemental Loan for Previously Approved Project													
Emergency Generators	G = Planning and Design Loan													
Disadvantaged Communities														
Public Health Projects														

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

Item 7

Decision

Topic – Final Adoption, Chapter 64, “Wastewater Construction and Operation Permits”

The Commission is requested to approve the Notice of Intended Action to reissue National Pollutant Discharge Elimination System (NPDES) General Permits Nos. 1, 2 and 3 which authorize the discharge of storm water. General Permits Nos. 1, 2 and 3 were last reissued in 2012 for a five year duration and expired October 1, 2017. This action will renew all three, extending their coverage to February 28, 2023. General permits for storm water discharges are required to be adopted as rules and are effective for no more than five years as specified in the Iowa Administrative Code.

No changes other than changes in dates and updating Code of Iowa and Iowa Administrative Code references are proposed for General Permit No. 1.

Several changes are being proposed for General Permit No. 2 (GP2). These include updates to federal effluent requirements for construction and development point sources set out in 40 CFR § 450.21. The proposed amendments will adopt the federal requirement regarding soil stabilization. Other changes being proposed for GP2 are clarifications of existing requirements including revised wording of federal effluent requirements and reference changes to the Code of Iowa and Iowa Administrative Code.

The changes being proposed for General Permit No. 3 are a clarification added at the request of stakeholders that explains an existing prohibition on the discharge of vehicle washwaters, changes in effective dates and updating Code of Iowa references and Iowa Administrative Code.

It is not the intent of the Commission that the textual changes in general permits be adopted in the Iowa Administrative Code but that these changes be made in the general permits themselves which are adopted by reference into the Iowa Administrative Code.

Several meetings have been held with stakeholders since September, 2016 which provided valuable input for the Department to implement the federal requirements in a manner acceptable to the affected parties. Public comments were received from August 15, 2017 until October 18, 2017. A public hearing was held on October 18, 2017 at which comments were received with the comments and the Department's responses attached. The effective date of the reissued General Permits has been changed from February 1, 2018 to March 1, 2018 and the expiration date from January 31, 2023 to February 28, 2023 subsequent to the initial presentation of the Notice of Intended Action. Adoption at the December Commission meeting would preclude having an effective date of February 1 due to legal requirements for publishing in the Iowa Administrative Bulletin. No other modifications have been made in the proposed changes from the Notice of Intended Action.

Joe Griffin
NPDES Section
Iowa Department of Natural Resources

December 19, 2017

ENVIRONMENTAL PROTECTION COMMISSION [567]

Adopted and Filed

Pursuant to the authority of Iowa Code sections 455B.105(3) and 455B.173, the Environmental Protection Commission (Commission) hereby adopts amendments to Chapter 64, "Wastewater Construction and Operation Permits," Iowa Administrative Code.

The amendments to Chapter 64 reissue National Pollutant Discharge Elimination System (NPDES) General Permits Nos. 1, 2 and 3 which authorize the discharge of storm water. General Permits Nos. 1, 2 and 3 were last reissued in 2012 for a five year duration and expired October 1, 2017. This action renews all three, extending their coverage another five years to February 28, 2023. General permits for storm water discharges are required to be adopted as rules and are effective for no more than five years as specified in the Iowa Administrative Code.

No changes other than changes in dates and updating Code of Iowa and Iowa Administrative Code references are adopted for General Permit No. 1.

Several changes have been made in General Permit No. 2 (GP2). These include updates to federal effluent requirements for construction and development point sources set out in 40 CFR § 450.21. One of the federal requirements is that areas of sites where construction activity will not occur for 14 or more days must have stabilization measures initiated immediately. The current requirement in GP2 is that areas of sites where construction activity will not occur for 21 or more days must have stabilization measures initiated on the areas no later than 14 days after no construction activity has occurred on them. The amendments will adopt the federal requirement regarding soil stabilization. Other than this soil stabilization requirement, all federal effluent requirements being added to GP2 are already found in various sections of the general permit though described using different verbiage. Other changes for GP2 are clarifications of existing requirements and Code of Iowa and Iowa Administrative Code reference changes.

The changes being adopted for General Permit No. 3 are a clarification added at the request of stakeholders that explains an existing prohibition on the discharge of vehicle washwaters, changes in effective dates and updating Code of Iowa references and Iowa Administrative Code.

It is not the intent of the Commission that the textual changes in general permits be adopted in the Iowa Administrative Code but that these changes be made in the general permits themselves which are adopted by reference into the Iowa Administrative Code.

Copies of the revised general permits are available upon request from the Department of Natural Resources (Department) at the address or telephone number below.

After analysis and review of this rule making, these amendments are expected to have minimal or no effect on jobs and employment opportunities. The amendments can be achieved with minimal disruption in the current sequence of events that occur during development and construction. Moreover, these amendments are already required under federal law and the state is required to adopt these standards for purposes of implementing the federal NPDES permit program. A copy of the Jobs Impact Statement is available upon request.

The Notice of Intended Action was published in the Iowa Administrative Bulletin on September 13, 2017 as **ARC 3309C**. Comments were accepted from August 15, 2017 to October 18, 2017. A public hearing was held on October 18, 2017 at which comments were received. The comments and responses may be obtained by contacting the Department's Storm Water Coordinator, Joe Griffin, at joe.griffin@dnr.iowa.gov and at (515)-725-8417, or on the Department's website here:

<http://www.iowadnr.gov/Environmental-Protection/Water-Quality/NPDES-Storm-Water>

These amendments are intended to implement Iowa Code sections 455B.103A, 455B.105(3), 455B.173 and 45B.186.

The following amendments are adopted.

ITEM 1. Amend subrule **64.15(1)** as follows:

64.15(1) Storm Water Discharge Associated with Industrial Activity, NPDES General Permit No. 1, effective ~~October 1, 2012~~ March 1, 2018, to ~~October 1, 2017~~ February 28, 2023, as amended on ~~March 26, 2014~~. Facilities assigned Standard Industrial Classification 1442, 2951, or 3273, and those facilities assigned Standard Industrial Classification 1422 or 1423 which are engaged primarily in rock crushing are not eligible for coverage under General Permit No. 1.

ITEM 2. Amend subrule **64.15(2)** as follows:

64.15(2) Storm Water Discharge Associated with Industrial Activity for Construction Activities, NPDES General Permit No. 2, effective ~~October 1, 2012~~ March 1, 2018, to ~~October 1, 2017~~ February 28, 2023, as amended on ~~August 12, 2015~~.

ITEM 3. Amend subrule **64.15(3)** as follows:

64.15(3) Storm Water Discharge Associated with Industrial Activity from Asphalt Plants, Concrete Batch Plants, Rock Crushing Plants, and Construction Sand and Gravel Facilities, NPDES General Permit No. 3, effective ~~October 1, 2012~~ March 1, 2018, to ~~October 1, 2017~~ February 28, 2023, as amended on ~~March 26, 2014~~. General Permit No. 3 authorizes storm water discharges from facilities primarily engaged in manufacturing asphalt paving mixtures and which are classified under Standard Industrial Classification 2951, primarily engaged in manufacturing Portland cement concrete and which are classified under Standard Industrial Classification 3273, those facilities assigned Standard Industrial Classification 1422 or 1423 which are primarily engaged in the crushing, grinding or pulverizing of limestone or granite, and construction sand and gravel facilities which are classified under Standard Industrial Classification 1442. General Permit No. 3 does not authorize the discharge of water resulting from dewatering activities at rock quarries.

Date

Chuck Gipp, Director

Summary of the Rule:

The proposed amendments to Chapter 64 reissue General Permits Nos. 1, 2 and 3 which authorize the discharge of storm water. General Permits Nos. 1, 2 and 3 were last reissued in 2012 for a five year duration and expire October 1, 2017. This action will renew all three, extending their coverage another five years to February 28, 2023. General permits for storm water discharges are required to be adopted as rules and are effective for no more than five years as specified in the Iowa Administrative Code.

Several minor changes for clarification are being made in General Permit No. 2 (GP2) which are required to implement the federal effluent requirements for construction and development point sources. These standards are found in 40 CFR 450.21. The measures in the federal effluent requirements are already included in GP2 with one exception. The current requirement in GP2 is that areas of sites where construction activity will not occur for 21 or more days must have stabilization measures initiated on the areas no later than 14 days after no construction activity has occurred on them. The federal requirement contained in the proposed changes to GP2 is that areas of sites where construction activity will not occur for 14 or more days must have stabilization measures initiated immediately. Exemptions for drought conditions and excessively wet conditions are included. Other than this exception, all federal effluent requirements being added as Part III.C. are already found in various sections of GP2 though described using different verbiage. They are being added to GP2 as described in the federal regulations as an aid to demonstrate the program's compliance with federal requirements.

The amount of time allowed to make changes in the pollution prevention plan and at the construction site after discovery of the need to make changes has been added.

Other changes being proposed for GP2 are clarifications of existing requirements and Code of Iowa and Iowa Administrative Code reference changes in Parts II.C.1.G.(4), Parts II.C.3, VI.G. and VIII. The current references in the general permits are now incorrect as the location or wording have been changed in the Code of Iowa and Iowa Administrative Code.

The changes being proposed for GP3 are changes in effective dates, a clarification in Part I.B.2.G. added at the request of stakeholders that explains an existing prohibition on the discharge of vehicle washwaters and Code of Iowa reference changes in Part VIII.

No changes other than changes in effective dates and Code of Iowa and Iowa Administrative Code reference changes in Parts VI.G. and VIII. are proposed for GP1.

The changes to the general permits would:

1. Re-adopt the storm water General Permit nos. 1, 2 and 3 for another five year period to October 1, 2022.
2. Add a clarification in Part I.B.2.G. of General Permit no. 3 at the request of stakeholders that explicitly enumerates an existing prohibition on the discharge of vehicle washwaters.
3. Add a clarification in Part I.B.1. of General Permit no. 2 (GP2) that explicitly enumerates the existing requirement that fill sites are required to obtain permit coverage if they otherwise meet permitting criteria.
4. Add a clarification in Part I.B.2.E. of GP2 that explicitly enumerates the existing restriction that concrete washout and concrete wet sawing are not authorized by this permit.
5. Add a clarification in Part I.B.3. of GP2 that explicitly enumerates the existing exemption from permitting requirements for certain stipulated maintenance activities that disturb less than 5 acres.
6. Remove the now unnecessary reference to October 1, 1992 in Part II.A. of GP2 in the stipulation that construction activities shall not commence until an authorization has been issued for the project.
7. Correct a Code of Iowa citation in Part II.C.1.G.(4) of GP2. The citation has been moved in the Code of Iowa and this change references the new location.
8. Remove the requirement in Part II.F. of GP2 to send transfer agreements between lot buyers and sellers. This requirement has already been removed from the IAC.
9. Add existing federal construction and development effluent guidelines from the Code of Federal Regulations, 40 CFR Part 450 in Part III.C. of GP2.
10. Add a clarification in Part IV.D.4.B. of GP2 specifying that the time allowed to make changes to the SWPPP and at the construction site must be no more than 7 calendar days after the permittee's last inspection.
11. Add a clarification in Part V.B. of GP2 specifying that the time period during which the pollution prevention plan must be kept at a readily available location is from the date of project initiation to the date of final stabilization.
12. Add a clarification in Part VIII of GP2 to the current definition of final stabilization that explicitly enumerates the existing requirement that the vegetative density must be sufficient to preclude erosion for the entire disturbed area of a permitted site.
13. Add definitions to Part VIII of GP2 of "infeasible", "stabilization", "soil stabilization" and "Water(s) of the State".
14. Correct references to various other Code of Iowa and Iowa Administrative Code citations as indicated above.

RESPONSIVENESS SUMMARY

Introduction:

This is a summary of the comments received during the public comment period ending October 18, 2017 regarding proposed changes to chapter 567-64 of the Iowa Administrative Code which renew the storm water general permits and make changes to the general permits. Several meetings were held with stakeholders since September, 2016 which provided valuable input for the Department to implement the federal requirements in a manner acceptable to the affected parties. Public comments were received from August 15, 2017 until October 18, 2017. A public hearing was held on October 18, 2017 at which comments were received with the comments and Department's responses attached. Two people attended the hearing. No modifications have been made in the proposed changes as a result of comments received during the public comment period.

Summary of changes:

The changes to the general permits would:

1. Re-adopt the storm water General Permit nos. 1, 2 and 3 for another five year period to February 28, 2023;
2. Add a clarification in Part I.B.2.G. of General Permit no. 3 at the request of stakeholders that explicitly enumerates an existing prohibition on the discharge of vehicle washwaters;
3. Add a clarification in Part I.B.1. of General Permit no. 2 (GP2) that explicitly enumerates the existing requirement that fill sites are required to obtain permit coverage if they otherwise meet permitting criteria;
4. Add a clarification in Part I.B.2.E. of GP2 that explicitly enumerates the existing restriction that concrete washout and concrete wet sawing are not authorized by this permit;
5. Add a clarification in Part I.B.3. of GP2 that explicitly enumerates the existing exemption from permitting requirements for certain stipulated maintenance activities that disturb less than 5 acres;
6. Remove the now unnecessary reference to October 1, 1992 in Part II.A. of GP2 in the stipulation that construction activities shall not commence until an authorization has been issued for the project;
7. Correct a Code of Iowa citation in Part II.C.1.G.(4) of GP2. The citation has been moved in the Code of Iowa and this change references the new location;
8. Remove the requirement in Part II.F. of GP2 to send transfer agreements between lot buyers and sellers. This requirement has already been removed from the IAC;

9. Add existing federal construction and development effluent guidelines from the Code of Federal Regulations, 40 CFR Part 450 in Part III.C. of GP2;
10. Add a clarification in Part IV.D.4.B. of GP2 specifying that the time allowed to make changes to the SWPPP and at the construction site must be no more than 7 calendar days after the permittee's last inspection;
11. Add a clarification in Part V.B. of GP2 specifying that the time period during which the pollution prevention plan must be kept at a readily available location is from the date of project initiation to the date of final stabilization;
12. Add a clarification in Part VIII of GP2 to the current definition of final stabilization that explicitly enumerates the existing requirement that the vegetative density must be sufficient to preclude erosion for the entire disturbed area of a permitted site;
13. Add definitions to Part VIII of GP2 of "infeasible", "stabilization", "soil stabilization" and "Water(s) of the State"; and
14. Correct references to various other Code of Iowa and Iowa Administrative Code citations as indicated above.

Comments received during public comment period and Department responses:

GP2 Part III.C.3. Regarding the proposed requirement, already in the Federal Construction and Development Effluent Guidelines found in 40 CFR 450.21 which we are required to adopt, directly or by reference, to immediately initiate soil stabilization if soil disturbing activities on an area have permanently ceased, or temporarily ceased and will not resume for more than 14 days.

Iowa Department of Transportation Comment:

As we previously commented, the current 14/21 day stabilization requirement was included in Iowa DOT's standard specifications and the Pollution Prevention Plan, which was included in the contract plans. Both of these documents are considered contract documents. So, a change in the stabilization timeframe would change the contract terms on existing projects. As such, we would need to issue a change order to revise the stabilization timeframe requirements. This would impact DOT projects currently under contract in addition to local agency (city and county) contracts that used DOT contract documents and would involve resources in preparing, negotiating, and issuing these change orders. In addition to stabilization costs, contractors could request additional costs due to the change in terms and the impact on their sequencing or staging.

Even though the activity of stabilization is prospective (as stated in the DNR's response to a previous DOT comment), contracts for these projects are already in place. The Iowa DOT has approximately 160 GP#2 authorizations under the existing permit, with some authorizations covering more than one contract. This number doesn't include local agency projects that would also be affected. Beyond public road projects let through the Iowa DOT, private sector projects may involve additional negotiation for change orders if work was quoted on a lump sum basis.

The Code of Federal Regulations on effluent limitations appears silent on grandfathering and does not expressly prohibit states from allowing it. The DNR also allowed for grandfathering on topsoil preservation (another federal requirement) in the current GP#2, so there is a DNR precedent for allowing grandfathering.

The Federal Rule was effective since 2009; however, it was unknown how the DNR would incorporate the requirement into the permit. The DOT was uncertain of the specific language the DNR would use, since in the past the state's permit language has varied from the Federal Rule. As such, the DOT's incorporation of the new stabilization requirements into DOT standard specifications did not occur until draft permit language was provided by the DNR to stakeholders.

We recommend the DNR provide language in the proposed permit to allow grandfathering for currently permitted sites/projects with respect to soil stabilization requirements.

Department's response:

This proposed change is a Federal Effluent Guideline and the Department is obligated to adopt it without being less stringent.

GP2 Part III.C.4. Regarding the proposed requirement, already in the Federal Construction and Development Effluent Guidelines found in 40 CFR 450.21 which we are required to adopt, directly or by reference, to prohibit discharges from dewatering of trenches and excavations unless managed by appropriate controls.

Apex Companies, LLC comment:

The language "appropriate controls" is vague and a definition of the term would be helpful.

Department's response:

As indicated elsewhere in the permit, practices are to be implemented which will reduce the pollutants in storm water discharged from construction sites. Practices must also be implemented that preclude causing a water quality violation in a Water of the State. The Department cannot determine what controls would be appropriate for the all the varying situations that arise at construction sites.

GP2 Part IV.D.2.A.(1) Regarding removing the existing requirement to initiate soil stabilization no later than 14 days after no soil disturbing activities have occurred on an area if soil disturbing activities on the area have permanently ceased, or temporarily ceased and will not resume for more than 21 days including an exemption for snow cover.

Iowa Storm Water Education Partnership Comment:

A few ISWEP members are requesting that the snow cover language remain in the reissued General Permit Number 2. The language follows:

~~“Except as precluded by snow cover, stabilization measures shall be initiated on all disturbed areas as soon as practical but in no case where construction activity will not occur for a period of 21 or more calendar days later than the 14th day after no construction activity has occurred on such area. Where the initiation of stabilization measures by the 14th day after no construction activity occurs is~~

~~precluded by snow cover, then stabilization measures shall be initiated as soon as practicable thereafter...”~~

They are concerned about the local enforcement requirements and the potential financial impacts on local construction projects.

Department’s response:

The proposed change to remove the current requirement with its snow cover exemption and replace it with the proposed language in Part III.C.3. is due to a Federal Effluent Guideline which does not include an exemption for snow cover. The Department is obligated to adopt it without being less stringent as a condition of our delegation agreement from the U.S. EPA that enables us to administer the storm water program as part of the National Pollutant Discharge Elimination System (NPDES) program.

Stabilization is often not implemented during the autumn months when it could be achieved on unworked areas then when cold weather arrives with snow and frozen ground, stabilization is difficult or impossible to achieve. The Department has observed that if consideration is given to climate conditions that are typical in Iowa during October, November and December and sufficient planning, as required by GP2, has been done, insufficient stabilization of sites prior to significant accumulations of snow occurring can be largely avoided.

GP2 Part IV.D.4.B. Regarding the proposed requirement to make changes at the construction site after identification of deficiencies within 7 calendar days and if the changes are not made within 72 hours of identification, to document why they cannot be made in the SWPPP.

IDOT Comment:

On DOT projects, 72 hours is the response time for a typical erosion control *mobilization*. However, depending on the amount of corrections, *completion* of such work may take 7 calendar days after identification of deficiencies.

This requirement for documentation may seem minor. However, if an inspector neglects to document this even one time, it could be considered a violation of the permit requirements.

Additionally to avoid documenting incorrect information, the inspector could be required to perform another inspection to verify the change has been made within 72 hours. This ultimately increases the inspection frequency to twice per week.

This proposed requirement is not based on federal requirements and would create unnecessary documentation of little to no value.

We recommend the following portion of Paragraph IV.D.4.B. be deleted:

~~If the permittee determines that making these changes at the construction site or to the plan less than 72 hours after the inspection is impracticable, the permittee shall document in the plan why it is impracticable and indicate an estimated date by which the changes will be made.~~

If this recommendation is not acceptable to the DNR, we then suggest the following alternative revisions:

If the permittee determines that **mobilizing to make** ~~making~~ these changes at the construction site or **making these changes** to the plan less than 72 hours after the inspection is impracticable, the

permittee shall document ~~in the plan~~ why it is impracticable and indicate an estimated date by which the changes will be made.

Department's response:

The proposed requirement does not require that changes must be completed within 72 hours, only that it be documented why such changes were not implemented within that time. In most cases, it is feasible to make the changes within that time. When it is not, such reasons should be documented. The purpose of the program is to prevent violations from occurring; rather than react to such violations. When more time is allowed for the changes to be made, there is an increased chance that violations will occur due to unnecessary sediment loss. It has been observed that considerably more time than needed is often taken to complete necessary changes to the sediment and erosion control measures at construction sites. The purpose of this change is to facilitate compliance assessment by Department and City inspectors.

GP1 Regarding the list of allowable non-storm water discharges covered by GP1.

REG Services, LLC comment:

REG has reviewed NPDES General Permit No. 1 and its proposed changes as well as the draft for General Permit No. 8 for the discharge from hydrostatic testing, tank ballasting and water lines. Currently, GP1, Part III, Section A lists waterline flushings as an acceptable discharge, but not items such as water used for hydrostatic testing. REG feels that until GP8 is ready for issuance, activities proposed by Part 1, Section B of GP8 should be allowed under GP1.

Forterra Building Products comment:

Would it be possible to add Steam Condensate as an exempt discharge to the General Permit #1? The State of Maine and Texas currently allow this in their versions of the General Permit for Stormwater discharge associated with Industrial Activity.

Department's response:

The purpose of GP1 is to permit the discharge of storm water and the proposed GP8 will address the discharge of hydrostatic test waters. To properly address the issues related to the types of discharges mentioned by the commenters, extensive additional requirements would have to be included in GP1. For these reasons, the Department cannot include hydrostatic test waters or steam condensate in the list of allowable non-storm discharges in GP1 with this rulemaking.

Iowa Department of Natural Resources
Environmental Protection Commission

Item 8

Decision

Topic - Adopted and Filed – Update to Wasteload Allocation Procedure document Chapter 61, “Water Quality Standards” and Chapter 62, “Effluent and Pretreatment Standards: Other Effluent Limitations or Prohibitions”

The purpose of this rule making is to revise the rule referenced document “Supporting Document for Iowa Water Quality Management Plans”, which was last updated in 2009. This document establishes the technical methodologies that the Iowa Department of Natural Resources uses to develop wasteload allocations and water quality-based effluent limits for point source dischargers. The proposed revision will incorporate the most up-to-date scientific information and provide more flexibility for facilities seeking to use alternative permitting options. For example, the revision will update the stream low-flow values based on the most recent published USGS low-flow study report, provide alternative methodologies for deriving site-specific permit limits, and streamline sampling requirements for site-specific data collection. These changes will result in cost savings for some permitted facilities and are also protective of designated uses. The document will be revised to make it more understandable and better describe the procedures used in wasteload allocation calculations. The proposed revision also changes the title of the document to more clearly reflect its contents. The revised document will be titled “Iowa Wasteload Allocation (WLA) Procedure.”

The Department received comments from eight different organizations or individuals in response to the revised document. A responsiveness summary has been prepared to address these comments. Some of these comments have led to changes in the revised document which have been detailed in the responsiveness summary. The final version of the “Iowa Wasteload Allocation (WLA) Procedure” document and responsiveness summary can be found at: <http://www.iowadnr.gov/Environmental-Protection/Water-Quality/Water-Quality-Standards>.

Matthew Dvorak, Environmental Specialist
Water Quality Bureau
Environmental Services Division

ENVIRONMENTAL PROTECTION COMMISSION [567]

Adopted and Filed

Pursuant to the authority of Iowa Code sections 455B.105(11)“a,” and 455B.173(3), the Environmental Protection Commission (Commission) hereby amends Chapter 61, “Water Quality Standards,” and Chapter 62, “Effluent and Pretreatment Standards: Other Effluent Limitations or Prohibitions,” Iowa Administrative Code.

The purpose of the amendments is to update the name of the document referenced in the rules from “Supporting Document for Iowa Water Quality Management Plans, Chapter IV, July 1976, as revised on November 11, 2009” to “Iowa Wasteload Allocation (WLA) Procedure” to more clearly reflect the contents of the document. A wasteload allocation (WLA) is the portion of a water body’s assimilative capacity that is allocated to an existing or future point source discharge. This document establishes the technical methodologies the Department of Natural Resources (Department) uses to develop WLAs and water quality-based effluent limits for point source dischargers. In addition to updating its name, the document will be revised to make it more understandable and better describe the procedures used in WLA calculations. The revision will also provide greater flexibility to facilities seeking alternative permitting options.

The major elements of the Iowa WLA Procedure document revision are as follows:

- a. Update the Stream Low-Flow Values for United States Geological Survey (USGS) gaged sites and ungaged sites based on the USGS low-flow study report “Methods for Estimating Selected Low-Flow Frequency Statistics and Harmonic Mean Flows for Streams in Iowa,” by David A. Eash and Kimberlee K. Barnes, published in 2012 and revised in 2013. This change will incorporate the most up-to-date stream critical low flows published by USGS to better reflect actual stream low flows;
- b. Incorporate statewide default background chemical concentrations using the most up-to-date monitoring data available;
- c. Incorporate statewide default effluent chemical concentrations for different types of wastewater treatment plants using the most up-to-date effluent monitoring data available;
- d. Replace the total residual chlorine default decay value in the mixing zone with site-specific decay measurements;

e. Incorporate the current implementation procedures for the chloride and sulfate criteria that were adopted in 2009;

f. Revise the *E. coli* WLA procedures for both continuous and noncontinuous discharges in accordance with the limitation on end of pipe permit limits established at 62.8(2);

g. Revise the *E. coli* decay rate coefficient to be consistent with other Department programs;

h. Revise the temperature criteria implementation procedure to incorporate all elements of the temperature criteria in Chapter 61 for different designated uses. The proposed revision to the temperature criteria implementation procedure provides flexibility for facilities seeking alternative permitting options;

i. Modify the WLA procedure for pH so that pH criteria must be met at the boundary of the mixing zone instead of the boundary of the zone of initial dilution. This modification will result in increased dilution for pH WLA calculations;

j. Clarify the current mixing zone procedures and the requirements for mixing zone and diffuser studies;

k. Incorporate a Site-Specific Data Collection procedure in order to standardize the site-specific data collection process. The proposed revision will have fewer sampling requirements and will result in cost savings for point source discharge facilities seeking site-specific permit limits;

l. Revise the Water Quality Modeling section to replace previous models with commonly used and modernized QUALIK and modified Streeter-Phelps models. The revisions will also update decay rates and reaeration rates to reflect the latest scientific data;

m. Add a reference to the antidegradation implementation procedure document; and

n. Add a new section on Alternative Site-Specific Methodology for Water Quality Based Limits that provides point source discharge facilities with the flexibility to develop site-specific NPDES permit limits.

Other minor revisions to the document include improvements in the estimation of ammonia nitrogen decay calculations in discharge pipes and general use segments, clarification of the procedure for determining discharge flows used in WLAs, and clarification of various sections to make the document more understandable. The "Iowa Wasteload Allocation (WLA) Procedure" document is available

at www.iowadnr.gov/Environmental-Protection/Water-Quality/Wasteload-Allocations.

The amendments also update references to the Department's Web site.

Notice of Intended Action was published in the Iowa Administrative Bulletin as ARC 3202C on July 19, 2017. Public hearings were held on September 5, 6, and 7, 2017. Public comments were received and considered. A responsiveness summary has been prepared and is available at: <http://www.iowadnr.gov/Environmental-Protection/Water-Quality/Water-Quality-Standards>. The most notable change made in response to public comments is to retain the single sample maximum criterion for *E. coli* in Chapter 61. The Notice of Intended Action proposed to remove this criterion. The Department will instead consider potential changes to the *E. coli* criteria during its regular triennial review process and will solicit further public input at that time.

After analysis and review of this rule making, these amendments are expected to have a positive impact on jobs. The amendments are projected to result in a total cost savings for cities, industries, and semipublic entities ranging between \$26 million and \$58 million. This total savings is expected to be achieved by approximately 94 facilities across the state. These cost savings will likely lead to further investment in production and job growth.

These amendments are intended to implement Iowa Code sections 455B.105(11)"a," and 455B.173(3).

These amendments will become effective on February 21, 2018.

The following amendments are adopted.

ITEM 1. Amend paragraph 61.2(4)"a" as follows:

a. Due to extreme variations in wastewater and receiving water characteristics, spatial dimensions of mixing zones shall be defined on a site-specific basis. These rules are not intended to define each individual mixing zone, but will set maximum limits which will satisfy most biological, chemical, physical and radiological considerations in defining a particular mixing zone. Additional details are noted in the ~~"Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on November 11, 2009~~ "Iowa Wasteload Allocation (WLA) Procedure," as revised on February 21, 2018, for considering unusual site-specific features such as side channels and sand bars which may influence a mixing zone. Applications for operation permits under 567—subrule 64.3(1) may be required to

provide specific information related to the mixing zone characteristics below their outfall so that mixing zone boundaries can be determined.

ITEM 2. Amend paragraph 61.2(4)“b,” introductory paragraph, as follows:

b. For parameters included in Table 1 only (which does not include ammonia nitrogen), the dimensions of the mixing zone and the zone of initial dilution will be calculated using a mathematical model presented in the ~~“Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on November 11, 2009~~ “Iowa Wasteload Allocation (WLA) Procedure,” as revised on February 21, 2018, or from instream studies of the mixing characteristics during low flow. In addition, the most restrictive of the following factors will be met:

ITEM 3. Amend subparagraph 61.2(4)“d”(4) as follows:

(4) A discharger to interior streams and rivers, the Big Sioux and Des Moines Rivers, and the Mississippi or Missouri Rivers may provide to the department, for consideration, instream data which technically supports the allowance of an increased percentage of the stream flow contained in the mixing zone due to rapid and complete mixing. Any allowed increase in mixing zone flow would still be governed by the mixing zone length restrictions. The submission of data should follow the guidance provided in the ~~“Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on November 11, 2009~~ “Iowa Wasteload Allocation (WLA) Procedure,” as revised on February 21, 2018.

ITEM 4. Amend paragraph 61.2(4)“e,” introductory paragraph, as follows:

e. For ammonia criteria noted in Table 3, the dimensions of the mixing zone and the zone of initial dilution will be calculated using a mathematical model presented in the ~~“Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on November 11, 2009~~ “Iowa Wasteload Allocation (WLA) Procedure,” as revised on February 21, 2018, or from instream studies of the mixing characteristics during low flow. In addition, the most restrictive of the following factors will be met:

ITEM 5. Amend paragraph 61.2(4)“f” as follows:

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

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

(1) Specific pH and temperature data provided by the applicant gathered at their mixing zone boundary. Procedures for obtaining this data are noted in the ~~“Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on November 11, 2009~~ “Iowa Wasteload Allocation (WLA) Procedure,” as revised on February 21, 2018.

(2) Regional background pH and temperature data provided by the applicant gathered along the receiving stream and representative of the background conditions at the outfall. Procedures for obtaining this data are noted in the ~~“Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on November 11, 2009~~ “Iowa Wasteload Allocation (WLA) Procedure,” as revised on February 21, 2018.

(3) The statewide ~~average~~ median background values ~~presented in Table IV-2 of the “Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on November 11, 2009~~ as determined by the department.

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

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

2. If the dilution ratio is greater than 2:1, the logarithmic average pH of the effluent and the regional or statewide pH provided in 61.2(4)“f” will be used. In addition, the flow proportioned average temperature of the effluent and the regional or statewide temperature provided in 61.2(4)“f” will be used. The procedures for calculating these data are noted in the ~~“Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on November 11, 2009~~ “Iowa Wasteload Allocation (WLA) Procedure,” as revised on February 21, 2018.

ITEM 6. Amend subparagraph 61.2(4)“g”(4) as follows:

(4) A discharger to interior streams and rivers, the Big Sioux and Des Moines Rivers, and the Mississippi and Missouri Rivers may provide to the department, for consideration, instream data which technically supports the allowance of an increased percentage of the stream flow contained in the mixing zone due to rapid and complete mixing. Any allowed increase in mixing zone flow would still be governed by the mixing zone length restrictions. The submission of data should follow the guidance provided in the ~~“Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on November 11, 2009~~ “Iowa Wasteload Allocation (WLA) Procedure,” as revised on February 21, 2018.

ITEM 7. Amend paragraph 61.3(2)“g” as follows:

g. Cations and anions guideline values to protect livestock watering may be found in the ~~“Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on November 11, 2009~~ “Iowa Wasteload Allocation (WLA) Procedure,” as revised on February 21, 2018.

ITEM 8. Amend subrule 61.3(5) as follows:

61.3(5) *Surface water classification.* The department hereby incorporates by reference “Surface Water Classification,” effective June 17, 2015. This document may be obtained on the department’s Web site at ~~<http://www.iowadnr.gov/InsideDNR/RegulatoryWater/WaterQualityStandards/Rules.aspx>~~ <http://www.iowadnr.gov>.

ITEM 9. Amend subrule 61.3(6) as follows:

61.3(6) *Cold water use designation assessment protocol*. The department hereby incorporates by reference “Cold Water Use Designation Assessment Protocol,” effective December 15, 2004. This document may be obtained on the department’s Web site at ~~<http://www.iowadnr.com/water/standards/index.html>~~—<http://www.iowadnr.gov>.

ITEM 10. Amend subrule 61.3(7) as follows:

61.3(7) *Warm water stream use assessment and attainability analysis protocol*. The department hereby incorporates by reference “Warm Water Stream Use Assessment and Attainability Analysis Protocol,” effective March 22, 2006. This document may be obtained on the ~~department’s~~ department’s Web site at ~~<http://www.iowadnr.com/water/standards/index.html>~~<http://www.iowadnr.gov>.

ITEM 11. Adopt the following new subrule 61.3(9):

61.3(9) *Iowa wasteload allocation (WLA) procedure*. The department hereby incorporates by reference “Iowa Wasteload Allocation (WLA) Procedure,” as revised on February 21, 2018. This document may be obtained on the department’s Web site at <http://www.iowadnr.gov>.

ITEM 12. Amend subrule 62.8(2) as follows:

62.8(2) *Effluent limitations necessary to meet water quality standards*. No effluent, alone or in combination with the effluent of other sources, shall cause a violation of any applicable water quality standard. When it is found that a discharge that would comply with applicable effluent standards in 567—62.3(455B), 567—62.4(455B) or 567—62.5(455B) or effluent limitations in 567—62.6(455B) would cause a violation of water quality standards, the discharge will be required to meet the water quality-based effluent limits (WQBELs) necessary to achieve the applicable water quality standards as established in 567—Chapter 61. Any such effluent limit shall be derived from the calculated waste load allocation, as described in ~~“Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on November 11, 2009~~—“Iowa Wasteload Allocation (WLA) Procedure,” as revised on February 21, 2018, or the waste load allocation as required by a total maximum daily load, whichever is more stringent. The translation of waste load allocations to WQBELs shall use Iowa permit derivation methods, as described in the ~~“Supporting Document for Iowa Water Quality Management Plans,”~~

~~Chapter IV, July 1976, as revised on November 11, 2009, "Iowa Wasteload Allocation (WLA) Procedure,"~~
~~as revised on February 21, 2018~~ except that the daily sample maximum criteria for *E. coli* set forth in ~~Part~~
~~E of the "Supporting Document for Iowa Water Quality Management Plans" 567—Chapter 61~~ shall not
be used as an end-of-pipe permit limitation

PUBLIC PARTICIPATION RESPONSIVENESS SUMMARY

FOR

RULEMAKING ON CHAPTER 61 & CHAPTER 62

Iowa Wasteload Allocation Procedure Document
&
E. coli Criteria Update

DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL SERVICES DIVISION

November 27, 2017

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RESPONSIVENESS SUMMARY

INTRODUCTION

This is a summary of and response to the comments received in response to amendments proposed for 567 IAC Chapter 61 “Water Quality Standards” and the “Iowa Wasteload Allocation Procedure” adopted therein by reference as well as 567 IAC Chapter 62 “Effluent and Pretreatment Standards: Other Effluent Limitations or Prohibitions.” The proposed amendments were published as a Notice of Intended Action (NOIA) in the Iowa Administrative Bulletin on July 19, 2017 as ARC 3202C.

The following amendments were proposed:

Item 1: Iowa Wasteload Allocation Procedure

Update the rule referenced document “Supporting Document for Iowa Water Quality Management Plans, Chapter IV, July 1976, as revised on November 11, 2009.” The revision of this document will include a title change to “Iowa Wasteload Allocation (WLA) Procedure” to more clearly reflect the contents of the document. A wasteload allocation (WLA) is the portion of a water body’s assimilative capacity that is allocated to an existing or future point source discharge. This document establishes the technical methodologies that the Department of Natural Resources (Department) uses to develop WLAs and water quality-based effluent limits for point source dischargers. The revision will make the document more understandable and better describe the procedures used in WLA calculations. The update will also provide greater flexibility to facilities seeking alternative permitting options.

Item 2: *E. coli* Criteria Update

Revise the bacteria water quality criteria table at 567 IAC Chapter 61.3(3) “a”(2). The revision will eliminate the single sample maximum values of 235 organisms per 100 milliliters of water for Recreational Use Classes A1 and A3 and 2,880 organisms per 100 milliliters of water for Recreational Use Class A2. Also, to eliminate the reference to the sample maximum *E. coli* standard in 567 IAC Chapter 62.8(2) due to the fact that the *E. coli* sample maximum criterion is recommended to be removed in the proposed rule in 567 IAC Chapter 61.3(3) “a”(2) as stated above.

Public hearings were held on September 5th, 6th, and 7th, 2017 at the towns of Washington, Urbandale, and Harlan in Iowa. Written comments were accepted through September 8th, 2017. A total of eight persons or organizations provided oral or written comments on the proposed Item 1: Iowa Wasteload Procedure during the public comment period; more than 700 persons or organizations provided oral or written comments on the proposed Item 2: *E. coli* Criteria Update during the public comment period. The responsiveness summary addresses all of the comments received. The commenters’ names are listed in the Appendix.

TOPIC: Comments in Support of the Proposed Rule

Item 1: Iowa Wasteload Allocation (WLA) Procedure

Comments:

- We commend the IDNR on updating the language, procedures, and making clarifications to the WLAP document; the language is easier to read, and the concepts and procedures provided within the document are much clearer.
- The proposed manual more clearly defines the permit limit derivation procedures than the current process. As part of the advisory committee, we provided technical review and input in the development of this most important document that is used as the basis for establishing wastewater discharge permit limits.
- The proposed rule would create more flexibility for industrial NPDES permit holders and potentially save companies money, while still providing adequate and desired environmental protections for Iowa's water resources. We also support encouraging site-specific sampling, incorporating better science, and more accurate assumptions as part of the Wasteload Allocation Procedure (WLAP). Additionally, we appreciate DNR's long process for public comment and stakeholder participation. IDNR has done its part to carefully evaluate the basis for the proposed changes as well as the potential impact to NPDES permit holders and the environment.
- The proposed rule makes our flows and background data accurate compared to what is on the books now which I am in favor of. I think a WLA should be based on this science. I am in favor of these proposed changes.
- We appreciate that the DNR has incorporated updated USGS low flow study results in the proposed update to Iowa's WLA procedure. The use of the USGS low-flow study provides more accurate data for the purpose of calculating critical low flows for the purpose of setting protective effluent limits.

IDNR Response: Iowa DNR appreciates the support for the proposed rule.

Item 2: *E. coli* Criteria Update

Comment: We agree with the revision to the *E. coli* bacteria standards with the deletion of the single sample maximum values standard. The single sample maximum is not an appropriate parameter for water quality assessment.

IDNR Response: Iowa DNR has determined that it will no longer be seeking this revision at this time. For further explanation, please see pages 10-11, below.

TOPIC: Comments Recommending Revision of the Proposed Rule

Item 1: Iowa Wasteload Allocation (WLA) Procedure

Comment: Using monthly or seasonal variable low flow limits instead of the annual low flow (7Q10) to calculate permit limits decreases the margin of safety and reduces assurance that there will be no adverse impacts to the water body. We recommend some constraints to the use of monthly or seasonal variable low flow limits such as real-time monitoring of flow to confirm that the actual flow in the receiving stream is at or above the assumed monthly or seasonal low flow used to establish the effluent limit.

IDNR Response: The WLA Procedure document states that monthly or seasonal low flows will be explored on a case-by-case basis and the evaluation considers whether there is a nearby USGS gage that has an adequate flow record that can be used to reasonably estimate the monthly low flows at the discharge location. Thus, the proposed rule includes limitations to the use of monthly or seasonal low flows. It is important to note that the use of monthly or seasonal low flows is consistent with EPA's policies that allow seasonable stream low flows to develop effluent limits. The EPA letter dated on September 20, 1996 states that,

“Permits should be evaluated on a case-by-case basis for the appropriateness of seasonal limits. Where dilution is the primary factor affecting development of an appropriate wasteload allocation, permitting authorities might consider the use of seasonal limits based on seasonal receiving water flow.”

The monthly critical low flows are calculated using USGS standard methodology and take drought conditions into account. Since the monthly critical low flows are calculated based on the same frequency of occurrence (once in 10 years) as annual low flows, the margin of safety is preserved.

Comment: We appreciate that DNR is addressing multiple discharges into the same reach, but we still have concerns with the way that DNR has addressed assimilative capacity. DNR should assess the full assimilative capacity of the river for common pollutants of concern before starting to allocate capacity to single or multiple dischargers and specifically reserve a portion of the assimilative capacity as a margin of safety.

IDNR Response: The WLA Procedure will be revised as follows:

“The development of wasteload allocations for common pollutants is based on the impact to water quality resulting from the combined discharges, the assimilative capacity for the river reach, and the allocation of the assimilative capacity to each facility.”

The WLA Procedure calculates water quality based limits under critical low flow conditions. Thus, the margin of safety is implicit.

Comment: We have concerns that the proposed WLA procedure does not specifically address diurnal algal effects for permits that discharge to streams with significant algae present. DNR should require assessments to determine if algae are present in significant amounts in the receiving stream. This assessment would typically require a field visit in the growing season and incorporate visual observations and collect DO readings associated with varying times of day and sunlight conditions. If it is determined that algae is impacting the DO dynamics of the receiving stream, then permit limits should be determined based on the most critical time period to ensure adequate DO levels necessary for protection of aquatic life.

IDNR Response: Iowa DNR ambient monitoring program assesses stream conditions and the information is summarized in the 303(d)/305(b) report. If the waterbody is impaired, a Total Maximum Daily Load is performed on a watershed basis, which incorporates both point and nonpoint sources. The WLA procedure focuses on point sources. The QUALIIK model in the proposed Iowa WLAP can incorporate diurnal algal effects on a site-specific basis.

Comment: We continue to believe that it is better to use more representative travel time assumptions, such as using the median or mean flow of a stream to calculate bacteria die-off. We request that the IDNR provide a section in the WLAP that describes the process the IDNR will use in determining travel times and die-off rates and how they protect sensitive downstream uses, such as the children's recreational use.

Iowa DNR Response: It is important to note that as part of this rule making, the bacteria decay rate is reduced by more than 5-fold from 5.28/day to 1.0/day. The use of the 7Q10 flow to estimate bacteria decay for point source discharges is consistent with the EPA's "Implementation Guidance for Ambient Water Quality Criteria for Bacteria," March 2004, which states:

"Continuous loadings, that is, sources that discharge at about the same level regardless of the rainfall, often most greatly impact water quality under low-flow, dry-weather conditions, when dilution is minimal. For these sources, EPA recommends that the allowable loading be calculated for the geometric mean as the product of the geometric mean water quality criterion and the 30Q5 flow statistic (i.e., the lowest 30-day flow occurring once every five years), and for the individual sample as the product of the upper percentile value water quality criterion and 1Q10 flow statistic (i.e., the lowest one-day flow occurring once every 10 years) or the low flow specified in the state or tribal water quality standards, if one is so specified."

The draft Wasteload Allocation Procedure document includes a Section (9.2) on *E. coli* Decay Rate and a Section on Flow Velocity Calculations (Section 16.3.6). The information provided in these two sections is adequate to estimate the *E. coli* decay.

Comment: Page 10, Section 5.4 Mixing Zone and Zone of Initial Dilution as related to Ammonia Nitrogen: This section of the document discusses basing the dilution ratio for ammonia nitrogen WLA calculations on 7Q10, whereas the EPA bases ammonia nitrogen calculations on 30Q10. Did the IDNR intend to use 7Q10 for an ammonia MZ and ZID? (See the 1999 Update Ambient Water Quality Criteria for Ammonia for further clarification.)

Iowa DNR Response: 567 IAC Chapter 60.2(455B) defines the dilution ratio as follows:

"Dilution ratio means, for a specific wastewater discharger, the ratio of the seven-day, ten-year low stream flow to the effluent design flow, e.g., a dilution ratio of 2:1 has two parts stream flow to one part effluent flow."

Thus, the 7Q10 flow is required in Iowa rule to be used for the dilution ratio calculation.

Comment: The temperature limits calculated in the WLAP are not protective under conditions of variable background temperatures and variable heat discharge rates. For Monthly Average Limit calculations, in months where average temperatures were below the Maximum Background Temperature, facilities could comply with permit limits while still warming the mixing zone more than 3°C. In addition, Maximum Background Temperatures exceed, or are close to, temperature "cap" values in all months in Zones II and III on the Missouri River and in May-September on the Missouri River; the adding of a 3°C mixing zone to these background values would allow a violation of the Maximum Allowed River Temperature criterion in Iowa's WQS.

Iowa DNR Response: Iowa DNR addressed this comment in earlier communications with the EPA. Currently there are no 304(a) criteria for temperature. Iowa's temperature criteria are quite complex. In the past, Iowa only partially implemented the temperature criteria due to its complexity. The implementation procedure included in the WLAP implements all elements of the temperature criteria. To develop the temperature

implementation procedure, Iowa DNR staff conducted detailed research on EPA guidance documents and other states' implementation procedures. In addition, Iowa DNR staff worked with stakeholders for over a year to develop the new temperature procedure to ensure that the procedure is protective of the beneficial uses and is reasonable to implement.

Please note that the 3°C rise is not an instantaneous criterion that is a never to be exceeded value. The 3°C rise criterion is chronic criterion based on EPA's guidance [National Technical Advisory Committee, Water Quality Criteria, April 1, 1968 (the "Green Book")] on thermal discharges, which is the reason it is implemented as a monthly average limit in Iowa's proposed temperature implementation procedure. Excerpt from the EPA "Green Book",

"During any month of the year heat should not be added to a stream in excess of the amount that will raise the temperature of the water (at the expected minimum daily flow for that month) more than 5°F. In lakes, the temperature of the epilimnion in those areas where important organisms are most likely to be adversely affected should not be raised more than 3°F above that which existed before the addition of heat of artificial origin. The increase should be based on the monthly average of the maximum daily temperature."

Several other EPA guidance documents such as the "Quality Criteria for Water 1986" (the "Gold Book") also indicates that the 3°C rise is a weekly or chronic criterion. Due to the chronic nature of the 3°C rise criterion, it is implemented as an average limit in wasteload allocation calculations.

Due to the fact that the maximum temperature criteria are derived based on the upper incipient temperature it is implemented as daily maximum temperature. The daily maximum limit is calculated using 10-year critical low flows and the 90th percentile background temperature. Thus, the daily maximum limit ensures that the maximum temperature criteria are met. If the monthly temperature limits based on the 3°C rise criterion are higher than the daily maximum limits, the daily maximum limits will govern.

Comment: The WLAP allows pH criteria to be met at the boundary of the mixing zone instead of the ZID. While pH in and of itself is generally not thought to be acutely toxic, it can be an aggravating factor for other pollutants making them more toxic. If pH can be outside of the criteria range up to the edge of the chronic MZ, the extreme pH must be used to calculate other pH-dependent acute criteria in the ZID.

Iowa DNR Response: The technology based pH limit of 6 to 9 applies to the vast majority of point source discharges at the end of pipe and it ensures that the pH values in the zone of initial dilution will be close to the pH criteria of 6.5 to 9. Also, pH is not a pollutant and the criteria value of 6.5 to 9 does not constitute an acute criterion. In addition, the WLAP allows the use of site-specific pH values to calculate effluent limits to ensure that the designated uses are protected.

Comment: page 36, Section 12.1, General Use Segments (567 IAC Chapter 61.3(2))d, The narrative translator procedure uses one half of a 96 hour or 48 hour LC50 to represent a no-effect level. However, this value would not represent an acute no-effect level. We strongly recommend that an aquatic life ambient water quality criteria or a state's WQS be used when available. Acute AWQC are developed from a distribution of accepted acute toxicity values for at least one species from a minimum of eight different families to be representative of the aquatic community. Using the results of a single species acute toxicity test does not provide broader protection to the aquatic community.

The proposal for dividing the single toxicity value by two suggests using a "sensitive representative resident species" and identifies that species as the Fathead minnow for General Use Segments. Fathead minnows are in many cases unlikely to be sensitive relative to other species that potentially could be present in these waters.

Application of the approach described in the WLAP, using a single test species with data taken from a database (e.g., ECOTOX), does not appear to account for site-specific conditions (e.g., hardness, DOC, etc.), which could be taken into account (where applicable to a chemical) through the use of an aquatic life criterion.

The discussion above outlines the lack of scientific defensibility of using one half of a 96-hour or 48-hour LC50 to represent a no-effect level. Where specific numerical criteria for a chemical or biological parameter (such as toxicity) are absent, compliance with WQS must be based on the general narrative criteria and on protection of the designated uses.

We strongly recommends the IDNR adopt the EPA's recommended criteria for whole effluent toxicity as follows: to protect aquatic life against chronic effects, the ambient toxicity should not exceed 1.0 chronic toxic unit (TUc) to the most sensitive of at least three different test species. For protection against acute effects, the ambient toxicity should not exceed 0.3 acute toxic units (TUa) to the most sensitive of at least three different test species.

Iowa DNR Response After further consideration, the language related to the use of fathead minnow as the default most sensitive representative resident species for General Use segments is being eliminated in the revised WLAP (Section 12.1). As a result, the implementation of narrative criteria for General Use segments will revert to the existing language in the current Basin Support Document, which was previously approved by EPA on June 16, 2004. The Iowa DNR is no longer proposing to revise the approved current Iowa rule.

Please note that Iowa's current narrative criteria addresses "free from acutely toxic conditions." Chronic Whole Effluent Toxicity (WET) testing is a separate topic which would require a water quality standard change and will be addressed at a later date.

Comment: Page 37, Equation 12.1-1, last sentence:

"It is important to note that narrative criteria translator value is applied at the end-of-pipe for General Use waters since General Use segments are ephemeral streams with zero design low flows unless site-specific data prove otherwise."

This statement is not consistent with the definition of General use segments in 567 IAC Chapter 61.3(1)a.

Iowa DNR Response: Iowa DNR believes that the above statement is consistent with the General Use Segments definition in 567 IAC Chapter 61.3(1)a due to the fact that General Use Segments are ephemeral waters usually with critical low flows of zero. However, to make the sentence more clear, the sentence is revised as follows:

"It is important to note that narrative criteria translator value is applied at the end-of-pipe for General Use waters unless site-specific data prove otherwise. This approach is based on the definition of General Use segments in 567 IAC Chapter 61.3(1)"a".

Comment: Page 40, Section 13.0 Mixing Zone Procedure: Please provide an explanation/justification as to why the reference to the General Water Quality (narrative) Criteria has been deleted at 61.2(4)

Iowa DNR Response: The paragraph is meant to refer to the purpose of the mixing zone as stated in 567 IAC Chapter 61.2(4), not to copy the entire section into the document.

Comment: Pages 51-52, Section 14.0 Flow Variable Limitation Procedure: When Flow Variable Limits are granted, permits must require reporting of both flow variable discharge (Ex. Pounds/day/cfs) and the actual mass discharged (Ex. Pounds/day). Knowing the mass discharged is essential for water quality planning, TMDLs, and full public disclosure of discharges such as ECHO or TRI databases.

Iowa DNR Response: Several conditions were added to the current flow variable procedure in the Basin Support Document in order to strengthen it. Section 14.0 Flow Variable Limitation Procedure states that,

“A facility with flow variable limits will need to monitor and report values for each of the factors in Equation 14.0-2.”

Thus, the discharge concentration, discharge flow and stream flow are reported along with the flow variable discharge (in lbs/day/cfs). With this information the actual mass discharged can be calculated.

Comment: Page 73, Section 17.1 Maximum Daily Limits and Average Monthly Limits: Under the statistical Based Procedure, it states “Modified 1991 EPA...” This appears to be a typo and should be changed to read “1991 EPA...”

Iowa DNR Response: The word “modified” will be removed.

Comment: Page 75, Section 19.0 Alternative Site-Specific Methodology for Water Quality Based Limits: This section states:

“This Section provides several alternative site-specific options to derive water quality based limits, which are recommended by U.S. EPA. Other alternative site-specific criteria will be reviewed and approved as long as they are scientifically defensible.”

Individual site-specific criteria are WQS and must be submitted to the EPA for review and approval, unless the SSC were developed using a performance-based approach that was previously approved by the EPA.

Iowa DNR Response: This comment is addressed in the response to another EPA comment below.

Comment: Page 75, Section 19.0 Alternative Site-Specific Methodology for Water Quality Based Limits: The WLAP states:

“Although these principals have been best demonstrated for metals (e.g., U.S. EPA, 1992; U. S. EPA, 1996), they hold true for all chemicals.”

Please provide specific evidence to support the statement that all chemicals behave similarly to metals in matters of species sensitivity.

Iowa DNR Response: The sentence will be removed from the document.

Comment: Page 76, Section 19.0 Alternative Site-Specific Methodology for Water Quality Based Limits: The WLAP states:

“State rulemaking is required before site-specific water quality criteria are used in a permit unless the method used to derive the site-specific criteria has been adopted in the state rule.”

As noted above in a previous comment, individual site-specific criteria are WQS and must be submitted to the EPA for review and approval, unless the SSC were developed using a performance-based approach that was previously approved by the EPA.

Iowa DNR Response: The sentence will be revised as follows:

“Site-specific water quality criteria are subject to the review and approval of the U.S. Environmental Protection Agency unless the criteria or methodology to derive the site-specific criteria have been approved by the U.S. EPA.”

Comment: Page 77, Section 19.2.1 Recalculation Procedure: The WLAP states:

"The approach may also require a biological assessment of the receiving stream to determine what criteria database organisms are not "resident to the site" and may not be expected to "occur at the site" as defined in the Recalculation Procedure."

This evaluation must also take into account that some of the "resident species" may have been extirpated from the site due to toxic discharges; this needs to be reflected in the WLAP.

Iowa DNR Response: Section 19 states that,

“The appropriate EPA guidance document must be used to determine the specific steps to be followed for each of these methods.”

The recalculation procedure in the EPA Water Quality Standard Handbook takes into account the condition described in this comment.

Item 2: *E. coli* Criteria Update

Comment: If the IDNR removes the Single Sample Maximum (SSM) criteria from the water quality standard, the IDNR should adopt criteria protective of primary contact recreation use consistent with the EPA’s 2012 Recreational Criteria to replace the SSM. The EPA’s 2012 criteria recommendations are both for a geometric mean (GM) and a statistical threshold value (STV). Using the geometric mean alone would not reflect spikes in water quality.

Iowa DNR Response: Iowa DNR has made the decision to terminate the proposed rule to remove the Single Sample Maximum (SSM) criterion from 567 IAC Chapter 61.3(3) at this time. The comments received in regard to the elimination of the SSM criterion raised the issue of whether a replacement criterion can be identified which evaluates the risk of bacterial exposure over a shorter period than the seasonal geometric mean. Iowa DNR continues to believe, as indicated by the original scientific analysis used to develop the SSM, that the SSM is only appropriate for use in determining the need for beach advisories. The DNR is willing to assess identified alternatives as part of the water quality standards review process. As a result, the Single Sample Maximum (SSM) criterion will remain in the water quality standards. Iowa DNR will evaluate the EPA 2012 recreational criteria and address this topic during a future triennial review.

Comment: We are concerned that IDNR has been issuing NPDES permit for continuously discharging publicly-owned treatment works (POTWs) that do not include both monthly average and weekly average permit limits consistent with 40 CFR 122.45(d). Specifically, the IDNR is issuing continuously discharging POTW permits with *E. coli* limits that contain only monthly average limits and do not have weekly average limits.

Iowa DNR Response: 40 CFR 122.45(d) requires a short term limit where practicable. Bacteria criteria are based upon exposure over a recreational season and establish a geometric mean for protection over the full season. (1) The short term limit is not necessary since the limits based on the geometric mean criteria require point source facilities to disinfect; (2) the short term limit would be very high due to the use of a site-specific variability (coefficient of variation) based on Tetra Tech’s method (the short term limit would be derived based on the same distribution as the geometric mean criterion and the seasonal duration). Thus, it does not add more protection and is unnecessary; (3) Iowa’s current rule 567 IAC Chapter 62.8(2) does not allow the use of sample maximum criteria in NPDES permits.

Comment: 40 CFR 131.20(a) requires that the State shall provide an explanation if a State does not adopt new or revised criteria for parameters for which EPA has published new or updated 304(a) criteria. The EPA requests that the IDNR provide that explanation for not adopting the EPA 2012 recreational criteria in the response to comments prior to formal submittal of new and revised WQS to the EPA

Iowa DNR Response: 40 CFR 131.20(a) applies only during the triennial review process. That said, the EPA is in the process of a 5-year review of the 2012 recreational criteria. Iowa will evaluate the 2012 criteria during future triennial review after EPA finishes the 5-year review consistent with the commitment described in the response to table the proposed change to the single sample maximum

TOPIC: Comments Opposed to the Proposed Rule

Item 1: Iowa Wasteload Allocation (WLA) Procedure

Comment: EPA has final approval of state water quality standards and they have been told to stand down. It bothers me that this is all moving forward now at a time when there will be no effective oversight by region 7 EPA. I noticed changes to the low flow calculations will allow discharges of more ammonia. Greater dilution of the receiving stream means less stringent limits. Next, changes in the procedures calculating thermal limits will affect something like 67 of 177 dischargers. It is stated that almost half of the facilities would go from essentially non-compliance into compliance which means they are discharging at higher temperatures. It is very concerning to me.

Iowa DNR Response: The proposed wasteload allocation procedure incorporates the latest USGS low flow study results (developed under the contract by Iowa DNR), which replaces the low flow methodology developed in the 1970's. The use of the updated USGS low-flow study provides more accurate data for the purpose of calculating critical low flows that are in turn used in setting protective effluent limits.

Iowa's temperature criteria are quite complex. In the past, Iowa only partially implemented the temperature criteria due to its complexity. The implementation procedure included in the WLAP implements all elements of the temperature criteria for the first time. To develop the temperature implementation procedure, Iowa DNR staff conducted detailed research on EPA guidance documents and other states implementation procedures. In addition, Iowa DNR staff worked with stakeholders for over a year to develop the new temperature procedure to ensure that the procedure is protective of the beneficial uses and is reasonable to implement.

Iowa DNR conducted three rounds of stakeholder meetings to seek input on the Wasteload Allocation Procedure document and the stakeholders include environmental groups and regulated entities. Iowa DNR also had several meetings with the EPA Region 7 staff to discuss their comments. These proposed rules were thoroughly vetted over a long period of time. Iowa DNR also convened a technical advisory committee to discuss specific aspects of the proposed rule. The final proposed rule incorporated many stakeholders' comments and is based on the current scientific data. Stakeholders including environmental groups and regulated entities were supportive of this aspect of the proposed wasteload allocation procedure rule.

Item 2: *E. coli* Criteria Update

Summary of Comments:

Over 700 comments received oppose the removal of the Single Sample Maximum (SSM) *E. coli* criteria. The commenters believe that the proposed rule to remove the SSM criteria from Iowa's water quality standards is not sufficiently protective of public health. Using the Geometric Mean (GM) alone would not reflect spikes in water quality because the GM alone is not sensitive to them.

Comment: The proposed rule to remove the Single Sample Maximum (SSM) limit from Iowa's water quality standards is not sufficiently protective of public health. Using the Geometric Mean (GM) alone would not reflect spikes in water quality because the GM alone is not sensitive to them. Please explain why DNR believes the proposed *E. coli* criteria consisting of a geometric mean component alone is sufficiently protective of public health, contrary to the 2012 EPA recommendation. Please cite the scientific studies, sanitary surveys or other data that are the basis for the proposed revised *E. coli* water quality criteria for A1, A2 and A3 waters. In the absence of a scientifically valid justification for the proposed criteria, to address concerns about the SSM being overly stringent the Commission should adopt one of the sets of the 2012 recommended recreational water quality criteria. The Statistical Threshold Value (STV) component of each set of the 2012 criteria is less stringent than the SSM in Iowa's existing criteria for primary contact recreation (A1 and A3), yet still sufficiently protective of public health. Please clarify whether restorative efforts will

continue for the 3 lakes and 3 river segments currently listed as impaired due to violations of the SSM criteria for which a TMDL restoration plan has already been developed and approved by EPA. Please explain why DNR believes monitoring and assessing for short-term spikes in *E. coli* bacteria at certain lakes and reservoirs with public beaches, and not rivers designated for primary contact recreational uses, is sufficient to protect public health.

IDNR Response: Iowa DNR has made the decision to terminate the proposed rule to remove the Single Sample Maximum (SSM) criterion from 567 IAC Chapter 61.3(3) at this time. The comments received in regard to the elimination of the SSM criterion raised the issue of whether a replacement criterion can be identified which evaluates the risk of bacterial exposure over a shorter period than the seasonal geometric mean. Iowa DNR continues to believe, as indicated by the original scientific analysis used to develop the SSM, that the SSM is only appropriate for use in determining the need for beach advisories. The DNR is willing to assess identified alternatives as part of the water quality standards review process. As a result, the Single Sample Maximum (SSM) criterion will remain in the water quality standards. Iowa DNR will evaluate the EPA 2012 recreational criteria and address this topic during future triennial review.

TOPIC: Comments Not Directly Pertaining to the Proposed Rule

Comment: We believe that instream monitoring should be added as a permit condition for large dischargers to verify that permit limits based on WLA modeling are protective of water quality standards. DNR should require instream monitoring as a permit condition for large dischargers to verify that permit limits based on WLA modeling are protective of water quality standards.

IDNR Response: This issue is related to NPDES permit requirements and it not part of this rule making.

Comment: While not technically a part of the WLA procedure, we would like to suggest an improvement to the DNR's procedures for determining the minimum level of effluent quality for CBOD as part of secondary treatment standard limits. The Iowa procedure uses BOD for influent monitoring and CBOD for effluent monitoring. In order to determine compliance with the secondary treatment standard of 85% removal, the current procedure uses the assumed relationship of $CBOD = BOD - 5$. As noted in the EPA NPDES Permit Writers Manual, this relationship may not apply outside the range of 30 to 45 mg/l BOD. DNR should consider a new procedure for determining a site-specific BOD to CBOD relationship for permits where BOD is outside the range of 30 to 45 mg/l.

IDNR Response: As indicated in the comment, this issue is not part of this rule making

Comment: The phrase "when the Class "A1", "A2" or "A3" uses can reasonably be expected to occur" was previously disapproved by the EPA and needs to be removed from subrule 61.3(3) in order to reflect Iowa WQS rules that are actually in effect for CWA purposes.

Iowa DNR Response: This issue is not part of this rule making and will be addressed in a future triennial review.

APPENDIX

Commenters:

The following is a list of individuals and organizations that commented on the proposed rule during the public comment period. The commenters are listed in no particular order.

Item 1: Iowa Wasteload Allocation (WLA) Procedure

Government Agencies:

U.S. EPA Region 7

Non-Profit or Trade Organizations:

Iowa Environmental Council (IEC)
Environmental Law and Policy Center (ELPC)
The Iowa Association of Business and Industry (ABI)
The Iowa Water Environment Association (IAWEA)

Businesses:

Keith Hobson – Fox Engineering
Lance Aldridge – Fox Engineering

Private Citizens:

Steve Vesey

Item 2: *E. coli* Criteria Update

Government Agencies:

U.S. EPA Region 7

Non-Profit or Trade Organizations:

Iowa Environmental Council (IEC)
Environmental Law and Policy Center (ELPC)
The Iowa Association of Business and Industry (ABI)
The Iowa Water Environment Association (IAWEA)

Businesses:

Keith Hobson – Fox Engineering
Lance Aldridge – Fox Engineering

Private Citizens:

Over 700 private citizens submitted comments on the proposed *E. coli* rule. Due to the large number of commenters, the individual names are not listed and they are available upon request.

Iowa Department of Natural Resources
Environmental Protection Commission

Item 9

Decision

Topic - Final Adoption – Chapter 64 – Renewal of Private Sewage Disposal System General Permit 4

The Commission is requested to approve the amendment to Chapter 64 to reissue National Pollutant Discharge Elimination System (NPDES) General Permit 4 which authorizes the discharge of treated wastewater from a private sewage disposal system. General Permit 4 was last reissued in 2012 for a five year period ending August 15, 2017. This action will renew the permit for another 5 years to February 28, 2023. The general permit for private sewage disposal system discharge is required to be adopted as rule and is effective for no more than five years as specified in the Iowa Administrative Code.

A public hearing was held October 3, 2017, at the Wallace State Office Building, 502 E. 9th Street, Des Moines, Iowa, 50319, in the 5th floor conference room 5E. Written comments on the proposed amendment were accepted through October 18, 2017. No comments were received.

The Commission is requested to approve this final rule.

Daniel A. Olson, Environmental Specialist Senior
NPDES Section, Water Quality Bureau
Environmental Services Division

November 28, 2017

ENVIRONMENTAL PROTECTION COMMISSION[567]

Adopted and Filed

Pursuant to the authority of Iowa Code section 455B.173(11), the Environmental Protection Commission hereby adopts amendments to Chapter 64, “Wastewater Construction and Operation Permits” of the Iowa Administrative Code.

The purpose of this action is to reissue the existing National Pollutant Discharge Elimination System (NPDES) Private Sewage Disposal Systems General Permit known as General Permit No.4 (GP4). This permit authorizes discharges from private sewage disposal systems such as sand filters, other media filters, and aerobic treatment units that will reach a designated water of the state or a subsurface drain tile. These types of systems are used where soils absorption is not possible due to soil or geological conditions or the presence of a high groundwater table. The permit will be renewed for 5 years and the only changes being made are updates to dates. There are no fees associated with GP4. A copy of the proposed GP4 is available at the Department's website at; <http://www.iowadnr.gov/Environmental-Protection/Water-Quality/Private-Septic-Systems/General-Permit-4> .

The Notice of Intended Action was published September 13, 2017, as **ARC 3310C**. Comments regarding this amendment were accepted during the comment period and at one public hearing from October 3, 2017, to October 18, 2017. The public hearing was held in Des Moines. No comments were received.

After analysis and review of this rulemaking it has been determined that there will be no impact on private sector jobs and employment opportunities in Iowa.

This amendment becomes effective March 1, 2018.

This amendment is intended to implement Iowa Code sections 455B.183 (1)(c) and 455B.173(11).

The following amendment is adopted.

Item 1. Amend subrule **64.15(4)** as follows;

64.15(4) “Discharge from Private Sewage Disposal Systems,” NPDES General Permit No. 4, effective ~~March 18, 2009~~ March 1, 2018 to ~~March 17, 2011~~ February 28, 2023.

Date

Chuck Gipp, Director

Iowa Department of Natural Resources Environmental Protection Commission

Item 10

Decision

TOPIC Notice of Intended Action: Chapters 40, 41, 42, 43, 44, 81, 83

The Department is requesting permission from the Commission to proceed with the rulemaking process and publish a Notice of Intended Action to amend Chapter 40, "Scope of Division—Definitions--Forms--Rules of Practice," Chapter 41, "Water Supplies," Chapter 42, "Public Notification, Public Education, Consumer Confidence Reports, Reporting, and Record Maintenance," Chapter 43, "Water Supplies – Design and Operation," Chapter 44, "Drinking Water State Revolving Fund," Chapter 81, "Operator Certification: Public Water Supply Systems and Wastewater Treatment Systems," and Chapter 83, "Laboratory Certification," of the 567 Iowa Administrative Code.

Reason for Rulemaking

Currently, the Safe Drinking Water Act (SDWA) is implemented in Iowa by the Department, through delegated authority from EPA. As a condition of SDWA delegation, the Department is required to adopt and implement drinking water rules that are no less stringent than the federal rules. These rules are intended to ensure the water from public water supply systems meets federal health-based standards, protecting public health by reducing health risks to consumers.

The federal rules proposed for adoption are as follows: (1) the Groundwater Rule; (2) the Lead and Copper Rule Short-term Revisions; and (3) the Revised Total Coliform Rule. This rule package also includes additions to the Stage 2 Disinfectants and Disinfection Byproducts Rule and the Long-term 2 Enhanced Surface Water Treatment Rule. Lastly it also includes updated analytical methods, construction standards and updates to existing rules.

Summary of Proposed Rule Changes

The Groundwater Rule provides for increased protection against microbial pathogens such as *E. coli* in public water systems that use ground water sources, and it is an alternative to requiring disinfection for all systems. Actions are targeted to systems that are susceptible to the pathogens. Such systems must test the groundwater source for a fecal indicator; if detected, further action is required. Onsite sanitary survey inspections are required to be conducted at intervals of three-years for community systems and five-years for non-community systems, and must address eight elements to determine any significant deficiencies that can endanger public health; if found, such deficiencies must be addressed. All systems served by groundwater sources are affected by this rule, which is approximately 1,730 systems (out of 1,880 in Iowa), and serves approximately 1.6 million people.

The Lead & Copper Rule (LCR) Short-term Revisions provides for clarification of the existing LCR in several areas, and requires each system to notify the homeowners of the lead level in their specific home when tested by the system, and makes changes to the mandatory public education language required when a system exceeds the lead action level. Lead was historically used in system and home plumbing and there is no safe level in drinking water. The purpose of the LCR is to reduce lead exposure from the drinking water. All community and non-transient non-community (NTNC) systems are affected by this rule, which include 1,239 systems serving 2.8 million people.

The Revised Total Coliform Rule provides for increased public health protection through the reduction of potential pathways of entry for fecal contamination into distribution systems. It is a revision of the existing total coliform rule. The rule establishes a maximum contaminant level for *E. coli* bacteria, eliminates the previous non-acute bacteria maximum contaminant level violation, requires a “find and fix” approach for responding to positive coliform samples, and requires seasonal systems to complete a start-up plan each year before serving water to the public. System assessments are used to find sanitary defects and fix them. This rule affects all 1,880 public water supply systems, serving approximately 2.9 million people.

Amendments to state rules.

The proposed rule:

- updates the water supply construction standards to the 2012 edition of Ten States Standards and the 2016 edition of the American Water Works Association standards,
- updates the DNR’s emergency response phone number,
- changes the American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) 60 and 61 reference to allow for certification by an ANSI accredited third party for conformance with ANSI/NSF 60 and 61 (allows for more vendors to provide the needed chemicals and products),
- clarifies chlorination requirements, and
- provides a separation distance for ground heat exchange (GHEX) loop boreholes to public wells.

To ensure adequate treatment of surface water the proposed rule includes daily calculation of contact time ratio, turbidimeter calibration and verification criteria, and provides clarification of the turbidity combined filter effluent compliance treatment technique.

The proposed rule also:

- changes the replacement of a lead service line to an allowable cost under a DWSRF loan,
- defines operating shift and shift operator,
- corrects rural water district’s Code of Iowa reference,
- includes transient non-community systems into Grade A operator criteria (same as for NTNC systems),
- rescinds outdated oral examination criteria for operator certification,
- rescinds outdated temporary certification for operators,
- allows an operator to re-take a test after a failed exam after 30 days instead of 180 days,
- updates lab certification manuals to current editions,
- rescinds outdated initial laboratory certification rules for solid waste,
- includes recordkeeping requirements for laboratory certification appraisal auditors, and corrects rules citations and typographic errors.

Stakeholder Involvement

These chapters and their proposed amendments were reviewed by the water supply technical stakeholder advisory group at a meeting held on April 28, 2017. The technical advisory group is comprised of individuals representing a wide variety of representatives of the water supply industry, including public water supplies, professional drinking water organizations, certified operators, certified environmental laboratories, municipalities, industry, environmental interests, agricultural and business interests, consulting engineers, other state agencies, and EPA. Suggestions for improvement or clarification were incorporated into the proposed rules, which were then sent back to the advisory

group for a final review prior to moving forward with the rulemaking process. It was the consensus of the advisory group members participating in the meeting to move forward with the rules.

There was one change to the rules after the advisory group met, which was to change the replacement of lead service lines to an allowable cost under a Drinking Water State Revolving Fund loan. The rule change is a benefit to public water supply systems and is not controversial.

Since these rules are already federally enforceable, a significant amount of work has been done by Iowa systems and DNR staff to comply with these rules. The technical stakeholder advisory group indicated this rule package was not seen as controversial and recommended one hearing. People may also submit written comments at any time prior to the end of the public comment period.

Public Comments and Public Hearing

If the Commission approves the proposed rulemaking, the Department will hold a public hearing on Thursday, February 8, 2018, at the DNR offices in the Wallace State Office Building, 502 E. Ninth Street, Des Moines. The Department will accept written public comments until 4:30 p.m. on February 9, 2018.

Diane Moles, Executive Officer 2
Water Supply Engineering Section, Water Quality Bureau
Environmental Services Division

Memo date: November 21, 2017

ENVIRONMENTAL PROTECTION COMMISSION[567]

Notice of Intended Action

Pursuant to the authority of Iowa Code sections 455B.105, 455B.113, 455B.173, 455B.222, 455B.299, and Chapter 272C, the Environmental Protection Commission (Commission) hereby gives Notice of Intended Action to amend Chapter 40, "Scope of Division—Definitions--Forms--Rules of Practice," Chapter 41, "Water Supplies," Chapter 42, "Public Notification, Public Education, Consumer Confidence Reports, Reporting, and Record Maintenance," Chapter 43, "Water Supplies – Design and Operation," Chapter 81, "Operator Certification: Public Water Supply Systems and Wastewater Treatment Systems," and Chapter 83, "Laboratory Certification," Iowa Administrative Code.

These amendments propose to adopt three recent U.S. Environmental Protection Agency (EPA) rules pertaining to drinking water: Groundwater Rule (November 2006), Lead and Copper Rule – Short-term Revisions (October 2007), and Revised Total Coliform Rule (February 2013). The Groundwater Rule provides for increased protection against microbial pathogens such as *E. coli* in public water systems that use groundwater sources, and is an alternative to requiring disinfection for all systems. The Lead and Copper Rule Short-term Revisions provides for clarification of the existing rule in several areas. Two of the more significant changes include requiring each system to notify the homeowner of the lead level when the home is used for compliance testing, and changes to the mandatory public education language required when a system exceeds the action level. The Revised Total Coliform Rule provides for increased public health protection in all systems through the reduction of potential pathways for entry for fecal contamination into the distribution systems. The rule requires system assessments and a "find and fix" approach in responding to positive coliform bacteria samples in lieu of the previous

non-acute coliform bacteria maximum contaminant level, and requires seasonal public water supplies to complete a startup procedure before opening to the public for the season.

In addition, EPA made other changes to existing federal drinking water rules between August, 2004 and July, 2016, primarily in analytical methods. States are expected to incorporate these federal rule provisions into state program rules in order to maintain primacy in the drinking water program. The proposed rule amendments, if adopted, will accomplish that end. In addition, other changes to the Commission's drinking water rules are being proposed.

Proposed changes are summarized below by Chapter.

- Chapter 40: amend definitions for sanitary survey and 10 States Standards; add new definitions for the following: clean compliance history, Level 1 assessment, Level 2 assessment, sanitary defect, and seasonal system; include the Department of Natural Resources' (Department's) website address; and update forms.

- Chapter 41: Rescind the existing total coliform rule and replace it with the Revised Total Coliform Rule; update analytical methods; revise the existing lead and copper rule by adopting the Lead and Copper Rule – Short-term Revisions; require use of an analytical method for an organic contaminant that meets the method detection limit requirements for compliance samples; include the Groundwater Rule; and other minor corrections.

- Chapter 42: Include the public notification, consumer confidence report, lead consumer notice, and lead public education requirements for the Groundwater Rule, Lead and Copper Rule -- Short-Term Revisions, and Revised Total Coliform Rule; update the Department's environmental emergency reporting hotline telephone number; update the American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) 60 certification requirement to allow for use of chemicals that are accredited via third party

conformance with the standard; allow non-community systems that only use a cation-exchange softener to have bacterial compliance history reviewed before continuous disinfection is required; require all systems using water to which chlorine has been added to monitor daily in the distribution system to ensure the minimum disinfectant residual concentration is met; require inactivation ratio to be calculated each day the surface water or influenced groundwater treatment plant is in operation and to notify the Department within 24 hours if the ratio is below 1.0; and other minor corrections.

- Chapter 43: Include the provisions for the Groundwater Rule, Lead and Copper Rule -- Short-Term Revisions, and Revised Total Coliform Rule; update the construction standards to the 2012 edition of Ten States Standards and 2016 American Water Works Standards; require new groundwater sources to be tested for ammonia; add the separation distances for ground heat exchange (GHEX) loop boreholes; update the ANSI/NSF 61 certification requirement to allow for use of drinking water system components that are accredited via third party conformance with the standard; remove arsenic as an exception from the best available technology listing for inorganic compounds; require at least 0.5 log inactivation of *Giardia lamblia* cysts in treatment of surface or influenced groundwater sources to be from a chemical disinfectant; require notification by the surface water or influenced groundwater system to the Department within 24 hours if the daily total inactivation ratio is below 1.0; add the calibration and verification requirements for turbidity and residual disinfectant monitoring; update analytical methods; include federal language for the Long-term 2 Enhanced Surface Water Treatment Rule for sample collection, analytical methods, and bank filtration credit; add CT virus inactivation tables for groundwater systems; and other minor changes.

- Chapter 44: Revise the provision relating to allowable costs to be funded through the State Revolving Loan fund to allow for funding of the replacement of lead service lines.
- Chapter 81: Add two new definitions of operation shift and shift operator; correct Code of Iowa citations in the definition of rural water district; allow transient non-community systems to be classified as a Grade A system; rescind sunset education credit; rescind oral examination allowance and fee; change re-examination timeframe from 180 days to 30 days; remove the description of accommodations for examination; rescind temporary certification; and other minor changes.
- Chapter 83: Update the “Manual for Certification of Laboratories Analyzing Environmental Samples for the Iowa DNR” to 2017; remove reference to “fecal coliform” and replace with *E. coli* when appropriate; rescind outdated procedure for initial certification of solid waste and contaminated sites program parameters; update the Department’s emergency hotline number; add credit card fee payment option; include recordkeeping requirements for lab auditor; and other minor changes.

These chapters and their amendments were reviewed by the water supply technical advisory group at a meeting held on April 28, 2017. The group is comprised of individuals representing a wide variety of water supply stakeholders, including professional drinking water organizations, certified operators, certified environmental laboratories, environmental interests, agricultural and business interests, public water supplies, consulting engineers, and other state agencies.

After analysis and review of this rule making, no impact on jobs has been found. The federal rules are a requirement of all public water supply systems across the country. If the Commission does not adopt and implement these rules in Iowa, then the EPA will require Iowa

systems to comply with the federal rules without state staff assistance. Since these rules are already federally enforceable, a significant amount of work has been done by Iowa public water supply systems to comply with these rules.

Any interested person may make written suggestions or comments on these proposed amendments on or before February 9, 2018. Such written materials should be directed to Diane Moles, Water Supply Engineering Section, Department of Natural Resources, 502 E. Ninth Street, Des Moines, IA 50319-0034; telephone (515)725-0281; fax (515)725-8202; or E-mail diane.moles@dnr.iowa.gov. Persons who wish to convey their views orally should contact the Water Supply Section at (515)725-0281.

Oral or written comments will also be accepted at a public hearing that will be held February 8, 2018, at 10:00 a.m. in the DNR's 2N Conference Room at 502 E. Ninth Street, Wallace State Office Building, Des Moines. At the hearing, persons will be asked to give their names and addresses for the record and to confine their remarks to the subject of the amendments. All comments must be received no later than 4:30 p.m. on Friday, February 9, 2018.

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

These amendments are intended to implement Iowa Code sections 17A.3(1)“b,” 455B.113 through 455B.115, 455B.171 through 455B.188, 455B.190 through 455B.192, 455B.211 to 455B.224, 455B.291 to 455B.299, and Chapter 272C.

The following amendments are proposed:

ITEM 1. Amend rule 567—40.2(455B), definitions of “Sanitary survey,” and “Ten States Standards,” as follows:

“*Sanitary survey*” means a review and on-site inspection conducted by the department of the water source, facilities, equipment, operation and maintenance and records of a public water supply system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water and identifying improvements necessary to maintain or improve drinking water quality, pursuant to subrule 567—43.1(7).

“*Ten States Standards*” means the “Recommended Standards for Water Works,” ~~2007~~2012 edition as adopted by the Great Lakes—Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers.

ITEM 2. Adopt the following new definitions of “Clean compliance history,” “Level 1 assessment,” “Level 2 assessment,” “Sanitary defect,” and “Seasonal system,” in rule 567—40.2(455B):

“*Clean compliance history*” is, for the purposes of 567—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).

“*Level 1 assessment*” is an evaluation to identify the possible presence of sanitary defects, detects in distribution system coliform bacteria monitoring practices, and (when possible) the likely reason that the system triggered the assessment. It is conducted by the system operator or owner. Minimum elements include review and identification of atypical

events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a groundwater system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The system must conduct the assessment consistent with any department directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

“Level 2 assessment” is an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform bacteria monitoring practices, and (when possible) the likely reason that the system triggered the assessment. A Level 2 assessment provides a more detailed examination of the system (including the system’s monitoring and operational practices) than does a Level 1 assessment through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices. It is conducted by a department water supply inspector, and will typically include the system operator. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a groundwater system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The system must conduct the assessment consistent with any department directives that tailor specific assessment elements with respect to the size and type of

the system and the size, type and characteristics of the distribution system. The system must comply with any expedited actions or additional actions required by the department in the case of an *E. coli* MCL violation.

“*Sanitary defect*” is a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.

“*Seasonal system*” is a non-community water system that is not operated as a public water system on a year-round basis and starts up and shuts down at the beginning and end of each operating season.

ITEM 3. Amend rule **567—40.3(455B)**, introductory paragraph, as follows:

567—40.3(17A,455B) Forms. The following forms are used by the public to apply for department approvals and to report on activities related to the public water supply program of the department. All forms may be obtained from the department’s website at www.iowadnr.gov (water supply pages), or from the Environmental Services Division, Administrative Support Station, Department of Natural Resources, Henry A. Wallace Building, 502 East Ninth Street, Des Moines, Iowa 50319-0034. Properly completed application forms shall be submitted to the Water Supply Section, Environmental Services Division. Water Supply System Monthly and Other Operation Reporting forms shall be submitted to the appropriate field office (see 567—subrule 42.4(3)). Properly completed laboratory forms (reference 567—Chapter 83) shall be submitted to the State Hygienic Laboratory or as otherwise designated by the department.

ITEM 4. Amend subrule 40.3(1) as follows:

40.3(1) *Construction permit application forms.* Schedules “1a” through “16d” are required.

<u>Schedule No.</u>	<u>Name of Form</u>	<u>Form Number</u>
“1a”	General Information	542-3178
“1b”	Minor Water Main Construction Permit	542-3151
“1c”	Fee Schedule	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, Preliminary Data	542-3032
“3b”	Water Quality Data	542-3029
“3c”	Surface Water Quality Data	542-3028
“4”	Site Selection	542-3078
“5a”	Well Construction	542-1005
“5b”	Well Appurtenances	542-3026
“5c”	Well Profile	542-1006
“5d”	Surface Water Supply	542-3139
“6a”	Distribution Water Storage Facilities	542-3140
“6b”	Distribution Pumping Station	542-3141
“7”	Schematic Flow Diagram	542-3142
“8”	Aeration	542-3143

“9”	Clarification/Sedimentation	542-3144
“10”	Suspended Solids Contact	542-3145
“11”	Cation Exchange Softening	542-3146
“12”	Filters	542-3147
“13a”	Chemical Addition	542-3144 <u>542-3241</u>
“13b”	Dry Chemical Addition	542-3130
“13c”	Gas Chlorination	542-3131
“13d”	Fluoridation	542-3132
“13e”	Sampling and Tests	542-3133
“14”	Pumping Station	542-3134
“15”	Process 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

ITEM 5. Amend subrule 40.3(2) as follows:

40.3(2) Operation permit application forms.

~~a. Form 13-1 — community water supply~~

~~b.a.~~ Form 13-2 — noncommunity application for a new water supply 542-1300

b. Form 13-3 — renewal application for an existing water supply 542-1301

ITEM 6. Amend subrule 40.3(3) as follows:

40.3(3) Water supply reporting forms.

- ~~a. Form 14 plant operation 542-3104~~
 - ~~b. Form 15 analyses by certified laboratories~~
 - ~~(1) Individual bacterial analysis reporting Form 15-1a 542-3195~~
 - ~~(2) Summary bacterial analysis reporting Form 15-1b 542-3196~~
 - ~~(3) Chemical analysis reporting Form 15-2 542-3166~~
 - ~~(4) Corrosivity analysis reporting Form 15-3 542-3193~~
- The monthly water supply operation report forms are available from the department's water supply operations section website. The laboratory analyses for compliance samples are reported via electronic means directly to the department by each certified laboratory.

ITEM 7. Amend rule 567-41.2(455B), heading, as follows:

567—41.2(455B) Biological maximum contaminant levels (MCL), treatment techniques (TT), and monitoring requirements.

ITEM 8. Rescind subrule 41.2(1) and adopt the following **new** subrule in lieu thereof:

41.2(1) *Coliform bacteria and E. coli.* The provisions of this subrule include both maximum contaminant level and treatment technique requirements. The provisions of this subrule apply to all public water systems. Failure to comply with the applicable requirements in this subrule is a violation of the national primary drinking water regulations.

a. Maximum contaminant level. A public water system must determine compliance with the MCL for *E. coli* for each month in which it is required to monitor for total coliforms. A system is in compliance with the MCL for *E. coli* for samples taken under this subrule unless any

of the following conditions occur. For purposes of the public notification requirements in 567—42.1(455B), violation of the MCL may pose an acute risk to health.

(1) *E. coli*-positive repeat sample. The system has an *E. coli*-positive repeat sample following a total coliform-positive routine sample.

(2) *E. coli*-positive routine sample. The system has a total coliform-positive repeat sample following an *E. coli*-positive routine sample.

(3) Failure to collect all required repeat samples following *E. coli*-positive routine samples. The system fails to take all required repeat samples following an *E. coli*-positive routine sample.

(4) Failure to test for *E. coli* on any total coliform-positive repeat sample. The system 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 analytical method used.

(2) Presence/absence required. Only the presence or absence of total coliforms and *E. coli* is required to 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 may not exceed 30 hours. Systems are encouraged but not required to hold samples below 10 °C during transit.

(4) Dechlorinating agent required for chlorinated water. If water having a residual chlorine (measured as free, combined, or total chlorine) is to be analyzed, sufficient sodium thiosulfate ($\text{Na}_2\text{S}_2\text{O}_3$) must be added to the sample bottle before sterilization to neutralize any

residual chlorine in the water sample. Dechlorination procedures are addressed in Section 9060A.2 of *Standard Methods for the Examination of Water and Wastewater* (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.

Methodology category	Method¹	Citation¹
Total Coliforms Methods:		
Lactose Fermentation Methods	Standard Total Coliform Fermentation Technique	Standard Methods 9221 B.1, B.2 (20 th , 21 st , and 22 nd ed.) ^{2,3} Standard Methods Online 9221 B.1, B.2-99, B-06 ^{2,3}
	Presence-Absence (P-A) Coliform Test	Standard Methods 9221 D.1, D.2 (20 th and 21 st ed.) ^{2,7} Standard Methods Online 9221 D.1, D.2-99 ^{2,7}
Membrane Filtration Methods	Standard Total Coliform Membrane Filter Procedure	Standard Methods 9222 B, C (20 th and 21 st ed.) ^{2,4} Standard Methods 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 Methods	Colilert	Standard Methods 9223 B (20 th , 21 st , and 22 nd ed.) ^{2,5} Standard Methods Online 9223 B-97, B-04 ^{2,5}
	Colilert-18	Standard Methods 9223 B (21 st and 22 nd ed.) ^{2,5} Standard Methods Online 9223 B-04 ^{2,5}
	Colisure	Standard Methods 9223 B (20 th , 21 st , and 22 nd ed.) ^{2,5,6} Standard Methods 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	
<i>Escherichia coli</i> (E. coli) Methods:		
<i>Escherichia coli</i> Procedures (following Lactose Fermentation Methods)	EC-MUG medium	Standard Methods 9221 F.1 (20 th , 21 st and 22 nd ed.) ² Standard Methods Online 9221 F-06 ²
<i>Escherichia coli</i> Partition Method	EC broth with MUG (EC-MUG)	Standard Methods 9222 G.1c(2) (20 th and 21 st ed.) ^{2, 8}
	NA-MUG medium	Standard Methods 9222 G.1c(1) (20 th and 21 st ed.) ²
Membrane Filtration Methods	Membrane Filtration using MI medium	EPA Method 1604 ²
	m-ColiBlue24 Test ^{2, 4}	
	Chromocult ^{2, 4}	
Enzyme Substrate Methods	Colilert	Standard Methods 9223 B (20 th , 21 st and 22 nd ed.) ^{2, 5} Standard Methods Online 9223 B-97, B-04 ^{2, 5, 6}
	Colilert-18	Standard Methods 9223 B (21 st and 22 nd ed.) ^{2, 5} Standard Methods Online 9223 B-04 ^{2, 5}
	Colisure	Standard Methods 9223 B (20 th , 21 st and 22 nd ed.) ^{2, 5, 6} Standard Methods Online 9223 B-97, 04 ^{2, 5, 6}
	E*Colite Test ²	
	Readycult Test ²	
	modified Colitag Test ²	
	Tecta EC/TC Test ²	

¹ The procedures must be done in accordance with the documents listed in 41.2(1)“a”(6). For Standard Methods,

either the 20th (1998) or 21st (2005) edition may be used. For Standard Methods Online, the year in which each method was approved by the Standard Methods Committee is designated by the last two digits following the hyphen in the method number. The methods listed are the only online versions that may be used. For vendor methods, the date of the method listed in 41.2(1)“a”(6) is the date/version of the approved method. The methods listed are the only versions that may be used for compliance with this rule. Laboratories should be careful to use only the approved versions of the methods, as product package inserts may not be the same as the approved versions of the methods.

² Incorporated by reference. See 41.2(1)“a”(6).

³ Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth, if the system conducts at least 25 parallel tests between lactose broth and lauryl tryptose broth 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 pre-sterilized by the manufacture (i.e., disposable funnel units) may be used.

⁵ Multiple-tube and multi-well enumerative formats for this method are approved for use in presence-absence 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 *Standard Methods for the Examination of Water and Wastewater* 9221, is approved for this method for use in presence-absence 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 standards required 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 either

electronically at www.regulations.gov, in hard copy at the Water Docket, or from the sources indicated below. The Docket ID is EPA-HQ-OW-2008-0878. Hard copies of these documents may be viewed at the Water Docket in the EPA Docket Center, (EPA/DC) EPA West, Room 3334, 1301 Constitution Ave. NW, Washington DC. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is 1-202-566-1744, and the telephone number for the Water Docket is 1-202-566-2426. Copyrighted materials are only available for viewing in hard copy. These documents are also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 1-202-741-6030 or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

1. American Public Health Association, 800 I Street, NW, Washington, DC 20001. Standard Methods for the Examination of Water and Wastewater,” 20th edition (1998):
 - Standard Methods 9221, “Multiple-Tube Fermentation Technique for Members of the Coliform Group,” B.1, B.2, “Standard Total Coliform Fermentation Technique.”
 - Standard Methods 9221, “Multiple-Tube Fermentation Technique for Members of the Coliform Group,” D.1, D.2, “Presence-Absence (P-A) Coliform Test.”
 - Standard Methods 9222, “Membrane Filter Technique for Members of the Coliform Group,” B, “Standard Total Coliform Membrane Filter Procedure.”
 - Standard Methods 9222, “Membrane Filter Technique for Members of the Coliform Group,” C, “Delayed-Incubation Total Coliform Procedure.”
 - Standard Methods 9223, “Enzyme Substrate Coliform Test,” B, “Enzyme Substrate Test,” Colilert and Colisure.

- Standard Methods 9221, “Multiple Tube Fermentation Technique for Members of the Coliform Group,” F.1, “*Escherichia coli* Procedure: EC-MUG medium.”
 - Standard Methods 9222, “Membrane Filter Technique for Members of the Coliform Group,” G.1c(2), “*Escherichia coli* Partition Method: EC broth with MUG (EC-MUG).”
 - Standard Methods 9222, “Membrane Filter Technique for Members of the Coliform Group,” G.1c(1), “*Escherichia coli* Partition Method: NA-MUG medium.”
2. American Public Health Association, 800 I Street, NW, Washington, DC 20001. Standard Methods for the Examination of Water and Wastewater,” 21st edition (2005):
- Standard Methods 9221, “Multiple-Tube Fermentation Technique for Members of the Coliform Group,” B.1, B.2, “Standard Total Coliform Fermentation Technique.”
 - Standard Methods 9221, “Multiple-Tube Fermentation Technique for Members of the Coliform Group,” D.1, D.2, “Presence-Absence (P-A) Coliform Test”
 - Standard Methods 9221, “Membrane Filter Technique for Members of the Coliform Group,” B, “Standard Total Coliform Membrane Filter Procedure.”
 - Standard Methods 9222, “Membrane Filter Technique for Members of the Coliform Group,” C, “Delayed-Incubation Total Coliform Procedure.”
 - Standard Methods 9223, “Enzyme Substrate Coliform Test, “B, “Enzyme Substrate Test,” Colilert and Colisure.
 - Standard Methods 9221, “Multiple Tube Fermentation Technique for Members of the Coliform Group,” F1, “*Escherichia coli* Procedure: EC-MUG medium.”
 - Standard Methods 9222, “Membrane Filter Technique for Members of the Coliform Group,” G.1.c(2), “*Escherichia coli* Partition Method: EC broth with MUG (EC-

MUG).”

- Standard Methods 9222, “Membrane Filter Technique for Members of the Coliform Group,” G.1.c(1), “*Escherichia coli* Partition Method: NA-MUG medium.”

3. American Public Health Association, 800 I Street, NW, Washington, DC 20001. “Standard Methods Online” available at <http://www.standardmethods.org>:

- Standard Methods Online 9221, “Multiple-Tube Fermentation Technique for Members of the Coliform Group (1999), B.1, B.2-99, B-06, “Standard Total Coliform Fermentation Technique.”

- Standard Methods Online 9221, “Multiple-Tube Fermentation Technique for Members of the Coliform Group” (1999), D.1, D.2-99, “Presence-Absence (P-A) Coliform Test.”

- Standard Methods Online 9222, “Membrane Filter Technique for Members of the Coliform Group” (1997), B-97, “Standard Total Coliform Membrane Filter Procedure.”

- Standard Methods Online 9222, “Membrane Filter Technique for Members of the Coliform Group” (1997), B-97, “Delayed-Incubation Total Coliform Procedure.”

- Standard Methods Online 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, telephone 1-800-343-2170: 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, telephone 1-800-878-7654: 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, telephone 1-800-645-5476:

- 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), 1200 Pennsylvania Avenue NW, Washington, DC 20460, telephone 1-202-566-1729: 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, <http://www.nemi.gov>.

8. Hach Company, PO Box 389, Loveland, CO 80539, telephone 1-800-604-3493: m-ColiBlue24—“Membrane Filtration Method m-ColiBlue24 Broth,” Revision 2, August 17, 1999.

9. American Public Health Association, 800 I Street, NW, Washington, DC 20001. Standard Methods for the Examination of Water and Wastewater,” 22nd edition (2012):

- Standard Methods 9221, “Multiple-Tube Fermentation Technique for Members of the Coliform Group,” B.1, B.2, “Standard Total Coliform Fermentation Technique.”

- Standard Methods 9223, “Enzyme Substrate Coliform Test,” B, “Enzyme Substrate Test,” Colilert and Colisure.

- Standard Methods 9221, “Multiple Tube Fermentation Technique for Members of the Coliform Group,” F1, “*Escherichia coli* Procedure: EC-MUG medium.”

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 by the department in accordance with 567—Chapter 83 to analyze drinking water samples. 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 the written sampling plan.

1. Systems must develop a written sampling plan that identifies sampling sites and a sample collection schedule that are representative of water throughout the distribution system. Major elements of the plan shall include, but are not 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 this subrule;
- Sample collection schedule;

- Proper sampling technique instructions;
- Log of samples taken; and
- For groundwater systems subject to 567—41.7 (455B), triggered source water monitoring plan.

2. The system shall review the sampling plan every two years and update it as needed, and retain the sampling plan 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 by the system at the direction of the department.

3. Monitoring under this subrule may take place at a customer’s premise, 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 groundwater and serve 4,900 or fewer people, or regional water systems using only groundwater that serve fewer 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 required 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 treatment technique triggers in 41.2(1)“l”. Such samples must be designated as “routine” when submitted to the laboratory.

(4) Additional compliance monitoring samples. A system may conduct more compliance monitoring than is required to investigate potential problems in the distribution system and use monitoring as a tool to assist in uncovering problems. A system may take more than the minimum number of required routine samples and must include the results in calculating

whether the coliform treatment technique trigger in 41.2(1) “1” “1” and “2” has been exceeded only if the samples are taken in accordance with the existing sample siting 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 sample siting 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. The system must collect at least one repeat sample from the sampling tap where the original routine total coliform-positive sample was taken, at least one repeat sample at a tap within five service connections upstream, and at least one repeat sample 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 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 samples.

2. A groundwater system with two or more wells that is required to conduct triggered source water monitoring under subrule 41.7(3) must collect groundwater source sample(s) in addition to the required repeat samples.

3. A groundwater 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 sample siting plan remains representative of

water quality in the distribution system. If approved, the sample result may be used to meet the requirements of subrule 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 additional source water samples required under 41.7(3)“a”(3).

4. The department may review, revise, and approve, as appropriate, repeat sampling proposed by the 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 treatment technique trigger has been exceeded. Repeat samples are not considered special purpose samples, and must be used to determine whether the coliform treatment technique trigger has been exceeded. Such samples must be designated as “special” when submitted to the laboratory and cannot be used for compliance.

(7) Residual disinfectant measurement. Any system adding a chemical disinfectant to the water must meet the requirements specified in 42.4(3)“b”(1). The minimum required residual disinfectant measurements are as follows, unless otherwise directed by the department in writing:

1. Groundwater systems. A system that uses only groundwater 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 41.2(1) “j”. 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 42.4(3).

2. Surface water and influenced groundwater systems.

- Any surface water or IGW PWS must meet the minimum residual disinfectant entering the distribution system requirements pursuant to 567—paragraph 43.5(4)“b”(2)“1”; and,

- A system that uses surface water or IGW must comply with the requirements specified in 567—paragraph 43.5(4)“b”(2)“2” for daily distribution system residual disinfectant monitoring. It 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 41.2(1)“j”. The residual disinfectant measurements required as a part of this rule 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 taking 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 42.4(3).

d. Invalidation of total coliform samples. A total coliform-positive sample invalidated under this paragraph does not count towards 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 public water system 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 sample on the basis of repeat sample results unless all repeat sample(s) 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)“j”, and use them to determine whether a coliform treatment technique trigger in 41.2(1)“l” has been exceeded. To invalidate a total coliform-positive sample under 41.2(1)“d”(1), the decision and supporting rationale must be documented in writing, and approved 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 written 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 (e.g., the Multiple-Tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the Presence-Absence (P-A) Coliform Test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the system must collect another sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The system must continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The department may waive the 24-hour time limit on a case-by-case basis.

e. Routine monitoring for specific groundwater non-community water systems serving 1,000 or fewer people. This paragraph applies to non-community water systems using only groundwater (not IGW) as a source and serving 1,000 or fewer people. Groundwater non-community water systems that serve schools, preschools, and child care facilities, and all public water systems owned or managed by state agencies, such as parks and rest areas, must monitor at the same frequency as a like-sized community water system, in accordance with 41.2(1)“f”, “g”, or “h”.

(1) General. Following any total coliform-positive sample taken under 41.2(1)“e”, systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in 41.2(1)“j”. Once all monitoring required by 41.2(1)“e” and 41.2(1)“j” for a

calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in 41.2(1)“l” have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by 41.2(1)“l”.

(2) Monitoring frequency for total coliforms. Systems must monitor each calendar quarter that the system provides 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. The system must continue on monthly monitoring until it meets the requirements for returning to quarterly monitoring.

- The system has an *E. coli* MCL violation.
- The system triggers one Level 2 assessment under the provision of 41.2(1)“l” in a rolling 12-month period.
- The system triggers two Level 1 assessments under the provisions of 41.2(1)“l” in a rolling 12-month period.
- The system has a coliform treatment technique violation.
- The system has two coliform monitoring violations in a rolling 12-month period.
- The system has one monitoring coliform violation and one Level 1 assessment under the provisions of 41.2(1)“l” in a rolling 12 month period.

2. A system on monthly monitoring for reasons other than those identified 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 also demonstrate completion of a department-approved start-up procedure before serving water to the public, which includes a requirement for a coliform-negative startup sample.

(3) Evaluation of sampling frequency during a sanitary survey. During each sanitary survey, the department must evaluate the status of the system including the distribution system, to determine whether the system is on an appropriate monitoring schedule. The department may modify the system's monitoring schedule, as necessary, or may allow the system to stay on its existing monitoring schedule, consistent with the provisions of 41.2(1)“e”.

(4) Requirements for returning from monthly to quarterly sampling frequency for non-seasonal non-community systems. The department may reduce the monitoring frequency for a non-community system 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 41.2(1)“e”(2)“4”, "protected water source" means the well meets separation distances from sources of microbial contamination pursuant to 567—subrule 43.3(7) Table A; or, the system has 4-log virus inactivation treatment approved by the department and that is in continuous usage.

1. Within the previous 12 months, the system must have a completed sanitary survey or voluntary Level 2 assessment, be free of sanitary defects, and have a protected water source;

2. The system must have a clean compliance history for a minimum of the previous 12 months, and

3. The department must review the approved sampling siting plan, which must designate the time period(s) for monitoring 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 treatment technique trigger). Systems must collect at least 3 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 treatment technique trigger calculations under 41.2(1)“l”.

f. Routine monitoring for groundwater community water systems serving 1,000 or fewer people. This paragraph applies to community water systems using only groundwater (not IGW) as a source and serving 1,000 or fewer people.

(1) General. Following any total coliform-positive sample taken under 41.2(1)“f”, systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in 41.2(1)“j”. Once all monitoring required by 41.2(1)“f” and 41.2(1)“j” for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in 41.2(1)“l” have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by 41.2(1)“l”.

(2) Monitoring frequency for total coliforms. The routine monitoring frequency for total coliforms is one sample per month.

g. Routine monitoring requirements for SW/IGW public water systems serving 1,000 or fewer people. This paragraph applies to all public water supply systems serving 1,000 or fewer people that use surface water/influenced groundwater sources, including consecutive systems.

(1) General. Following any total coliform-positive sample taken under 41.2(1)“g”, systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in 41.2(1)“j”. Once all monitoring required by 41.2(1)“g” and 41.2(1)“j” for a

calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in 41.2(1)“l” have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by 41.2(1)“l”.

(2) Monitoring frequency for total coliforms. The routine monitoring frequency for total coliforms is one sample per month. Systems may not reduce monitoring frequency.

(3) Seasonal systems must sample each month in which they are in operation and the monitoring frequency cannot be reduced. All seasonal systems must also demonstrate completion of a department-approved start-up procedure before serving water to the public, which includes a requirement for a coliform-negative startup sample.

h. Routine monitoring requirements for public water systems serving more than 1,000 people. The provisions of this paragraph apply to all public water system serving more than 1,000 people except regional water systems. The requirements for regional water systems are listed in 41.2(1)“i”.

(1) General. Following any total coliform-positive sample taken under 41.2(1)“h”, systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in 41.2(1)“j”. Once all monitoring required by 41.2(1)“h” and 41.2(1)“l” for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in 41.2(1)“l” have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by 41.2(1)“l”.

(2) Monitoring frequency for total coliforms. The routine monitoring frequency for total coliforms is based upon the population served by the system, as follows:

Population Served	Minimum number of routine samples per month
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90

Population Served	Minimum number of routine samples per month
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300

(3) Seasonal systems must sample each month in which they are in operation and the monitoring frequency cannot be reduced. All seasonal systems must also demonstrate completion of a department-approved start-up procedure before serving water to the public, which includes a requirement for a coliform-negative startup sample.

(4) Reduced monitoring. Community systems may not reduce the number of required routine samples.

(5) Increased monitoring. If the department, on the basis of a sanitary survey or monitoring results history, determines that some greater frequency of monitoring 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.

i. *Routine monitoring requirements for regional public water systems.* The provisions of 41.2(1)“i” apply to all regional water systems. The supplier of water for a regional water system as defined in 567—40.2(455B) shall sample for coliform bacteria at a frequency based upon the miles of pipe in its distribution system.

(1) General. Following any total coliform-positive sample taken under 41.2(1)“i”, systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in 41.2(1)“j”. Once all monitoring required by 41.2(1)“i” and 41.2(1)“j” for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in 41.2(1)“l” have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by 41.2(1)“l”.

(2) Monitoring frequency for total coliforms. The routine monitoring frequency for total coliforms is based upon the miles of pipe in the system’s distribution system, as indicated in the following chart. In no case shall the sampling frequency for a regional water system be less than as set forth in 41.2(1)“h” based upon the population equivalent served. The following chart represents sampling frequency per miles of pipe in the 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
0 – 9	1
10 – 25	2

Miles of Pipe	Minimum number of routine samples per month
26 – 49	3
50 – 81	4
82 – 121	5
122 – 169	6
170 – 225	7
226 – 289	8
290 – 361	9
362 – 441	10
442 – 529	11
530 – 625	12
626 – 729	13
730 – 841	14
842 – 961	15
962 – 1,089	16
1,090 – 1,225	17
1,226 – 1,364	18
1,365 – 1,521	19
1,522 – 1,681	20
1,682 – 1,849	21

Miles of Pipe	Minimum number of routine samples per month
1,850 – 2,025	22
2,026 – 2,209	23
2,210 – 2 401	24
2,402 – 2,601	25
2,602 – 2,809	26
2,810 – 3,025	27
3,026 – 3,249	28
3,250 – 3,481	29
3,482 – 3,721	30
3,722 – 3,969	31
3,970 – 4,225	32
4,226 – 4,489	33
4,490 – 4,671	34
4,672 – 5,041	35
5,042 – 5,329	36
5,330 – 5,625	37
5,626 – 5,929	38
5,930 – 6,241	39
6,242 – 6,561	40

Miles of Pipe	Minimum number of routine samples per month
Greater than 6,562	41

(3) Reduced monitoring. Regional water systems may not reduce the number of required routine samples.

(4) Increased monitoring. If the department, on the basis of a sanitary survey or monitoring results history, determines that some greater frequency of monitoring 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.

j. Repeat monitoring. If a routine sample taken under 41.2(1)“e” through 41.2(1)“i” is total coliform-positive, the system must collect a set of repeat samples. The department cannot waive the requirement for a system to collect repeat samples.

(1) The system must collect no fewer than three repeat samples for each total coliform-positive routine sample found.

(2) The system must collect the repeat samples within 24 hours of being notified of the positive routine sample result. The department may extend the 24-hour limit on a case-by-case basis if the system has a logistical problem in 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 the system has to collect the repeat samples.

(3) The system must 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 which supplies drinking water to consumers through a single service line.

(4) The system must collect an additional set of repeat samples in the manner specified in 41.2(1)“j”(1) to (3) if one or more repeat samples in the current set of repeat samples is total coliform-positive. The system must collect the additional set of repeat samples within 24 hours of being notified of the positive result, unless the department extends the limit as provided in 41.2(1)“j”(2). The 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 the system determines that a coliform treatment technique trigger specified in 41.2(1)“l” has been exceeded as a result of a repeat sample being total coliform-positive and notifies the department. If a trigger identified in 41.2(1)“l” is exceeded as a result of a routine sample being total coliform-positive, systems are required to conduct only one round of repeat monitoring for each total coliform-positive routine sample.

(5) Results of all routine and repeat samples taken under 41.2(1)“e” through 41.2(1)“i” that are not invalidated by the department must be used to determine whether a coliform treatment trigger specified in 41.2(1)“l” has been exceeded.

k. E. coli testing requirements.

(1) If any routine or repeat sample is total coliform-positive, the system must analyze that total coliform-positive culture medium to determine if *E. coli* is present. If *E. coli* are present, the system must notify the department by the end of the same day when the system is notified 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 in 41.2(1)“k”(1) and the provisions of 41.2(1)“a” apply.

l. Coliform treatment technique triggers. Systems must conduct assessments in accordance with 41.2(1)“m” after exceeding any treatment trigger.

(1) Level 1 treatment technique triggers.

1. For systems taking 40 or more samples per month, the system exceeds 5.0% 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 treatment technique triggers.

1. An *E. coli* MCL violation, as specified in 41.2(1)“p”(1).

2. A second Level 1 trigger as defined in 41.2(1)“l”(1) within a rolling 12-month period, unless the department has determined a likely reason that the samples that caused the first Level 1 treatment technique trigger were total coliform-positive, and has established that the system has corrected the problem.

m. Assessment requirements. Systems must ensure that Level 1 and 2 assessments are conducted in order to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. Level 1 assessments may be conducted by the

system owner or operator. Level 2 assessments must be conducted by the department with the assistance of the system owner or operator.

(1) General. When conducting assessments, systems must ensure that the assessor evaluates minimum elements that include review and identification of inadequacies in sample sites; sampling protocol; sample processing; atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., small groundwater systems); and existing water quality monitoring data. The system must conduct the assessment consistent with any department directives that tailor specific assessment elements with respect to the size and type of the system, and the size type, and characteristics of the distribution system.

(2) Level 1 Assessment. A system must conduct a Level 1 assessment consistent with the department requirements if the system exceeds one of the treatment technique triggers in 41.2(1)“l”(1).

1. The system must complete the Level 1 Assessment as soon as practical after any trigger in 41.2(1)“l”(1). In the completed assessment form, the system must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified. The system must submit the completed Level 1 assessment form to the department within 30 days after the system learns that it has exceeded a trigger.

2. If the department reviews the completed Level 1 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not

already completed), 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 from the date of the consultation.

3. Upon completion and submission of the assessment form by the system, 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 a schedule acceptable to the department for correction the problem.

(3) Level 2 Assessment. A system must ensure that a Level 2 assessment is conducted if the system exceeds one of the treatment technique triggers in 41.2(1)“l”(2). The system must comply with any expedited actions or additional actions required by the department in the case of an *E. coli* MCL violation.

1. The system must ensure that a Level 2 assessment is completed by the department as soon as practical after any trigger in 41.2(1)“l”(2). The system must submit a completed Level 2 assessment form to the department within 30 days after the system learns that it has exceeded a trigger. The assessment form must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified.

2. If the department reviews the completed Level 2 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), 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 completion and submission of the assessment form by the system, the

department must determine if the system has identified the likely cause for the Level 2 trigger and determine whether the system has corrected the problem, or has included a schedule acceptable to the department for correction the problem.

(4) **Corrective Actions.** Systems must correct sanitary defects found through either Level 1 or 2 assessments conducted under 41.2(1)“l”. For corrections not completed by the time of submission of the assessment form, the system must complete the corrective action(s) in compliance with a timetable approved by the department in consultation with the system. The system must notify the department when each scheduled correction action is completed.

(5) **Consultation.** At any time during the assessment or corrective actions phase, either the water system or the department may request a consultation with the other party to determine the appropriate actions to be taken. The system may consult with the department on all relevant information that may impact on its ability to comply with a requirement of this subrule, including the method of accomplishment, an appropriate timeframe, and other relevant information.

n. Reporting requirements.

(1) *E. coli.*

1. The system must notify the department by the end of the same day when the system is learns of an *E. coli*-positive violation. 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 system must notify the department by the end of the same day when the system is learns of the *E. coli*-positive routine sample. 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) A system that has violated the treatment technique for coliforms in 41.2(1)“l” must report the violation to the department no later than the end of the next business day after it learns of the violation, and must notify the public in accordance with 567—rule 42.1(455B).

(3) A system required to conduct an assessment under the provisions of 41.2(1)“l” must submit the assessment report within 30 days. The system must notify the department in accordance with 41.2(1)“m”(4) when each scheduled corrective action is completed for any corrections that were not completed by the time of submission of the assessment form.

(4) A system that has failed to comply with a coliform monitoring requirement must report the monitoring violation to the department within 10 days after the system discovers the violation, and notify the public in accordance with 567—rule 42.1(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.

o. Recordkeeping requirements. Additional recordkeeping requirements are listed in 567—paragraph 42.5(1)“j”.

p. Violations.

(1) *E. coli* MCL violation. A system is in violation of the MCL for *E. coli* when any of the following conditions occur, and must conduct public notice in accordance with 567—rule 42.1(455B):

1. The system has an *E. coli*-positive repeat sample following a total coliform-positive routine sample.

2. The system has a total coliform-positive repeat sample following an *E. coli*-positive routine sample.

3. The system fails to take all required repeat samples following an *E. coli*-positive routine sample.

4. The system fails to test for *E. coli* when any repeat sample tests positive for total coliform.

(2) Treatment technique violation. A system is in violation of a treatment trigger when any of the following occurs, and must conduct public notice in accordance with 567—rule 42.1(455B):

1. A system exceeds a treatment technique trigger specified in 41.2(1)“*l*” and then fails to conduct the required assessment within the timeframe specified in 41.2(1)“*m*”.

2. A system exceeds a treatment technique trigger specified in 41.2(1)“*l*” and then fails to conduct the required corrective actions within the timeframe specified in 41.2(1)“*m*”(4).

3. A seasonal system fails 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 when any of the following occurs, and must conduct public notice in accordance with 567—rule 42.1(455B):

1. Failure to take every required routine or additional routine sample in a compliance period.

2. Failure to analyze for *E. coli* following a total coliform-positive routine sample.

(4) Reporting violation. A system is in violation of reporting requirements when any of the following occurs, and must conduct public notice in accordance with 567—rule 42.1(455B):

1. Failure to submit a monitoring report after a system properly conducts monitoring in a timely manner.

2. Failure to submit a completed assessment form after a system properly conducts an assessment in a timely manner.

3. Failure to notify the department following an *E. coli*-positive sample as required by 41.2(1)“k”(1) in a timely manner.

4. Failure to submit the certification of completion of department-approved startup procedure by a seasonal system.

q. Best available technology (BAT). The U.S. EPA identifies, and the department has adopted, the following as the best technology, treatment techniques, or other means available for all systems in achieving compliance with the maximum contaminant level for *E. coli* in 41.2(1)“a.” The following is also identified as affordable technology, treatment techniques, or other means available to systems serving 10,000 or fewer people for achieving compliance with the *E. coli* maximum contaminant level.

(1) Well protection. Protection of wells from fecal contamination by appropriate placement and construction;

(2) Disinfectant residual. Maintenance of a disinfectant residual throughout the distribution system;

(3) Distribution system maintenance. Proper maintenance of the distribution system 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; and

(4) Filtration or disinfection. Filtration and disinfection of surface water or groundwater under the direct influence of surface water in accordance with 567—43.5(455B), 567—43.9(455B), and 567—43.10(455B), or disinfection of groundwater in accordance with rule 41.7(455B) using strong oxidants such as, but not limited to, chlorine, chlorine dioxide, or ozone.

(5) Wellhead protection program. For groundwater systems, compliance with the requirements of the department's wellhead protection program.

ITEM 9. Amend numbered paragraph **41.2(3)“e”(1)“1”** as follows:

1. Method 9215B Pour Plate Method, Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, 19th edition, 1995, ~~or~~ 20th edition, 1998, 21st edition, 2005, and 22nd edition, 2012. The cited method in any of ~~the three~~ these editions may be used. Standard Methods Online method 9215 B-04 may be used.

ITEM 10. Amend subparagraph **41.3(1)“b”(1)**, footnote**, as follows:

**The recommended fluoride level is ~~4-1~~ 0.7 milligrams per liter ~~or the level as calculated from “Water Fluoridation, a Manual for Engineers and Technicians” Table 2-4 as published by the U.S. Department of Health and Human Services, Public Health Service (September 1986)~~ 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.

ITEM 11. Amend subparagraph **41.3(1)“e”(1)**, table, as follows:

INORGANIC CONTAMINANTS ANALYTICAL METHODS

Contaminant	Methodology ¹⁵	EPA	ASTM ³	SM	<u>SM</u> <u>Online</u> ²⁶	Other	Detection Limit, mg/L
Antimony	Atomic absorption; furnace			3113B ^{4,27,33}	<u>3113 B-04</u> , <u>B-10</u>		0.003
	Atomic absorption; platform	200.9 ²					0.0008 ¹²
	ICP-Mass spectrometry	200.8 ²					0.0004
	Atomic absorption; hydride		D3697-92, <u>02, 07, 12</u>				0.001
	<u>Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)</u>	<u>200.5, Revision</u> <u>4.2</u> ²⁸					
Arsenic ¹⁶	ICP-Mass spectrometry	200.8 ²					0.0014 ⁴⁷
	Atomic absorption; platform	200.9 ²					0.0005 ¹⁵
	Atomic absorption; furnace		D2972-97C, <u>03C, 08C</u>	3113B ^{4,27,33}	<u>3113 B-04</u> , <u>B-10</u>		0.001
	Atomic absorption; hydride		D2972-97B, <u>03B, 08B</u>	3114B ^{4,27,33}	<u>3114 B-09</u>		0.001
	<u>Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)</u>	<u>200.5, Revision</u> <u>4.2</u> ²⁸					
Asbestos	Transmission electron microscopy	100.1 ⁹					0.01 MFL
	Transmission electron microscopy	100.2 ¹⁰					

Contaminant	Methodology ¹⁵	EPA	ASTM ³	SM	<u>SM</u> <u>Online</u> ²⁶	Other	Detection Limit, mg/L
Barium	Inductively coupled plasma	200.7 ²		3120B ^{18,27,33}	<u>3120 B-99</u>		0.002
	ICP-Mass spectrometry	200.8 ²					
	Atomic absorption; direct			3111D ^{4,27,33}	<u>3111 D-99</u>		0.1
	Atomic absorption; furnace			3113B ^{4,27,33}	<u>3113 B-04,</u> <u>B-10</u>		0.002
	<u>Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)</u>	<u>200.5, Revision</u> <u>4.2</u> ²⁸					
Beryllium	Inductively coupled plasma	200.7 ²		3120B ^{18,27,33}	<u>3120 B-99</u>		0.0003
	ICP-Mass spectrometry	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}	<u>3113 B-04,</u> <u>B-10</u>		0.0002
	<u>Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)</u>	<u>200.5, Revision</u> <u>4.2</u> ²⁸					
Cadmium	Inductively coupled plasma	200.7 ²					0.001
	ICP-Mass spectrometry	200.8 ²					
	Atomic absorption; platform	200.9 ²					

Contaminant	Methodology ¹⁵	EPA	ASTM ³	SM	SM Online ²⁶	Other	Detection Limit, mg/L
Chromium	Atomic absorption; furnace			3113B ^{4,27,33}	<u>3113 B-04</u> , <u>B-10</u>		0.0001
	<u>Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)</u>	<u>200.5, Revision 4.2²⁸</u>					
	Inductively coupled plasma	200.7 ²		3120B ^{18,27, 33}	<u>3120 B-99</u>		0.007
	ICP-Mass spectrometry	200.8 ²					
Cyanide	Atomic absorption; platform	200.9 ²					
	Atomic absorption; furnace			3113B ^{4,27,33}	<u>3113 B-04</u> , <u>B-10</u>		0.001
	<u>Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)</u>	<u>200.5, Revision 4.2²⁸</u>					
	Manual distillation (followed by one of the following four analytical methods:)		D2036-98A, <u>D2036-06A</u>	4500-CN ⁻ C ^{18, 27, 33}			
	Spectrophotometric; amenable ¹⁴		D2036-98B, <u>D2036-06B</u>	4500-CN- G ^{18, 27, 33}	<u>4500-CN-G-</u> <u>99</u>		0.02
Spectrophotometric; manual ¹³		D2036-98A, <u>D2036-06A</u>	4500-CN ⁻ E ^{18, 27, 33}	<u>4500-CN-E-</u> <u>99</u>	I-3300-85 ⁵	0.02	
Spectrophotometric;	335.4 ⁶						0.005

Contaminant	Methodology ¹⁵	EPA	ASTM ³	SM	<u>SM</u> <u>Online</u> ²⁶	Other	Detection Limit, mg/L
Fluoride	semi-automated ¹³						
	Selective electrode ¹³			4500-CN ^{18,27,33}	<u>4500-CN-F-</u> <u>99</u>		0.05
	UV/Distillation/Spectrophotometric UV, distillation, spectrophotometric ²²					Kelada 01 ²⁰	0.0005
	Distillation/Spectrophotometric 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
	Gas chromatography/mass spectrometry headspace					ME355.01 ²⁹	
	Ion chromatography	300.0 ⁶ , 300.1 ²³	D4327-97, 03, 11	4110B ^{18,27,33}	4110 B-00		
	Manual distillation; colorimetric; SPADNS			4500F ^{18,27,33}	<u>4500 F-B-D-</u> <u>97</u>		
	Manual electrode		D1179-93B, 99B, D1179- 04B, 10B	4500FC ^{18,27,33}	<u>4500 F-C-97</u>		
	Automated electrode					380- 75WE ¹¹	
Automated alizarin				4500FE ^{18,27,33}	<u>4500 F-E-97</u>	129-71W ¹¹	
Capillary ion					D6508,		

Contaminant	Methodology ¹⁵	EPA	ASTM ³	SM	<u>SM</u> <u>Online</u> ²⁶	Other	Detection Limit, mg/L
Magnesium	<u>electrophoresis</u>					<u>Rev.2</u> ²⁴	
	<u>Arsenite-free colorimetric;</u> <u>SPADNS</u>					<u>Hach</u> <u>SPADNS 2</u> <u>Method</u> <u>10225</u> ³¹	
	Atomic absorption; direct		D511-93B ₂ <u>03B, 09B,</u> <u>14B</u>	3111B ^{4,27,33}	<u>3111 B-99</u>		
	ICP	200.7 ¹		3120B ^{18,27,} ³³	<u>3120 B-99</u>		
Mercury	Complexation Titrimetric Methods		D511-93A ₂ <u>03A, 09A,</u> <u>14B</u>	3500-Mg E ⁴			
	<u>Ion chromatography</u>		D6919-03, <u>09</u>	3500-Mg B ^{19,27,33}	<u>3500-Mg B-</u> <u>97</u>		
	<u>Axially viewed inductively</u> <u>coupled plasma-atomic</u> <u>emission spectrometry</u> <u>(AVICP-AES)</u>	200.5, Revision <u>4.2</u> ²⁸					
	Manual, cold vapor	245.1 ²	D3223-97, <u>02, 12</u>	3112B ^{4,27,33}	<u>3112 B-09</u>		0.0002
Nickel	Automated, cold vapor	245.2 ¹					0.0002
	ICP-Mass spectrometry	200.8 ²					
Nickel	Inductively coupled	200.7 ²		3120B ^{18,27,}	<u>3120 B-99</u>		0.005

Contaminant	Methodology ¹⁵	EPA	ASTM ³	SM	SM Online ²⁶	Other	Detection Limit, mg/L
Nitrate	plasma			³³			
	ICP-Mass spectrometry	200.8 ²					0.0005
	Atomic absorption; platform	200.9 ²					0.0006 ¹²
	Atomic absorption; direct			3111B ^{4,27,33}	<u>3111 B-99</u>		
	Atomic absorption; furnace			3113B ^{4,27,33}	<u>3113 B-04</u> , <u>10</u>		0.001
	<u>Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)</u>	<u>200.5, Revision 4.2²⁸</u>					
	Ion chromatography	300.0 ⁶ , <u>300.1²³</u>	D4327-97, <u>03, 11</u>	4110B ^{18,27} , ³³	<u>4110 B-00</u>	B-1011 ⁸	0.01
	Automated cadmium reduction	353.2 ⁶	D3867-90A	4500-NO ₃ ⁻ , F ^{18,27,33}	<u>4500-NO₃⁻</u> , <u>F-00</u>		0.05
	Ion selective electrode			4500-NO ₃ ⁻ , D ^{18,27,33}	<u>4500-NO₃⁻</u> , <u>D-00</u>	601 ⁷	1
	Manual cadmium reduction		D3867-90B	4500-NO ₃ ⁻ , E ^{18,27,33}	<u>4500-NO₃⁻</u> , <u>E-00</u>		0.01
<u>Capillary ion electrophoresis</u> <u>Reduction/colorimetric</u>					<u>D6508</u> , <u>Rev. 2²⁴</u> <u>Systea Easy</u> <u>(1-</u> <u>Reagent)³⁰</u> <u>NECi</u> <u>Nitrate-</u>	<u>0.076</u>	

Contaminant	Methodology ¹⁵	EPA	ASTM ³	SM	SM Online ²⁶	Other	Detection Limit, mg/L
Nitrite	<u>Colorimetric: direct</u>					<u>Reductase</u> ³⁴ <u>Hach</u> <u>TNTplus</u> TM <u>835/836</u> <u>Method</u> <u>10206</u> ³²	
	Ion chromatography	300.0 ⁶ , <u>300.1</u> ²³	D4327-97, <u>03, 11</u>	4110B ^{18, 27,} ³³	<u>4110 B-00</u>	B-1011 ⁸	0.004
	Automated cadmium reduction	353.2 ⁶	D3867-90A	4500-NO ₃ ⁻ F ^{18, 27, 33}	<u>4500-NO₃⁻</u> <u>F-00</u>		0.05
	Manual cadmium reduction		D3867-90B	4500-NO ₃ ⁻ E ^{18, 27, 33}	<u>4500-NO₃⁻</u> <u>E-00</u>		0.01
	Spectrophotometric			4500-NO ₂ ⁻ B ^{18, 27, 33}	<u>4500-NO₂⁻</u> <u>B-00</u>		0.01
Selenium	<u>Capillary ion electrophoresis</u>					<u>D6508,</u> <u>Rev.2</u> ²⁴	<u>0.103</u>
	<u>Reduction/colorimetric</u>					<u>Systea Easy</u> <u>(1-</u> <u>Reagent)</u> ³⁰ <u>NECi</u> <u>Nitrate-</u> <u>Reductase</u> ³⁴	
	Atomic absorption; hydride		D3859-98A, <u>03A, 08A</u>	3114B ^{4, 27, 33}	<u>3114 B-09</u>		0.002
	ICP-Mass spectrometry	200.8 ²					
	Atomic absorption;	200.9 ²					

Contaminant	Methodology ¹⁵	EPA	ASTM ³	SM	<u>SM Online</u> ²⁶	Other	Detection Limit, mg/L
Sodium	platform Atomic absorption; furnace		D3859-98B, 03B, 08B	3113B ^{4,27,33}	<u>3113 B-04</u> , <u>10</u>		0.002
	<u>Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)</u>	<u>200.5, Revision 4.2</u> ²⁸					
	Inductively coupled plasma	200.7 ²					
Thallium	Atomic absorption; direct <u>Ion chromatography</u>		<u>D6919-03</u> , <u>09</u>	3111B ^{4,27,33}	<u>3111 B-99</u>		
	<u>Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)</u>	<u>200.5, Revision 4.2</u> ²⁸					
	ICP-Mass spectrometry	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 of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, EPA West, 1301 Constitution Avenue, NW Room B102, Washington, DC 20460 (telephone: (202)566-2426); or at the Office of Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC.

¹“Methods for Chemical Analysis of Water and Wastes,” EPA-600/4-79-020, March 1983. Available at NTIS, PB84-128677.

²“Methods for the Determination of Metals in Environmental Samples—Supplement I,” EPA-600/R-94-111, May 1994. Available at NTIS, PB95-125472.

³Annual Book of ASTM Standards, 1994, 1996, or 1999 or 2003, Vols. 11.01 and 11.02, American Society for Testing and Materials (ASTM) International; ~~any year containing the cited version of the method may be used~~ the methods listed are the only versions that may be used. Copies may be obtained from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

⁴18th and 19th editions of Standard Methods for the Examination of Water and Wastewater, 1992 and 1995, respectively, American Public Health Association; either edition may be used. Copies may be obtained from the American Public Health Association, ~~4015 Fifteenth Street NW,~~ 800 I Street, NW, Washington, DC ~~20005~~ 20001-3710.

⁵Techniques of Water Resources Investigation of the U.S. Geological Survey, Book 5, Chapter A-1, 3rd edition, 1989, Method I-3300-85. Available from Information Services, U.S. Geological Survey, 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. Available at NTIS, PB94-120821.

⁷The 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. Copies may be obtained from ATI Orion, 529 Main Street, Boston, MA 02129.

⁸Method B-1011, “Waters Test Method for Determination of Nitrite/Nitrate in Water Using Single Column Ion Chromatography,” August 1987. Copies may be obtained from Waters Corporation, Technical Services Division, 34 Maple Street, Milford, MA 01757, telephone: 508/482-2131.

⁹Method 100.1, “Analytical Method for Determination of Asbestos Fibers in Water,” EPA-600/4-83-043, EPA, September 1983. Available at NTIS, PB83-260471.

¹⁰Method 100.2, “Determination of Asbestos Structure Over 10 Microns in Length in Drinking Water,” EPA-600/R-94-134, June 1994. Available at NTIS, PB94-201902.

¹¹Industrial 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. Copies may be obtained from Bran & Luebbe, 1025 Busch Parkway, Buffalo Grove, IL 60089.

¹²Lower MDLs are reported using stabilized temperature graphite furnace atomic absorption.

¹³Screening method for total cyanides.

¹⁴Measures “free” cyanides when distillation, digestion, or ligand exchange is omitted.

¹⁵Because 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. ~~Method 200.9 is capable of obtaining an arsenic MDL of 0.0001 mg/L using multiple depositions.~~ 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.

¹⁶If ultrasonic nebulization is used in the determination of arsenic 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.

~~¹⁷Using selective ion monitoring, EPA Method 200.8 (ICP MS) is capable of obtaining an MDL of 0.0001 mg/L.~~ Reserved.

¹⁸The 18th, 19th, and 20th editions of Standard Methods for the Examination of Water and Wastewater, 1992, 1995, and 1998, respectively, American Public Health Association; any edition may be used, except that the versions of 3111B, 3111D, 3113B, and 3114B in the 20th edition may not be used. Copies may be obtained from the American Public Health Association, ~~4015 Fifteenth Street NW, 800 I Street, NW, Washington, DC 20005~~ 20001-3710.

¹⁹The 20th edition of Standard Methods for the Examination of Water and Wastewater, 1998, American Public Health Association. Copies may be obtaining from the American Public Health Association, ~~4015 Fifteenth Street NW, 800 I Street, NW, Washington, DC 20005~~ 20001-3710.

²⁰The description for the 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 is available from 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.

²¹The description for the 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, for cyanide is available from Lachat Instruments, 6645 W. Mill Road, Milwaukee, WI 53218, telephone (414)358-4200.

²²Measures total cyanides when UV-digester is used, and “free” cyanides when UV-digester is bypassed.

²³“Methods for the Determination of Organic and Inorganic Compounds in Drinking Water,” Volume 1, EPA 815-R-00-014, August 2000. Available at NTIC, PB2000-106981.

²⁴Method D6508, Rev. 2, “Test Method for Determination of Dissolved Inorganic Anions in Aqueous Matrices Using Capillary Ion Electrophoresis and Chromate Electrolyte,” available from Waters Corp., 34 Maple St., Milford, MA 01757,

telephone: (508)482-2131, fax: (508)482-3625.

²⁵Method OIA-1677, DW “Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry,” January 2004, EPA-821-R-04-001. Available from ALPKEM, a division of OI Analytical, PO Box 9010, College Station, TX 77542-9010.

²⁶Standard Methods Online are available at <http://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.

²⁷Standard Methods for the Examination of Water and Wastewater, 21st edition (2005). Available from American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710

²⁸EPA 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. Available at <http://www.nemi.gov>.

²⁹Method ME355.01, Revision 1.0, “Determination of Cyanide in Drinking Water by GC/MS Headspace,” May 26, 2009. Available at <http://www.nemi.gov> or from H & E Testing Laboratory, 221 State Street, Augusta, ME 04333, telephone: (207)287-2727.

³⁰Systea Easy (1-Reagent), “Systea Easy (1-Reagent) Nitrate Method,” February 4, 2009. Available at <http://www.nemi.gov> or from Systea Scientific, LLC, 900 Jorie Blvd., Suite 35, Oak Brook, IL 60523.

³¹Hach Company Method, “Hach Company SPADNS 2 (Arsenic-free) Fluoride Method 10225 – Spectrophotometric Measurement of Fluoride in Water and Wastewater,” January 2011. 5600 Lindbergh Drive, PO Box 389, Loveland, CO 80539. Available at <http://www.hach.com>.

³²Hach Company Method, “Hach Company TNTplus™ 835/836 Nitrate Method 10206 – Spectrophotometric Measurement of Nitrate in Water and Wastewater,” January 2011. 5600 Lindbergh Drive, PO Box 389, Loveland, CO 80539. Available at <http://www.hach.com>.

³³Standard Methods for the Examination of Water and Wastewater, 22nd edition (2012), American Public Health Association. Available from the American Public Health Association, 800 I Street, Washington, DC 20001-3710.

³⁴Nitrate 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.

ITEM 12. Amend subrule 41.4(1), introductory paragraph, as follows:

41.4(1) *Lead, copper, and corrosivity regulation by the setting of a treatment technique requirement. The lead and copper rules do not set an MCL, although this could be changed in the future. The rules set two enforceable action levels, which trigger tap monitoring, corrosion*

~~control, source water treatment, lead service line replacement, and public education if exceeded.~~
These rules establish a treatment technique that includes requirements for corrosion control treatment, source water treatment, lead service line replacement, and public education. These requirements are triggered, in some cases, by lead and copper action levels measured in samples collected at consumers' taps.

ITEM 13. Amend subparagraph **41.4(1)“b”(3)** as follows:

(3) Calculation of 90th percentile. 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 the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number 1 for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level 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 water 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 public water system that has been 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.

ITEM 14. Amend numbered paragraph **41.4(1)“c”(2)“5”** as follows:

5. An NTNC system, or a CWS system that meets the criteria of 567—~~paragraphs 42.2(4)“h”(1)“1” and “2,”~~ subparagraph 42.2(2)“b”(7) that does not have enough taps that can supply first-draw samples, as defined in 567—40.2(455B), 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 department approval of non-first-draw sample sites selected by the system, through written notification to the system.

ITEM 15. Amend subparagraph **41.4(1)“c”(3)** as follows:

(3) Number of samples. Water systems shall collect at least one sample during each monitoring period specified in 41.4(1)“c”(4) from the number of sites as listed in the column below titled “standard monitoring.” A system conducting reduced monitoring under 41.4(1)“c”(4) shall collect at least one sample from the number of sites specified in the column titled “reduced monitoring” during each monitoring period specified in 41.4(1)“c”(4). Such reduced monitoring sites shall be representative of the sites required for standard monitoring. A public water system that has fewer than five drinking water taps, that can be used for human consumption meeting the sample site criteria of 41.4(1)“c”(1) to reach the required number of sample sites listed in 41.4(1)“c”(3), 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. The department must approve this reduction of the minimum number of samples in writing based upon a request from the system or onsite verification by the department. The department may specify sampling locations when a system is conducting reduced monitoring.

REQUIRED NUMBER OF LEAD/COPPER SAMPLES

System Size	Standard Monitoring	Reduced Monitoring
(Number of People Served)	(Number of Sites)	(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

ITEM 16. Amend numbered paragraph **41.4(1)“c”(4)“4”** as follows:

4. Reduced monitoring.
 - A small or medium-size water system that meets the lead and copper action levels 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 frequency of sampling to once

per year. A small or medium water system collecting fewer than five samples as specified in 41.4(1)“c”(3) that meets the lead and copper action levels during each of two consecutive six-month monitoring periods may reduce the frequency of sampling to once per year. The system may not ever reduce the number of samples required below the minimum of one sample per available tap. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.

- Any public water supply system that meets the lead action level maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the department under 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 approval by the department. This sampling 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 water system in accordance with 567—subrule 42.4(2), and shall notify the system in writing when it determines that the system is eligible to commence reduced monitoring. ~~Where appropriate,~~ The department will review and, where appropriate, revise its determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

- A small or medium-size water system that meets the lead and copper action levels during three consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three years. Any water system that meets the lead action level and maintains the range of values for the water quality control parameters reflecting

optimal corrosion control treatment specified by the department under 567—paragraph 43.7(2)“f” during three consecutive years of monitoring may reduce the frequency of monitoring from annually to once every three years if it receives written approval by the department. 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 the water system in accordance with 567—subrule 42.4(2), and shall notify the system in writing when it determines that the system is eligible to reduce the monitoring frequency to once every three years. ~~Where appropriate, the~~ The department will review and, where appropriate, revise its determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

- A water system that reduces the number and frequency of sampling shall collect these 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 the lead and copper tap sampling during the months of June through September, unless the department, at its discretion, has approved a different sampling period. If approved by the department, the 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 period that represents a time of normal operation for an NTNC system that does not operate during the months of 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. This sampling shall begin during the period approved or designated by the department 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.

Systems monitoring annually that have been collecting samples during the months of 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 after the previous round of sampling.

Systems monitoring triennially that have been collecting samples during the months of June through September and that receive department approval to alter the sampling collection period must collect their next round of samples during a time period that ends no later than 45 months after the previous round of sampling.

Subsequent rounds of sampling must be collected annually or triennially, as required by 41.4(1)“c.”

Small systems that have been granted waivers pursuant to 41.4(1)“c”(7), that have been collecting samples during the months of 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.

- Any water system 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 frequency of sampling to once every three calendar years, if approved by the department.

- A small or medium-size water system subject to reduced monitoring that exceeds the lead or copper action level 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 water quality parameter monitoring in accordance with 41.4(1)“d”(2), (3), or (4), as appropriate, during the monitoring period in which it exceeded the action level. Any such system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in 41.4(1)“c”(3) after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of 41.4(1)“c”(4)“4,” first bulleted paragraph, and may resume triennial monitoring for lead and copper at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either 41.4(1)“c”(4)“4,” third bulleted paragraph or fifth bulleted paragraph, and has received department approval.

Any water system subject to reduced monitoring frequency that fails to meet the lead action level 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 water quality control parameters specified by the department under 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 water quality parameters 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 action level exceedance or water quality parameter excursion. The system may resume reduced monitoring for lead and copper at the tap and for water quality parameters within the distribution system under the following conditions:

The system may resume annual monitoring for lead and copper at the tap at the reduced

number of sites specified in 41.4(1)“c”(3) after it has completed two subsequent six-month rounds of monitoring that meet the criteria of 41.4(1)“c”(4)“4,” second bulleted paragraph, and upon written approval from the department to resume reduced annual monitoring. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.

The system may resume triennial monitoring for lead and copper at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either 41.4(1)“c”(4)“4,” third bulleted paragraph or fifth bulleted paragraph, and upon written approval from the department to resume triennial monitoring.

The system may reduce the number of water quality parameter 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 water quality parameters at the tap until it demonstrates that it has requalified for triennial monitoring, pursuant to 41.4(1)“d”(5)“2.”

- Any water system subject to a reduced monitoring frequency under 41.4(1)“c”(4)“4” ~~that either adds a new source of water or water treatment shall inform the department in writing in accordance with 567—subparagraph 42.4(2)“a”(3) must notify the department in writing in accordance with 567—subparagraph 42.4(2)“a”(3) of any upcoming long-term change in treatment or addition of a new source as described in that paragraph. 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 may require the 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 water quality parameter monitoring or reevaluation of its corrosion control treatment given the

potentially different water quality considerations.

ITEM 17. Amend numbered paragraph **41.4(1)“c”(7)“4”** as follows:

4. Monitoring frequency of systems with waivers.

- A system 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 subparagraph 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.

- ~~If a A system with a waiver adds a new source of water or changes any water treatment, the system must notify the department in writing pursuant to 567—subparagraph 42.4(2)“a”(3)—must notify the department in writing pursuant to 567—subparagraph 42.4(2)“a”(3) of any upcoming long-term change in treatment or addition of a new source, as described in that subparagraph. 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 require the system to add or modify waiver conditions, such as to require recertification that the system is free of lead-containing and copper-containing materials or to require additional monitoring, if the department deems such modifications are necessary to address treatment or source water changes at the system.

- If a system with a waiver becomes aware that it is no longer free of lead-containing or copper-containing materials, such as from new construction or repairs, the system shall notify the department in writing no later than 60 days after becoming aware of such a

change.

ITEM 18. Amend bulleted paragraph **41.4(1)“d”(1)“2,”** second bullet, as follows:

- Except as provided in 41.4(1)“d”(3)“3,” systems shall collect two samples for each applicable water quality parameter at each entry point to the distribution system during each six-month monitoring period specified in 41.4(1)“d”(2). ~~During each monitoring period specified in 41.4(1)“d”(2).~~ During each monitoring period specified in 41.4(1)“d”(3) through (5), systems shall collect one sample for each applicable water quality parameter at each entry point to the distribution system.

ITEM 19. Amend subparagraph **41.4(1)“d”(4)** as follows:

(4) Monitoring after the department specifies water quality parameter values for optimal corrosion control. After the department specifies the values for applicable water quality control parameters reflecting optimal corrosion control treatment, all large systems shall measure the applicable water quality parameters according to 41.4(1)“d”(3) and determine compliance with the requirements of 567—paragraph 43.7(2)“g” every six months, with the first six-month period to begin ~~on the date~~ on either January 1 or July 1, whichever comes first, after the department specifies the optimal values under 567—paragraph 43.7(2)“f.” 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 action level. For any such small and medium-size system that is subject to a reduced monitoring frequency pursuant to 41.4(1)“c”(4)“4” at the time of the action level exceedance, the ~~end~~ 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.” Compliance with department-designated optimal water quality parameter values shall be determined as specified in 567—paragraph 43.7(2)“g.”

ITEM 20. Amend numbered paragraph **41.4(1)“d”(5)“2”** as follows:

2. A public water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under 567—paragraph 43.7(2)“f” during three consecutive years of monitoring may reduce the frequency with which the system collects the number of tap samples for applicable water quality parameters specified in 41.4(1)“d”(5) from every six months to annually. This sampling begins 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 water quality parameters reflecting optimal corrosion control treatment specified by the department under 567—paragraph 43.7(2)“f” during three consecutive years of annual monitoring may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in 41.4(1)“d”(5) from annually to every three years. This sampling begins no later than the third calendar year following the end of the monitoring period in which the third consecutive year of monitoring occurs.

A water system may reduce the frequency with which it collects tap samples for applicable water quality parameters 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 also has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the

department under 567—paragraph 43.7(2)“f.” Monitoring conducted every three years shall be done no later than every third calendar year.

ITEM 21. Amend subparagraph **41.4(1)“e”(2)** as follows:

(2) Monitoring after system exceeds tap water action level. Any system which exceeds the lead or copper action level at the tap shall collect one source water sample from each entry point to the distribution system ~~within~~ no later than six months after the exceedance after the end of the monitoring period during which the lead or copper action level 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.

ITEM 22. Amend numbered paragraph **41.4(1)“e”(4)“1”** as follows:

1. A system 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 water system using only groundwater 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 public water system using surface water (or a combination of surface and groundwater) shall collect samples once during each year, the first annual monitoring period to begin ~~on the date on~~ during the year in which the department makes this determination is made under this subparagraph.

ITEM 23. Amend subparagraph **41.4(1)“e”(5)** as follows:

(5) Reduced monitoring frequency.

1. A water system using only groundwater may reduce the monitoring frequency for lead and copper 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 if 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 by the department 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 concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

2. A water system using surface water (or a combination of surface water and groundwater) 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 if that 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 by the department 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 concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

3. A water system 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.

ITEM 24. Amend numbered paragraph **41.4(1)“f”(4)“2”** as follows:

2. Langelier Index—“Standard Methods for the Examination of Water and Wastewater,” 14th edition, American Public Health Association, ~~1015 Fifteenth Street NW, 800 I Street, NW,~~ Washington, DC ~~20005~~ 20001-3710 (1975), Method 203, pp. 61-63.

ITEM 25. Amend subparagraph **41.4(1)“g”(1)**, table, as follows:

LEAD, COPPER AND WATER QUALITY PARAMETER ANALYTICAL METHODS

Contaminant	EPA Contaminant Code	Methodology ⁹	Reference (Method Number)				
			EPA	ASTM ³	SM	SM Online ¹⁶	USGS ⁵ or Other
Alkalinity	1927	Titrimetric		D1067-	2320 B ¹¹ ,	<u>2320 B-97</u>	

Contaminant	EPA Contaminant Code	Methodology ⁹	Reference (Method Number)				
			EPA	ASTM ³	SM	SM Online ¹⁶	USGS ⁵ or Other
				92B ₂ <u>02B</u> <u>06B</u> , 11 <u>B</u>	<u>15, 18</u>		
	-	Electrometric titration					I-1030-85
Calcium	4919	EDTA titrimetric		D511-93A ₂ <u>03A</u> <u>09A</u> , 14A	3500-Ca D ⁴	<u>3500-Ca B-97</u>	
	-				3500-Ca B ^{12, 15, 18}	<u>3500-Ca B-97</u>	
	-	Atomic absorption; direct aspiration		D511-93B ₂ <u>03B</u> <u>09B</u> , 14B	3111 B ^{4, 15, 18}	<u>3111 B-99</u>	
	-	Inductively coupled plasma	200.7 ²		3120 B ¹¹ , <u>15, 18</u>	<u>3120 B-99</u>	
		<u>Ion chromatography</u>		<u>D6919-03</u> , 09			
		<u>Axially viewed inductively coupled plasma-atomic</u>	<u>200.5</u> , <u>Rev.</u> <u>4.2</u> ¹⁷				

Contaminant	EPA Contaminant Code	Methodology ⁹	Reference (Method Number)				
			EPA	ASTM ³	SM	SM Online ¹⁶	USGS ⁵ or Other
		<u>emission spectrometry (AVICP-AES)</u>					
Chloride	1017	Ion chromatography	300.0 ⁸ <u>300.1¹</u> <u>3</u>	D4327-97, <u>03</u>	4110 B ^{11,15}	<u>4550 B-00</u>	
	-	Potentiometric titration			4500-Cl ⁻ D ^{11,15}	<u>4500-Cl⁻ D-97</u>	
	-	Argentometric titration		D512-89B ₂ (reapproved 1999), <u>D512-04B</u>	4500-Cl ⁻ B ^{11,15}	<u>4500-Cl⁻ B-97</u>	
		<u>Capillary Ion Electrophoresis</u>					<u>D6508. Rev. 2¹⁴</u>
Conductivity	1064	Conductance		D1125-95 (reapproved 1999) <u>A₂ 14A</u>	2510 B ^{11,15,18}	<u>2510 B-97</u>	

Contaminant	EPA Contaminant Code	Methodology ⁹	Reference (Method Number)				
			EPA	ASTM ³	SM	SM Online ¹⁶	USGS ⁵ or Other
Copper ⁶	1022	Atomic absorption; furnace technique		D1688-95C ₂ <u>02C</u> <u>07C, 12C</u>	3113 B ^{4, 15, 18}	<u>3113 B-99</u> <u>04, 10</u>	
	-	Atomic absorption; direct aspiration		D1688-95A ₂ <u>02A</u> <u>07A, 12A</u>	3111 B ^{4, 15, 18}	<u>3111 B-99</u>	
	-	Inductively coupled plasma	200.7 ²		3120 B ^{11, 15, 18}	<u>3120 B-99</u>	
	-	Inductively coupled plasma; mass spectrometry	200.8 ²				
		<u>Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)</u>	<u>200.5</u> <u>Rev.</u> <u>4.2¹⁷</u>				
	-	Atomic absorption; platform furnace	200.9 ²				
		<u>Colorimetric</u>					<u>Hach Metho</u>

Contaminant	EPA Contaminant Code	Methodology ⁹	Reference (Method Number)				
			EPA	ASTM ³	SM	SM Online ¹⁶	USGS ⁵ or Other
							<u>d</u> 8026 ¹⁹ ; <u>Hach</u> <u>Metho</u> <u>d</u> 10272 ² <u>0</u>
Lead ⁶	1030	Atomic absorption; furnace technique		D3559-96D ₂ <u>03D, 08D</u>	3113 B ^{4, 15, 18}	<u>3113 B-99, 04, 10</u>	
	-	Inductively coupled plasma; mass spectrometry	200.8 ²				
		<u>Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)</u>	<u>200.5, Rev. 4.2</u> ¹⁷				
	-	Atomic absorption; platform furnace technique	200.9 ²				
	-	Differential pulse					<u>Metho</u>

Contaminant	EPA Contaminant Code	Methodology ⁹	Reference (Method Number)				
			EPA	ASTM ³	SM	SM Online ¹⁶	USGS ⁵ or Other
		anodic stripping voltammetry, voltammetry <u>voltammetry</u>					d 1001 ¹⁰
pH	1025	Electrometric	150.1 ¹	D1293- 95, 99, 12	4500-H ⁺ B ^{11, 15, 18}	4500-H⁺ B- 00	
	-		150.2 ¹				
Orthophosphate (Unfiltered, no digestion or hydrolysis)	4044	Colorimetric, automated, ascorbic acid	365.1 ⁸		4500-P F ^{11, 15, 18}	<u>4500-P F-99</u>	<u>Thermo-Fisher Discrete Analyzer</u> ²¹
	-	Colorimetric, ascorbic acid, single reagent		D515-88A	4500-P E ^{11, 15, 18}	<u>4500-P E-99</u>	
	-	Colorimetric, phosphomolybdate;					I-1602-85
	-	Automated-segmented flow					I-2601-90 ⁸
	-	Automated discrete					I-2598-85

Contaminant	EPA Contaminant Code	Methodology ⁹	Reference (Method Number)				
			EPA	ASTM ³	SM	SM Online ¹⁶	USGS ⁵ or Other
	-	Ion chromatography	300.0 ⁷ <u>300.1</u> ¹	D4327- 97, 03, 11	4110 B ¹¹ , <u>15, 18</u>	<u>4110 B-00</u>	
		Capillary Ion Electrophoresis					D6508, Rev. <u>2</u> ¹⁴
Silica	1049	Colorimetric, molybdate blue					I-1700-85
	-	Automated-segmented flow					I-2700-85
	-	Colorimetric		D859-95, <u>00, 05, 10</u>			
	-	Molybdsilicate			4500-Si D ⁴	<u>4500-SiO₂ C-97</u>	
	-				4500-SiO ₂ C ^{12, 15, 18}	<u>4500-SiO₂ C-97</u>	
	-	Heteropoly blue			4500-Si E ¹⁵	<u>4500-SiO₂ D-97</u>	
	-				4500-SiO ₂ D ^{12, 15, 18}	<u>4500-SiO₂ D-97</u>	
	-	Automated method			4500-Si F	<u>4500-</u>	

Contaminant	EPA Contaminant Code	Methodology ⁹	Reference (Method Number)				
			EPA	ASTM ³	SM	SM Online ¹⁶	USGS ⁵ or Other
		for molybdate-reactive silica			4500-SiO ₂ E ^{12,15,18}	<u>SiO₂ E-97</u>	
	-	Inductively coupled plasma ⁶	200.7 ²		3120 B ^{11,15,18}	<u>3120 B-99</u>	
		<u>Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)</u>	<u>200.5, Rev. 4.2¹⁷</u>				
Sulfate	4055	Ion chromatography	300.0 ⁷ 300.1 ¹ 3	D4327-97, 03	4110 ^{11,15,18}	<u>4110 B-00</u>	
	-	Automated methylthymol blue	375.2 ⁷		4500-SO ₄ F ^{11,15}	<u>4500-SO₄⁻</u> <u>2F-97</u>	
	-	Gravimetric			4500-SO ₄ C ^{11,15} 4500-SO ₄ D ^{11,15}	<u>4500-SO₄⁻</u> <u>2C-97</u> <u>4500-SO₄⁻</u> <u>2D-97</u>	
	-	Turbidimetric		D516-90, <u>02, 07</u>	4500-SO ₄ E ^{11,15}	<u>4500-SO₄⁻</u> <u>2E-97</u>	
		<u>Capillary Ion</u>					<u>D6508.</u>

Contaminant	EPA Contaminant Code	Methodology ⁹	Reference (Method Number)				
			EPA	ASTM ³	SM	SM Online ¹⁶	USGS ⁵ or Other
		<u>Electrophoresis</u>					<u>Rev. 2¹⁴</u>
Temperature	1996	Thermometric			2550 B ¹¹ , <u>15.18</u>	<u>2550-00.10</u>	
Total Filterable Residue (TDS)	1930	Gravimetric			2540 C ^{11,15}	<u>2540 C-97</u>	

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 of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, 401 M Street SW, Washington, DC 20460 (telephone: (202)260-3027); or at the Office of Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC.

¹"Methods for Chemical Analysis of Water and Wastes," EPA-600/4-79-020, March 1983. Available at NTIS as PB84-128677.

²"Methods for the Determination of Metals in Environmental Samples," EPA-600/4-91-010, June 1991. Available at NTIS as PB91-231498.

³Annual Book of ASTM Standards, 1994, 1996, or 1999, or 2003, Vols. 11.01 and 11.02, American Society for Testing and Materials, International; ~~any year containing the cited version of the method may be used~~ 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 the Annual Book of ASTM Standards, 1994, Volume 11.01. Copies may be obtained from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428 or <http://astm.org>.

⁴18th and 19th editions of Standard Methods for the Examination of Water and Wastewater, 1992 and 1995, respectively, American Public Health Association. Either edition may be used. Copies may be obtained from the American Public Health Association, ~~1015 Fifteenth Street NW, 800 I Street, NW, Washington, DC 20005~~ 20001-3710.

⁵Techniques of Water Resources Investigation of the U.S. Geological Survey, Book 5, Chapter A-1, 3rd ed., 1989. Available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, CO 80225-0425.

⁶Samples may not be filtered. Samples that contain less than 1 NTU (Nephelometric turbidity unit) 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. Available at NTIS as PB94-120821.

⁸“Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments, Open File Report 93-125.” Available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, CO 80225-0425.

⁹Because 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.

¹⁰The description for Method 1001 is available from Palintest, Ltd., 21 Kenton Lands Road, P.O. Box 18395, Erlanger, KY 41018; or from the Hach Company, P.O. Box 389, Loveland, CO 80538.

¹¹The 18th, 19th, and 20th editions of Standard Methods for the Examination of Water and Wastewater, 1992, 1995, and 1998, respectively, American Public Health Association. Any edition may be used, except that the versions of 3111B and 3113B in the 20th edition may not be used. Copies may be obtained from the American Public Health Association, ~~4015 Fifteenth Street NW,~~ 800 I Street, NW, Washington, DC ~~20005~~ 20001-3710.

¹²The 20th edition of Standard Methods for the Examination of Water and Wastewater, 1998, American Public Health Association. Copies may be obtained from the American Public Health Association, ~~4015 Fifteenth Street NW,~~ 800 I Street, NW, Washington, DC ~~20005~~ 20001-3710.

¹³“Methods for the Determination of Organic and Inorganic Compounds in Drinking Water,” Vol. 1, EPA 815-R-00-014, August 2000. Available at NTIS, PB2000-106981.

¹⁴Method D6508, Rev.2, “Test Method for Determination of Dissolved Inorganic Anions in Aqueous Matrices Using Capillary Ion Electrophoresis and Chromate Electrolyte,” available from Waters Corp., 34 Maple St., Milford, MA 01757, telephone: 508/482-2131.

¹⁵Standard Methods for the Examination of Water and Wastewater, 21st edition (2005), American Public Health Association. Available from the American Public Health Association, 800 I Street, Washington, DC 20001-3710.

¹⁶Standard Methods Online are available at <http://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.

¹⁷EPA 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. Available at <http://www.nemi.gov>.

¹⁸Standard Methods for the Examination of Water and Wastewater, 22nd edition (2012), American Public Health Association. Available from the American Public Health Association, 800 I Street, Washington, DC 20001-3710.

¹⁹Hach Company. “Hach Method 8026 – Spectrophotometric Measurement of Copper in Finished Drinking Water.” December 2015, Revision 1.2. Available from www.hach.com.

²⁰Hach Company. “Hach Method 10272 – Spectrophotometric Measurement of Copper in Finished Drinking Water.” December 2015, Revision 1.2. Available from www.hach.com.

²¹Thermo 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.

ITEM 26. Amend paragraph **41.5(1)“b”** as follows:

b. Maximum contaminant levels (MCLs) and analytical methodology for organic compounds. The maximum contaminant levels for organic chemicals are listed in the table in subparagraph 41.5(1)“b”(1). Analyses for the contaminants in this subrule shall be conducted using the following methods, or their equivalent as approved by EPA. For analysis of a compliance sample, a certified laboratory must be able to achieve at least the method detection limit for the specific contaminant as listed in the following table.

(1) Table:

ORGANIC CHEMICAL 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, <u>524.3</u> , <u>524.4</u> ^g	0.0005
Carbon tetrachloride	2982	0.005	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ^g , 551.1	0.0005
Chlorobenzene (mono)	2989	0.1	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ^g	0.0005
1,2-Dichlorobenzene (ortho)	2968	0.6	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ^g	0.0005
1,4-Dichlorobenzene (para)	2969	0.075	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ^g	0.0005
1,2-Dichloroethane	2980	0.005	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ^g	0.0005
1,1-Dichloroethylene	2977	0.007	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ^g	0.0005
cis-1,2-Dichloroethylene	2380	0.07	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ^g	0.0005
trans-1,2-Dichloroethylene	2979	0.1	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ^g	0.0005
Dichloromethane	2964	0.005	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ^g	0.0005
1,2-Dichloropropane	2983*	0.005	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ^g	0.0005

Contaminant	EPA Contaminant Code	MCL (mg/L)	Methodology ¹	Detection Limit (mg/L)
Ethylbenzene	2992	0.7	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ⁸	0.0005
Styrene	2996	0.1	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ⁸	0.0005
Tetrachloroethylene	2987	0.005	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ⁸ , 551.1	0.0005
Toluene	2991	1	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ⁸	0.0005
1,1,1-Trichloroethane	2981	0.2	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ⁸ , 551.1	0.0005
Trichloroethylene	2984	0.005	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ⁸ , 551.1	0.0005
1,2,4-Trichlorobenzene	2378	0.07	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ⁸	0.0005
1,1,2-Trichloroethane	2985	0.005	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ⁸ , 551.1	0.0005
Vinyl chloride	2976	0.002	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ⁸	0.0005
Xylenes (total)	2955*	10	502.2, 524.2, <u>524.3</u> , <u>524.4</u> ⁸	0.0005
Synthetic Organic Chemicals (SOCs):				
Alachlor ³	2051	0.002	505, 507, 508.1, 525.2, <u>525.3</u> , 551.1	0.0002

Contaminant	EPA Contaminant Code	MCL (mg/L)	Methodology ¹	Detection Limit (mg/L)
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, <u>523</u> , <u>525.2</u> , <u>525.3</u> , <u>536</u> , 551.1, Syngenta AG-625 ⁷	0.0001
Benzo(a)pyrene	2306	0.0002	525.2, <u>525.3</u> , 550, 550.1	0.00002
Carbofuran	2046	0.04	531.1, 531.2, 6610 ₂ , <u>6610B</u> , <u>6610 B-04</u> ²	0.0009
Chlordane ³	2959	0.002	505, 508, 508.1, 525.2 ₂ , <u>525.3</u>	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, <u>98</u> (<u>Reapproved 2003</u>), <u>6610B</u> , <u>6640-B</u> , <u>6640 B-01</u> , <u>6640 B-06</u>	0.0001
Dalapon	2031	0.2	515.1, 515.3, 515.4, 552.1, 552.2, <u>552.3</u> ; <u>557</u> , <u>6640</u> , <u>6610B</u> , <u>6640-B</u> , <u>6640 B-01</u> , <u>6640 B-06</u>	0.001
1,2-Dibromo-3-chloropropane (DBCP)	2931	0.0002	504.1, <u>524.3</u> , 551.1	0.00002

Contaminant	EPA Contaminant Code	MCL (mg/L)	Methodology ¹	Detection Limit (mg/L)
Di(2-ethylhexyl)adipate	2035	0.4	506, 525.2, <u>525.3</u>	0.0006
Di(2-ethylhexyl)phthalate	2039	0.006	506, 525.2, <u>525.3</u>	0.0006
Dinoseb ⁶	2041	0.007	515.1, 515.2, 515.3, 515.4, <u>555, 6610B, 6640-B, 6640 B-01, 6640 B-06</u>	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, <u>525.3</u> , 551.1	0.00001
Ethylene dibromide (EDB)	2946	0.00005	504.1, <u>524.3</u> , 551.1	0.00001
Glyphosate	2034	0.7	547, 6651, <u>6651B, 6651 B-00, 6640 B-05</u>	0.006
Heptachlor ³	2065	0.0004	505, 508, 508.1, 525.2, <u>525.3</u> , 551.1	0.00004
Heptachlor epoxide ³	2067	0.0002	505, 508, 508.1, 525.2, <u>525.3</u> , 551.1	0.00002
Hexachlorobenzene ³	2274	0.001	505, 508, 508.1, 525.2, <u>525.3</u> , 551.1	0.0001
Hexachlorocyclopentadiene ³	2042	0.05	505, 508, 508.1, 525.2, <u>525.3</u> , 551.1	0.0001
Lindane (gamma BHC) ³	2010	0.0002	505, 508, 508.1, 525.2, <u>525.3</u> , 551.1	0.00002

Contaminant	EPA Contaminant Code	MCL (mg/L)	Methodology ¹	Detection Limit (mg/L)
Methoxychlor ³	2015	0.04	505, 508, 508.1, 525.2, <u>525.3</u> , 551.1	0.0001
Oxamyl	2036	0.2	531.1, 531.2, 6610, <u>6610B</u> , <u>6610 B-04</u> ²	0.002
Pentachlorophenol	2326	0.001	515.1, 515.2, 515.3, 515.4, 525.2, <u>525.3</u> , 555, D5317-93, <u>98</u> (Reapproved 2003), <u>6610B</u> , <u>6640-B</u> , <u>6640 B-01</u> , <u>6640 B-06</u>	0.00004
Picloram ^{3,6}	2040	0.5	515.1, 515.2, 515.3, 515.4, 555, D5317-93, <u>98</u> (Reapproved 2003), <u>6610B</u> , <u>6640-B</u> , <u>6640 B-01</u> , <u>6640 B-06</u>	0.0001
Polychlorinated biphenyls ⁴ (as decachlorobiphenyl) (as Arochlors) ³	2383	0.0005	508A 505, 508, 508.1, 525.2, <u>525.3</u>	0.0001
Simazine ³	2037	0.004	505, 507, 508.1, <u>523</u> , <u>525.2</u> , <u>525.3</u> , <u>536</u> , 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, <u>98</u> (Reapproved 2003),	0.0002

Contaminant	EPA Contaminant Code	MCL (mg/L)	Methodology ¹	Detection Limit (mg/L)
			<u>6610B, 6640-B, 6640 B-01, 6640 B-06</u>	
Toxaphene ³	2020	0.003	505, 508, 508.1, 525.2, <u>525.3</u>	0.001

*As of January 1, 1999, the contaminant codes for the following compounds were changed from the Iowa Contaminant Code to the EPA Contaminant Code:

Contaminant	Iowa Contaminant Code (Old)	EPA Contaminant Code (New)
1,2 Dichloropropane	2325	2983
Xylenes (total)	2974	2955

¹Analyses for the contaminants in this section 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, EPA West, 1301 Constitution Avenue NW, ~~Room B-102~~ Room 3334, Washington, DC 20460 (telephone: (202) 566-2426); or at the ~~Office of the Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC~~ National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202/741-6030, or via Internet at http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

The following methods are available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161 (telephone: (800)553-6847).

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. Available at <https://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. Available at <http://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. Available at <https://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. Available at <https://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. Available at <http://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).

The following American Public Health Association (APHA) documents are available from APHA, ~~1015 Fifteenth Street NW,~~ 800 I Street, NW, Washington, DC ~~20005~~ 20001-3710.

Supplement to the 18th Edition of Standard Methods for the Examination of Water and Wastewater, 1994, Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995, ~~or~~ 20th edition, 1998, 21st edition, 2005, or 22nd edition (2012) (any of ~~the three~~ 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.

Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, 19th edition, 1995, or 20th edition, 1998, (any of ~~the three~~ these editions may be used), APHA: Method 6651.

The following American Society for Testing and Materials (ASTM) method is available from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

Annual book of ASTM Standards, 1999, Vol. 11.02 (or any edition published after 1993), ASTM: D5317-93, 98 (Reapproved 2003).

Methods 515.3 and 549.2 are available from U.S. 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, available at <http://www.nemi.gov>.

Method 531.2, “Measurement of n-Methylcarbamoyloximes and n-Methylcarbamates in Water by Direct Aqueous Injection HPLC with ~~Photocolumn~~ Postcolumn Derivatization,” Revision 1.0, September 2001, EPA 815/B-01/002, available at <http://www.nemi.gov>.

Syngenta AG-625 Method, “Atrazine in Drinking Water by Immunoassay,” February 2001, is available from Syngenta Crop Protection, Inc., 410 Swing Road, P.O. Box 18300, Greensboro, NC 27419, telephone (336)632-6000.

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).

~~Reserved.~~ Standard Methods Online are available at <http://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.

³Substitution of the detector specified in Method 505, 507, 508, or 508.1 for the purpose of achieving lower detection limits is allowed as follows. Either an electron capture or nitrogen-phosphorus detector may be used

provided all regulatory requirements and quality control criteria are met.

⁴PCBs 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.

⁵Reserved.

⁶Accurate 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).

⁷This method may not be used for the analysis of atrazine in any system where chlorine dioxide is used in the drinking water treatment. In samples from all other systems, any result for atrazine generated by Method AG-625 that is greater than one-half the MCL (i.e., greater than 0.0015 mg/L), must be confirmed using another approved method for this contaminant 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.

⁸EPA 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 no change.)

ITEM 27. Amend numbered paragraph **41.5(1)“c”(7)“4,”** table, as follows:

4. Proximity of supplies to commercial or industrial use, disposal or storage of volatile synthetic organic chemicals. Wells that are not separated from sources of contamination by at least the following distances will be considered vulnerable.

Sources of Contamination	Shallow Wells as defined in 567—40.2(455B)	Deep Wells as defined in 567—40.2(455B)
Sanitary and industrial point discharges	400 ft	400 ft

Sources of Contamination	Shallow Wells as defined in 567—40.2(455B)	Deep Wells as defined in 567—40.2(455B)
Mechanical waste treatment plants	400 ft	200 ft
Lagoons	1,000 ft	400 ft
Chemical and <u>mineral</u> 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

ITEM 28. Amend subparagraph **41.6(1)“d”(2)**, table, as follows:

(2) Systems must measure disinfection byproducts by the methods (as modified by the footnotes) listed in the following table:

Approved Methods for Disinfection Byproduct Compliance Monitoring

Contaminant and Methodology	EPA Method ¹	Standard Method ²	ASTM Method ³
TTHM			
P&T/GC/EICD & PID	502.2 ⁴		
P&T/GC/MS	524.2, <u>524.3</u> , <u>524.4</u>		
LLE/GC/ECD	551.1		
HAA5			

Contaminant and Methodology	EPA Method ¹	Standard Method ²	ASTM Method ³
LLE (diazomethane)/GC/ECD		6251 B ⁵ , <u>6251 B-07</u> ¹²	
SPE (acidic methanol)/GC/ECD	552.1 ⁵		
LLE (acidic methanol)/GC/ECD	552.2, 552.3		
<u>Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry (IC-ESI-MS/MS)</u>	<u>557</u> ¹⁰		
Bromate			
Ion chromatography	300.1		D 6581-00
Ion chromatography & postcolumn reaction ⁹	317.0 Rev. 2.0 ⁶ , 326.0 ⁶		
IC/ICP-MS ⁹	321.8 ^{6,7}		
<u>Two-Dimensional Ion Chromatography (IC)</u>	<u>302.0</u> ¹¹		
<u>Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry (IC-ESI-MS/MS)</u>	<u>557</u> ¹⁰		
<u>Chemically Suppressed Ion Chromatography</u>			<u>D 6581-08 A</u>
<u>Electrolytically Suppressed Ion Chromatography</u>			<u>D 6581-08 B</u>
Chlorite ⁸			
Amperometric titration		4500-ClO ₂ E ⁸	
<u>Amperometric sensor</u>			<u>ChlordioX Plus</u> ^{8, 13}
Spectrophotometry	327.0 Rev. 1.1 ⁸		

Contaminant and Methodology	EPA Method¹	Standard Method²	ASTM Method³
Ion chromatography	300.0, 300.1, 317.0 Rev. 2, 326.0		
<u>Chemically Suppressed Ion Chromatography</u>			<u>D 6581-08 A</u>
<u>Electrolytically Suppressed Ion Chromatography</u>			<u>D 6581-08 B</u>

ECD = electron capture detector

IC = ion chromatography

P&T = purge and trap

EICD = electrolytic conductivity detector

LLE = liquid/liquid extraction

PID = photoionization detector

GC = gas chromatography

MS = mass spectrometer

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 of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, 401 M Street SW, Washington, DC 20460 (telephone: (202)260-3027); or at the Office of Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC 20408.

¹EPA: The following methods are available from the National Technical Information Service (NTIS), U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161 (telephone: (800)553-6847):

Methods 300.0 and 321.8: Methods for the Determination of Organic and Inorganic Compounds in Drinking Water, Volume 1, USEPA, August 2000, EPA 815-R-00-014 (available through 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 (available through 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," USEPA, 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,” USEPA, 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,” USEPA, 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: 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. Available at <http://www.nemi.gov>.

Method 524.4: 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. Available at <https://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,” USEPA, July 2003, EPA-815-B-03-002.

²4500-CIO2 E and 6251B: Standard Methods for the Examination of Water and Wastewater, 19th(1995), ~~and 20th(1998), 21st(2005), and 22nd(2012)~~ editions, American Public Health Association, ~~1995 and 1998, respectively,~~ which ~~is~~ are available from the American Public Health Association, ~~1015 Fifteenth Street NW, 800 I Street, NW, Washington, DC 20005 20001-3710.~~

³Method D 6581-00: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohoken, PA 19428: Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 2001 (or any year containing the cited version).

⁴If TTHMs are the only analytes being measured in the sample, then a PID is not required.

⁵The samples must be extracted within 14 days of sample collection.

⁶ Ion chromatography and postcolumn reaction or IC/ICP-MS must be used for bromate analysis for purposes of demonstrating eligibility of 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 monitoring of chlorite at the entrance to the distribution system, as prescribed in 41.6(1)“c”(3)“1.” Ion chromatography must be used for routine monthly monitoring of chlorite and additional monitoring of chlorite 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.”

¹⁰EPA 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. Available at <http://www.nemi.gov>.

¹¹EPA Method 302.0, “Determination of Bromate in Drinking Water using Two-Dimensional Ion Chromatography with Suppressed Conductivity Detection,” September 2009. EPA 815-B-014. Available at <http://www.nemi.gov>.

¹²Standard Methods Online are available at 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.

¹³ChlordioX Plus. “Chlorine Dioxide and Chlorite in Drinking Water by Amperometry using Disposable Sensors,” November 2013. Available from Palintest Ltd., Jamike Avenue (Suite 100), Erlanger, KY 41018.

ITEM 29. Amend paragraph **41.6(3)“c,”** table, as follows:

c. Routine monitoring. Systems are required to start monitoring at the locations specified in the approved disinfection byproducts monitoring plan and on the schedule specified in 41.6(3)“a”(1). Each system must monitor the disinfection byproducts at the minimum number of locations identified in the Routine Monitoring table.

Routine Monitoring

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
	<u>250,000-999,999</u>	<u>per quarter</u>	<u>12</u>
Groundwater	<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 to 4 no change.)

ITEM 30. Amend paragraph **41.6(1)“d,”** table, as follows:

d. Reduced monitoring. A system may reduce monitoring to the level specified in the Reduced Monitoring table anytime the locational running annual average 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 the provisions of this rule may be used to qualify for reduced monitoring.

Reduced Monitoring

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 the 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: one at the location and during the quarter with the highest TTHM single measurement; one at the location and during the quarter with the highest HAA5 single measurement
	10,000-49,999	per quarter	2 samples: one at the highest TTHM LRAA location and one at the highest HAA5 LRAA location
	50,000-249,999	per quarter	4 samples: one sample each at the highest two TTHM LRAA locations and one sample each at the highest two HAA5 LRAA locations
	<u>250,000-999,999</u>	<u>per quarter</u>	<u>6 samples: one sample each at the highest three TTHM LRAA locations and one sample each at the highest three HAA5 LRAA locations</u>
Groundwater	<500	every third year	1 sample per year at the same location if the highest TTHM and HAA5 measurements

Source water type	Population size category	Monitoring frequency ¹	Distribution system monitoring location sites per monitoring period ²
			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 the 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: one at the location and during the quarter with the highest TTHM single measurement; one at the location and during the quarter with the highest HAA5 single measurement
	100,000-499,999	per quarter	2 samples: one at the highest TTHM LRAA location and one at the highest HAA5 LRAA location

¹Systems on a quarterly monitoring frequency must collect the sample(s) every 90 days.

²Each sample must be analyzed for all TTHM and HAA5 components.

(1 to 4 no change.)

ITEM 31. Adopt the following **new** rule 567—41.7 (455B):

~~567—41.7(455B) Physical properties maximum contaminant levels (MCL or treatment technique requirements) and monitoring requirements.~~ Rescinded IAB 10/18/00, effective 11/22/00. Groundwater rule: sanitary survey, microbial source water monitoring, treatment technique.

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 public water systems that use groundwater except that it does not apply to public water systems that combine all of their groundwater with surface water or with influenced groundwater prior to treatment under 567—43.5(455B). For the purposes of this rule, “groundwater system” is defined as any public water system meeting this applicability statement, including consecutive systems receiving finished groundwater. For the purposes of this rule, “4-log treatment of viruses” 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%) of viruses.

c. *General requirements.* Systems subject to this rule must comply with the following requirements:

(1) Sanitary survey information requirements for all groundwater systems as described in 41.7(2).

(2) Microbial source water monitoring requirements for groundwater systems that do not treat all of their groundwater to at least 99.99 percent (4-log) treatment of viruses, using inactivation, removal, or a department-approved combination of inactivation and removal before or at the first customer, as described in 41.7(3).

(3) Treatment technique requirements, described in 41.7(4), that apply to groundwater systems that have fecally-contaminated source waters, as determined by source water monitoring conducted under 41.7(3), or that have significant deficiencies that are identified by the department. A groundwater system with fecally-contaminated source water or with significant deficiencies subject to the treatment technique 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 treatment of viruses (using inactivation, removal, or a department-approved combination of 4-log virus inactivation and removal) before or at the first customer.

(4) Groundwater systems that provide at least 4-log treatment of viruses are required to conduct compliance monitoring to demonstrate treatment effectiveness, as described in 41.7(4).

(5) If requested by the department, groundwater systems must provide the department with any existing information that will enable the department to perform a hydrogeology sensitivity assessment. For the purposes of this rule, “hydrogeologic sensitivity assessment” is a determination of whether groundwater systems obtain water from hydrogeologically sensitive settings.

(6) Certified laboratory requirements. Analyses under this rule shall only be conducted by laboratories that have been certified by the department and are in compliance with the requirements of 567—Chapter 83.

41.7(2) Sanitary surveys for groundwater systems. For the purposes of this rule, a “sanitary survey,” as conducted by the department in accordance with 567—subrule 43.1(7), includes but is not limited to the following: an onsite review of the water sources (identifying sources of contamination using results of source water assessments or other relevant information where available), facilities, equipment, operation, maintenance, and monitoring compliance of a

public water system to evaluate the adequacy of the system, its sources and operations and the distribution of safe drinking water.

41.7(3) *Groundwater source microbial monitoring and analytical methods.* A groundwater system that has a department-approved 4-log treatment process for viruses 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.

(1) General requirements. A groundwater system must conduct triggered source water monitoring if the conditions identified as follows exist:

1. The system does not provide at least 4-log treatment of viruses for each groundwater source; and

2. The system is notified that a sample collected under 41.2(1) “e” through “i” is total coliform-positive and the sample is not invalidated under 41.2(1) “d”.

(2) Sampling requirements. A groundwater system must collect at least one groundwater source sample from each groundwater source in use at the time the total coliform-positive sample was collected under 41.2(1) “e” through “i” that could have reasonably contributed to the positive sample. The source sample must be collected within 24 hours of when the system is notified 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 groundwater source water sample within 24 hours due to circumstances beyond its control. In the case of an extension, the department must specify how much time the system has to collect the sample.

2. A groundwater system serving 1,000 people or fewer may use a repeat sample

collected from a groundwater source to meet both the requirements of 41.2(1)“j” and to satisfy the monitoring requirements of 41.7(3)“a” if:

- the department approves the use of *E. coli* as the fecal indicator,
- the system only has one groundwater 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 maximum contaminant level violation, must comply with Tier 1 public notification requirements, and must also comply with the additional sample monitoring in 41.7(3)“a”(3).

(3) Additional samples required. 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 being notified of the fecal indicator-positive sample result.

(4) Further requirements for consecutive and wholesale systems.

1. In addition to the other requirements in 41.7(3)“a”, a consecutive groundwater system that has a total coliform-positive sample collected under 41.2(1)“f” through “i” must notify the wholesale system(s) within 24 hours of being notified of the total coliform-positive sample.

2. In addition to the other requirements in 41.7(3)“a”, a wholesale groundwater system that does not provide the 4-log treatment of viruses as described in 41.7(3) must comply with the following:

- A wholesale groundwater system that receives notice from a consecutive system it serves that a sample collected under 41.2(1)“f” through “i” is total coliform-positive must,

within 24 hours of being notified, collect triggered sample(s) from its groundwater 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 groundwater system must notify all consecutive systems served by that groundwater source of the fecal indicator positive result within 24 hours of being notified of the result and must collect the required additional five samples from the source within 24 hours under 41.7(3)“a”(3).

(5) Exceptions to the triggered source water monitoring requirements. A groundwater system is not required to comply with the source water monitoring requirements of 41.7(3)“a” if either of the following conditions exists:

1. The department determines and documents in writing that the total coliform-positive sample collected under 41.2(1)“e” through “i” is caused by a distribution system deficiency; or

2. The total coliform-positive sample collected under 41.2(1)“e” through “i” 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, groundwater systems must conduct assessment source water monitoring that meets department-determined requirements for such monitoring. A groundwater system 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 a total of 12 groundwater source samples that represent each month

the system provides groundwater to the public,

(2) Collection of samples from each well unless the system obtains written department approval to conduct monitoring at one or more wells within the groundwater system that are representative of multiple wells used by that system and that draw water from the same hydrogeologic setting,

(3) Collection of a standard sample volume of at least 100 mL for fecal indicator analysis regardless of technical indicator or analytical method used,

(4) Analysis of all groundwater source samples using one of the analytical methods listed in 41.7(3)“c” for the presence of *E. coli*, enterococci, or coliphage,

(5) Collection of groundwater source samples at a location prior to any treatment of the groundwater source unless the department approves a sampling location after treatment, and

(6) Collection of groundwater 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 that is representative of the water quality of that well.

c. Analytical methods.

(1) A groundwater system 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) A groundwater system must analyze all groundwater source samples collected under 41.7(455B) 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
<i>E. coli</i>	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} 9223 B-97, B-04 ¹⁸
	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
	Membrane Filter Technique	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 2-11 in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of the documents may be obtained from the sources listed below. Copies

may be inspected at EPA's Drinking Water Docket, EPA West 1301 Constitution Avenue, NW, EPA West Room B102, Washington DC 20460 (telephone: 202-566-2426); or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. The address for EPA's Water Resource Center, referenced in several of the footnotes, is: EPA's Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue, NW, Washington, DC 20460.

¹The time from sample collection to initiation of analysis may not exceed 30 hours. The groundwater system is encouraged but is not required to hold samples below 10°C during transit.

²Methods are described in Standard Methods for the Examination of Water and Wastewater, 20th edition (1998) and copies may be obtained from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

³Medium is available through IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, ME 04092.

⁴EPA 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. Method is available at <http://www.nemi.gov>.

⁵A 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, is available from Hach Company, 100 Dayton Avenue, Ames, IA 50010.

⁶A 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, is available from Charm Sciences, Inc., 659 Andover Street, Lawrence, MA 01843-1032.

⁷EC-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 Standard Methods 9221B, 9221D, 9222B, or 9222C.

⁸EPA 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 Standard Method 9230C. The method is available at <http://www.nemi.gov>. The holding time and temperature for groundwater samples are specified in footnote 1 above, rather than as specified in Section 8 of EPA Method 1600.

⁹Medium 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.

¹⁰EPA Method 1601: Male-specific (F+) and Somatic Coliphage in Water by Two-step Enrichment Procedure; April 2001, EPA 821-R-01-030. Method is available at <http://www.nemi.gov>.

¹¹EPA Method 1602: Male-specific (F+) and Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure; April 2001, EPA 821-R-01-029. Method is available at <http://www.nemi.gov>.

¹²Standard Methods for the Examination of Water and Wastewater, 21st edition (2005). Available from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

¹³Standard Methods for the Examination of Water and Wastewater, 22nd edition (2012). Available from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

¹⁴ReadyCult 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. Available from EMD Millipore, 290 Concord Road, Billerica, MA 01821.

¹⁵Modified 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. Available from <http://www.nemi.gov> or CPI International, 5580 Skylane Blvd., Santa Rosa, CA 95403.

¹⁶Chromocult 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. Available from EMD Millipore, 290 Concord Road, Billerica, MA 01821.

¹⁷Charm Sciences Inc., “FastPhage Test Procedure. Presence/Absence for Coliphage in Ground Water with Same Day Positive Prediction.” Version 009, November 2012. Available at www.charmsciences.com.

¹⁸Standard Methods Online are available at www.standardmethods.org. The year in which each method was approved by the Standards 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.

¹⁹Tecta EC/TC. “Presence/Absence Method for Simultaneous Detection of Total Coliforms and *Escherichia coli* in Drinking Water, April 2014. Available from Veolia Water Solutions and Technologies, Suite

d. Invalidation of a fecal indicator-positive groundwater source sample.

(1) A groundwater system may obtain invalidation from the department of a fecal indicator-positive groundwater 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 and documents in writing that there is substantial evidence that a fecal indicator-positive groundwater source sample is not related to source water quality.

(2) If the department invalidates a fecal indicator-positive groundwater source sample, the system must collect another source water sample under 41.7(3)“a” within 24 hours of being notified by the department of its 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. In the case of an extension, the department must specify how much time the system has to collect the sample.

e. Sampling location.

(1) Any groundwater source sample required 41.7(3)“a” must be collected at a location prior to any treatment of the groundwater 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. A groundwater system that places a new groundwater source into service must conduct assessment source water monitoring as directed by the department to include those items listed in 41.7(3)“b”(3) to (6). If directed by the department, the system must begin monitoring before the groundwater source is used to provide water to the public.

g. Public notification. A system with a groundwater source sample collected under 41.7(3)“a” or 41.7(3)“b” that is fecal indicator-positive and that is not invalidated under 41.7(3)“d”, including consecutive systems served by the groundwater source, must conduct Tier 1 public notification under 567—subrule 42.1(2).

h. Monitoring violations. Failure to meet the requirements of 41.7(3)“a” through “f” is a monitoring violation and requires the system to provide Tier 3 public notification under 567—subrule 42.1(4).

41.7(4) Treatment technique requirements for groundwater systems

a. Groundwater systems with significant deficiencies or source water fecal contamination.

(1) The treatment technique requirements of this subrule, 41.7(4), must be met by groundwater systems when a significant deficiency is identified or when a groundwater source sample collected under 41.7(3)“a”(3) is fecal indicator-positive.

(2) If directed by the department, a groundwater system with a groundwater 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 treatment technique requirements of 41.7(4).

(3) When a significant deficiency is identified at a surface water or influenced groundwater system that also uses a groundwater source not under the influence of surface water,

the system must comply with provisions of 41.7(4)“a” 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 surface water or influenced groundwater source.

(4) Unless the department directs the groundwater system to implement a specific corrective action, the groundwater system must consult with the department regarding the appropriate corrective action within 30 days of receiving written notice from the department of a significant deficiency, written notice from a laboratory that a groundwater source sample collected under 41.7(3)“a”(3) was found to be 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 41.7(4), 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 receiving written notification from the department of a significant deficiency, written notice from a laboratory that a groundwater source sample collected under 41.7(3)“a”(3) was found to be 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 correction action, the groundwater 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 specified conditions as follows:

- 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 protection of the public health 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 as well as with any schedule specified by the department.

(6) Corrective Action Alternatives. Groundwater systems that meet 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 treatment of viruses for the groundwater source.

(7) Special notice to the public of significant deficiencies or source water fecal contamination.

1. In addition to the applicable Tier 1 public notification requirements of 567—subrule 42.1(2), a community groundwater system that receives notice from the department of a significant deficiency or notification of a fecal indicator-positive groundwater source sample that is not invalidated by the department under 41.7(3)“d” must inform the public served by the water system under 567—subparagraph 42.3(3)“h”(5) of the fecal indicator-positive source sample or of any significant deficiency that has not been corrected. The system must continue to

inform the public annually until the significant deficiency is corrected or the fecal contamination in the groundwater source is determined by the department to be corrected under 41.7(3)“a”(5).

2. In addition to the applicable Tier 1 public notification requirements of 567—subrule 42.1(2), a noncommunity groundwater system that receives notice from the department of a significant deficiency must inform the public served by the water systems in a manner approved by the department of any significant deficiency that has not been corrected within 12 months of being notified by the department, 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 the significant deficiency 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, a non-community water system 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 groundwater sources. A groundwater system that provides at least 4-log

treatment of viruses must make a written application to the department in order to avoid the source water monitoring requirements of 41.7(3). Notification to the department must include engineering, operational, or other information that the department requests to evaluate the submission. The department must approve the 4-log request in writing before the system can avoid the groundwater 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 treatment of viruses of a groundwater source or no longer wishes to be exempt from the groundwater source monitoring requirements, the system must conduct groundwater source monitoring as required under 41.7(3).

(2) New groundwater sources. A groundwater system that places a groundwater source in service that is not required to meet the source water monitoring requirements of 41.7(4) because the system provides at least 4-log treatment of viruses for the groundwater source must comply with the following requirements:

1. The system must notify the department in writing that it provides at least 4-log treatment of viruses for the groundwater source. Notification to the department must include engineering, operational, or other information that the department requests to evaluate the submission. The contact time values for inactivation of viruses using free chlorine, chlorine dioxide, and ozone are listed in 567—Chapter 43, Appendix C. No CT table is provided for chloramines and total chlorine because the CT values would be prohibitively high for groundwater systems.

2. The system must conduct compliance monitoring as required 41.7(4)“b”(3) within 30 days of placing the source in service.

3. The system must conduct groundwater source monitoring under 41.7(3) if the

system subsequently discontinues 4-log treatment of viruses for the groundwater source.

(3) Monitoring requirements. A groundwater system subject to the requirements of 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 groundwater source before or at the first customer as follows:

1. Chemical disinfection.

- A groundwater system serving more than 3,300 people must continuously monitor the residual disinfectant concentration, using analytical methods specified in 567—subparagraph 43.5(4)“a”(5), at a location approved by the department and must record the lowest residual disinfectant concentration each day that water from the groundwater source is served to the public. The groundwater system must maintain the department-determined minimum residual disinfectant concentration every day the groundwater system serves water from the groundwater source to the public. If there is a failure in the continuous monitoring equipment, the groundwater 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 groundwater system serving 3,300 or fewer people must monitor the residual disinfectant concentration using analytical methods specified in 567—subparagraph 43.5(4)“a”(5) at a location approved by the department and must record the residual disinfectant concentration each day that water from the groundwater source is served to the public. The groundwater system must maintain the department-determined minimum residual disinfectant concentration every day the groundwater system serves water from the groundwater source to the public. The groundwater system must take a daily grab sample during the hour of peak flow or at another time specified by the department. If any daily grab sample measurement falls below

the department-determined minimum residual disinfectant concentration, the groundwater system must take follow-up samples every four hours until the residual disinfectant concentration is restored to the department-determined minimum level. Alternatively, a groundwater 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 groundwater system that uses membrane filtration to meet the requirements of 41.7(4)“b” to provide at least 4-log treatment of viruses must monitor the membrane filtration process in accordance with all department-specified monitoring requirements and must operate the membrane filtration in accordance with all department-specified compliance requirements. A groundwater system that uses membrane filtration is in compliance with the requirement to achieve at least 4-log removal of viruses 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 removal of viruses;
- The membrane process is operated in accordance with department-specified compliance requirements; and
- The integrity of the membrane is intact.

3. Alternative treatment. A groundwater system that uses a department-approved alternative treatment to meet the requirements of 41.7(4)“b” by providing at least 4-log treatment of viruses 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 treatment of viruses.

c. Discontinuing treatment. A groundwater system may discontinue 4-log treatment of viruses for a groundwater source if the department determines and documents in writing that 4-log treatment of viruses is no longer necessary for that groundwater source. A system that discontinues 4-log treatment of viruses is subject to the source water monitoring and analytical methods requirements of 41.7(3).

d. Monitoring violation. Failure to meet the monitoring requirements of 41.7(4)“b” is a monitoring violation and requires the groundwater system to provide Tier 3 public notification under 567—subrule 42.1(4).

41.7(5) Treatment technique violations for groundwater systems. A groundwater system must give Tier 2 public notification under 567—subrule 42.1(3) for the treatment technique violations specified in 41.7(5)“a”, “b”, and “c”.

a. Significant deficiency. A groundwater system with a significant deficiency is in violation of the treatment technique requirement if, within 120 days (or earlier if directed by the department) of receiving written notice from the department of the significant deficiency, the system:

(1) Does not complete corrective action in accordance with any applicable department plan review processes or other department guidance and direction, including department-specified interim actions and 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 groundwater source sample under 41.7(3)“d”(1), a groundwater system is in

violation of the treatment technique requirement if, within 120 days (or earlier if directed by the department) of meeting the conditions of 41.7(4)“a”(1) or (2), the system:

(1) Does not complete corrective action in accordance with any applicable department plan review processes or other department guidance and 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 groundwater system subject to the requirements of 41.7(4)“b”(3) that fails to maintain at least 4-log treatment of viruses for a groundwater source is in violation of the treatment technique requirement if the failure is not corrected within four hours of determining the system is not maintaining at least 4-log treatment of viruses before or at the first customer.

41.7(6) Reporting and recordkeeping for groundwater systems

a. Reporting. In addition to the requirements of 567—subrule 42.4(1), a groundwater system regulated under this rule must provide the following information to the department:

(1) A groundwater system conducting compliance monitoring under 41.7(4)“b” must notify the department any time the system fails to meet any of the department-specified 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. The groundwater system must notify the department as soon as possible, but in no case later than the end of the next business day.

(2) After completing any corrective action under 41.7(4)“a”, a groundwater system must notify the department within 30 days of completion of the corrective action.

(3) If a groundwater system subject to the requirements of 41.7(3)“a” does not conduct source water monitoring under 41.7(3)“a”(5)“2”, the system must provide documentation to the department 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—subrule 42.5(1), a groundwater system regulated under this rule must maintain the following information in its records:

(1) Documentation of corrective actions must be kept for a period of not less than ten years.

(2) Documentation of notice to the public as required under 41.7(4)“a”(7) must be kept for a period of not less than three years.

(3) Records of decisions under 41.7(3)“a”(5)“2” and records of invalidation of fecal indicator-positive groundwater source samples under 41.7(3)“d”(1) must be kept for a period of 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 a period of not less than five years.

(5) For systems, including wholesale systems, that are required to perform compliance monitoring under 41.7(4)“b”(1), the following documentation must be maintained:

1. Records of the department-specified minimum disinfectant residual must be kept for a period of not less than 10 years.

2. Records of the lowest daily residual disinfectant concentration, and records of the date and duration of any failure to maintain the department-prescribed minimum residual disinfectant concentration for a period of more than four hours, must be kept for a period of not less than five years.

ITEM 32. Amend subparagraph **41.8(1)“d”(1)**, table, as follows:

(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 ₂ <u>7110 B-00</u>		R-1120-76		
Gross alpha ¹¹	Co-precipitation			00-02		7110C, <u>7110 C-00</u>				
Radium-226	Radon emanation	903.1	p. 16	Ra-04	p. 19	305, 7500-Ra C, <u>7500-Ra C-01</u>	D 3454-97 ₂ <u>05</u>	R-1141-76	Ra-04	NY ⁹
	Radiochemical	903.0	p. 13	Ra-03		304, 7500-Ra B, <u>7500-Ra B-01</u>	D 2460-97 ₂ <u>07</u>	R-1140-76		GA ¹⁴
Radium-228	Radiochemical	904.0	p. 24	Ra-05	p. 19	7500-Ra D ₂ <u>7500-Ra D-01</u>		R-1142-76		NY ⁹ NJ ¹⁰

Contaminant	Methodology	Reference (method or page number)								
		EPA ¹	EPA ²	EPA ³	EPA ⁴	SM ⁵	ASTM ⁶	USGS ⁷	DOE ⁸	Other
Uranium ¹²	Radiochemical	908.0				7500-U B ₂ <u>7500-U B-00</u>				<u>GA¹⁴</u>
	Fluorometric	908.1				7500-U C (17 th edition)	D 2907-97	R-1180-76 R-1181-76	U-04	
	<u>ICP-MS</u>	<u>200.8¹³</u>				<u>3125</u>	<u>D 5673-03,</u> <u>05, 10</u>			
	Alpha spectrometry			00-07	p. 33	7500-U C ₂ <u>7500-U C-00</u>	D 3972-97 ₂ <u>02, 09</u>	R-1182-76	U-02	
	Laser phosphorimetry						D 5174-97 ₂ <u>02, 07</u>			
	<u>Alpha Liquid</u>						<u>D6239-09</u>			
	<u>Scintillation</u> <u>Spectrometry</u>									
Man-made:										

Contaminant	Methodology	Reference (method or page number)								
		EPA ¹	EPA ²	EPA ³	EPA ⁴	SM ⁵	ASTM ⁶	USGS ⁷	DOE ⁸	Other
Radioactive Cesium	Radiochemical	901.0	p. 4			7500-Cs B ₂ <u>7500-Cs B-00</u>	D 2459-72	R-1111-76		
	Gamma ray spectrometry	901.1			p. 92	7120, <u>7120-97</u>	D 3649-91 ₂ <u>98a, 06</u>	R-1110-76	4.5.2. 3	
Radioactive Iodine	Radiochemical	902.0	p. 6 p. 9			7500-I B ₂ <u>7500-I B-00</u> 7500-I C ₂ <u>7500-I C-00</u> 7500-I D ₂ <u>7500-I D-00</u>	D 3649-91 ₂ <u>98a, 06</u>			
	Gamma ray spectrometry	901.1			p. 92	7120, <u>7120-97</u>	D 4785-93 ₂ <u>00a, 08</u>		4.5.2. 3	
Radioactive Strontium 89, 90	Radiochemical	905.0	p. 29	Sr-04	p. 65	303, 7500-Sr B ₂ , <u>7500-Sr B-01</u>		R-1160-76	Sr-01 Sr-02	
Tritium	Liquid scintillation	906.0	p. 34	H-02	p. 87	306, 7500- ³ H	D 4107-91 ₂	R-1171-76		

Contaminant	Methodology	Reference (method or page number)								
		EPA ¹	EPA ²	EPA ³	EPA ⁴	SM ⁵	ASTM ⁶	USGS ⁷	DOE ⁸	Other
Gamma emitters	Gamma ray spectrometry	901.1 902.0 901.0			p. 92	B, <u>7500-³H</u> B-00 7120 7500-Cs B ₂ <u>7500-Cs B-00</u> 7500-I B ₂ <u>7500-I B-00</u>	<u>98</u> (Reapproved 2002), 08 D 3649-91 ₂ <u>98a, 06</u> D 4785-93 ₂ <u>00a, 08</u>	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 of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, EPA West, 1301 Constitution Avenue NW, Room B135, Washington, DC 20460 (telephone (202)566-2426); or at the Office of Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC.

¹"Prescribed Procedures for Measurement of Radioactivity in Drinking Water," EPA 600/4-80-032, August 1980. Available at the US Department of Commerce, NTIS, 5285 Port Royal Road, Springfield, VA 22161 (telephone (800)553-6847) PB 80-224744.

²"Interim Radiochemical Methodology for Drinking Water," EPA 600/4-75-008(revised), March 1976. Available at NTIS, ibid. PB 253258.

³"Radiochemistry Procedures Manual," EPA 520/5-84-006, December 1987. Available at NTIS, ibid. PB 84-215581.

⁴“Radiochemical Analytical Procedures for Analysis of Environmental Samples,” March 1979. Available at NTIS, *ibid.* EMSL LV 053917.

⁵Standard Methods for the Examination of Water and Wastewater, 13th, 17th, 18th, 19th ~~or~~ 20th, 21st, and 22nd editions, 1971, 1989, 1992, 1995, 1998, 2005, 2012. Available at American Public Health Association, ~~1015 Fifteenth Street NW, 800 I Street,~~ Washington, DC ~~20005~~ 20001-3710. Methods 302, 303, 304, 305, and 306 are only 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, ~~and~~ 20th, 21st, and 22nd editions. Method 7110C and Method 7500-U C Alpha spectrometry is are in the 18th, 19th, ~~and~~ 20th, 21st, and 22nd editions. Method 7500-U C Fluorimetric Uranium is only in the 17th and 21st editions. ~~Method 7500-U C Alpha spectrometry is only in the 18th, 19th, and 20th editions.~~ Method 7120 is only in the 19th, ~~and~~ 20th, 21st, and 22nd editions. Method 3125 is only in the 20th edition. Methods 7110 B-00, 7110C-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 are available online at <http://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.

⁶Annual Book of ASTM Standards, Vol. 11.01 and 11.02, 19992002. Any year containing the cited version of the method may be used. Available at ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

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 United States Geological Survey, 1977. Available at US Geological Survey (USGS) Information Services, Box 25286, Federal Center, Denver, CO 80225-0425.

⁸“EML Procedures Manual,” 28th (1997) or 27th (1990) editions, 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. Available at the Environmental Measurements Laboratory, US Department of Energy (DOE), 376 Hudson Street, New York, NY 10014-3621.

⁹“Determination of Ra-226 and Ra-228 (Ra-02),” January 1980, revised June 1982. Available at 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. Available at 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.

¹¹Natural 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.

¹²If 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, which is published in “Methods for the Determination of Metals in Environmental Samples – Supplement 1,” EPA 600-R-94-111, May 1994. Available at 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. Available from Environmental Resources Center, Georgia Institute of Technology, 620 Cherry Street, Atlanta, GA 30332-0335, telephone: 404/894-3776.

ITEM 33. Amend subparagraph **42.1(2)“a”(1)** as follows:

(1) Violation of the MCL for ~~total coliforms when fecal coliform or *E. coli* are present in the water distribution system~~, as specified in 567—paragraph ~~41.2(1)“b.”~~ 41.2(1)“a.”

ITEM 34. Rescind and reserve subparagraph **42.1(2)“a”(2)**.

ITEM 35. Adopt the following new subparagraph **42.1(2)“a”(11)**:

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

ITEM 36. Amend subparagraph **42.1(2)“b”(2)** as follows:

(2) Initiate consultation with the department as soon as practical, but no later than 24 hours after the system learns of the violation or situation, to determine additional public notice requirements. For consultation with department staff after normal business hours, the system should contact the department via the ~~Emergency Response~~ department’s Environmental Emergency Reporting Hotline telephone number ~~(515)281-8694~~(515)725-8694; and

ITEM 37. Amend paragraph **42.1(3)“a”** as follows:

a. Violations and situations which require Tier 2 notice. The following types of violations or situations require Tier 2 public notice:

(1) All violations of the MCL, MRDL, and treatment technique requirements, except where a Tier 1 notice is required under subrule 42.1(2);

(2) Violations of the monitoring and testing procedure requirements, where the

department determines that a Tier 2 rather than a Tier 3 public notice is required, taking into account potential health impacts and persistence of the violation;

(3) Failure to comply with the requirements of any compliance schedule prescribed in an operation permit, administrative order, or court order pursuant to 567—subrule 43.2(5); ~~and~~

(4) Failure to comply with a health advisory as determined by the department; and

(5) Failure to take corrective action or failure to maintain at least 4-log treatment of viruses (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”.

ITEM 38. Amend subparagraph **42.1(3)“b”(2)** as follows:

(2) The public water system must repeat the notice every three months as long as the violation or situation persists, unless the department determines that appropriate circumstances warrant a different repeat frequency. If the department determines that a repeat notice frequency of longer than every three months is allowed, that decision must be made in writing by the department, and must be on a case-by-case basis. In no circumstance may the repeat notice be given less frequently than once per year. Repeat notices for a ~~total~~-coliform bacteria MCL or treatment technique violation under 567—paragraph 41.2(1)“a” or 567—paragraph 41.2(1)“l” or a turbidity treatment technique violation under rule 567—43.9(455B) or 567—43.10(455B) must be made every three months or more frequently.

ITEM 39. Amend subparagraph **42.1(3)“b”(3)** as follows:

(3) A public water system using surface water or influenced groundwater with a treatment technique violation resulting from a single exceedance of the maximum allowable

turbidity limit pursuant to rule ~~567—43.5(455B)~~ or 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 the public water system learns of the violation, to determine whether a Tier 1 or Tier 2 public notice is required to protect public health. For consultation with department staff after normal business hours, the system should contact the department via the department’s Environmental Emergency Reporting Hotline telephone number (515)725-8694. If the consultation does not occur within the 24-hour period, the public water system must distribute a Tier 1 notice of the violation within the next 24 hours, or no later than 48 hours after the system learns of the violation, following the requirements of paragraphs 42.1(2) “b” and 42.1(2) “c.”

ITEM 40. Amend paragraph **42.1(4)“a”** as follows:

a. Violations and situations which require Tier 3 notice. The following types of violations or situations require Tier 3 public notice:

(1) Monitoring violations under 567—Chapters 41, 42, and 43, except where a Tier 1 notice is required under subrule 42.1(2) or where the department determines that a Tier 2 notice is required;

(2) Failure to comply with a testing procedure established in 567—Chapters 41, 42, and 43, except where a Tier 1 notice is required under subrule 42.1(2) or where the department determines that a Tier 2 notice is required;

(3) Availability of unregulated contaminant monitoring results, as required of certain public water supply systems by CFR Title 40, Part 141.40, as required under paragraph 42.1(7) “a”;

(4) Exceedance of the fluoride level of 2.0 mg/L and not exceeding the MCL of 4.0

mg/L, as required under paragraph 42.1(7) “b”;

(5) Failure to report data or analytical results required under 567—Chapters 41, 42, and 43 to the department;

(6) Failure to meet the requirements of this chapter for public notification, public education, or the development and distribution of the Consumer Confidence Report;

(7) Failure to retain a certified operator in accordance with 567—subrule 43.1(5) and the department determines that public notification is required; ~~and~~

(8) Failure to maintain records required under 567—Chapters 41, 42, and 43; and

(9) Any other situation where the department determines public notification is needed.

ITEM 41. Rescind rule 567—42.2(455B) and adopt the following **new** rule in lieu thereof:

567—42.2(455B) Lead consumer notice and public education for lead action level exceedance. All community public water supply systems (CWS) and nontransient noncommunity public water supply systems (NTNC) must comply with the lead consumer notice in accordance with 42.2(1). A CWS or NTNC system that exceeds the lead action level based on tap water samples collected in accordance with 567—paragraph 41.4(1) “c” must comply with the public education requirements in accordance with 42.2(2).

42.2(1) Lead consumer notice. All CWS and NTNC systems must provide a consumer notice of lead tap water monitoring results to persons served at the sites (taps) that are tested as listed in 42.2(455B). Any system exceeding the lead action level shall also implement the public education requirements of 42.2(2).

a. Reporting requirement. All CWS and NTNC systems must provide a notice of the individual tap results from lead tap water monitoring carried out under the requirements of 567—paragraph 41.4(1)“c” to the persons served by the water system at the specific sampling site from which the sample was taken (*e.g.*, the occupants of the residence where the tap was tested).

b. Timing of notification. A water system must provide the consumer notice as soon as practical, but no later than 30 days after the system learns of the tap monitoring results.

c. Content of the notice. The consumer notice must include the following:

- (1) Results of the lead tap water monitoring for the tap that was tested,
- (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) Contact information for the water utility, and
- (5) The lead maximum contaminant level goal of 0 mg/L and the 90th percentile lead action level of 0.015 mg/L and the definitions for these two terms from 567—rule 40.2(455B).

d. Delivery of the notice. The consumer notice must be provided to persons served at the tap that was tested, either by mail or by another method approved by the department. For example, upon approval by the department, a NTNC system could post the results on a bulletin board in the facility to allow users to review the information. The system must provide the notice to customers at sample taps tested, including consumers who do not receive water bills.

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

42.2(2) *Lead public education for lead action level exceedance.* A water system that

exceeds the lead action level based on tap water samples collected in accordance with 567— paragraph 41.4(1)“c” shall deliver the public education materials contained in 42.2(2)“a” in accordance with 42.2(2)“b”. Water systems that exceed the lead action level must sample the tap water of any customer who requests it in accordance with 42.2(2)“c.”

a. Content of written public education materials. CWS and NTNC systems must include the following elements in printed materials (*e.g.*, brochures and pamphlets) in the same order as listed in this paragraph. In addition, language in 42.2(2)“a”(1), (2), and (6) must be included in the materials exactly as written, except for the text in brackets in these paragraphs for which the water system must include system-specific information. Any additional information presented by a water system must be consistent with the information in 42.2(2)“a” and be in plain language that can be understood by the general public. Water systems must submit all written public education materials to the department prior to delivery. The department may require the system to obtain approval of the content of written public education materials prior to delivery.

(1) The following information must be included exactly as written. “IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER. [*Insert name of water system*] 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.”

(2) The following information must be included exactly as written. “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.”

(3) Sources of lead.

1. Explain what lead is.
2. Explain possible sources of lead in drinking water and how lead enters drinking water. 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).

(4) Discuss the steps the consumer can take to reduce their exposure to lead in drinking water.

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

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

area.

(6) The following information must be included exactly as written. “For more information, call us at [*insert your telephone number if applicable*] 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 <http://www.epa.gov/lead> or contact your health care provider.”

(7) Community water systems must also include the following elements:

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. Delivery of public education materials

(1) Outreach to non-English speaking consumers. For public water systems serving a large proportion of non-English speaking consumers, as determined by the department, the public education materials must contain language in the appropriate language(s) regarding the importance of the notice or contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the public education materials or to request assistance in the appropriate language.

(2) Delivery of public education at CWS. A CWS that exceeds the lead action level on the basis of tap water samples collected in accordance with 567—paragraph 41.4(1)“c” and that is not already conducting public education tasks under 42.2(2), must conduct the public education tasks within 60 days of the date of notification of the action level exceedance:

1. Deliver printed materials meeting the content requirements of 42.2(2)“a” to all bill paying customers.

2. Contact customers who are most at risk by delivering education materials that meet the content requirements of 42.2(2)“a” to local public health agencies even if they are not located within the water system’s service area, along with an informational notice that encourages distribution to all the organization’s potentially affected customers or CWS’s users. The water system 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 service area of the water system. If such lists are provided, systems must deliver education materials that meet the content requirement of 42.2(2)“a” to all organizations on the provided lists.

3. Contact customers who are most at risk by delivering materials that meet the content requirements of 42.2(2)“a” to the following organizations that are located within the water system’s service area, along with an informational notice that encourages distribution to all the organization’s potentially affected customers or community public water supply system’s users:

- Public and private schools or school boards,
- Women, Infants, and Children (WIC) and Head Start programs,
- Public and private hospitals and medical clinics,
- Pediatricians,
- Family planning clinics, and
- Local welfare agencies.

4. Make a good faith effort to locate the following organizations within the service area and deliver materials that meet the content requirements of 42.2(2)“a” to them, along with an informational notice that encourages distribution to all potentially affected customers or users.

The good faith effort to contact at-risk customers may include requesting a specific contact list of these organizations from the local public health agencies, even if the agencies are not located within the water system's service area:

- Licensed childcare centers,
- Public and private preschools,
- Obstetricians, gynecologists, and midwives.

5. No less often than quarterly, provide information on or in each water bill as long as the system exceeds the action level for lead. The message on the water bill must include the following statement exactly as written except for the text in brackets for which the water system must include system-specific information: “[*Insert name of water system*] found high levels of lead in drinking water in some homes. Lead can cause serious health problems. For more information please call [*Insert telephone number of water system*] or visit [*Insert your website here*].” The message or delivery mechanisms can be modified in consultation with the department; specifically, the department may allow a separate mailing of public education materials to customers if the water system cannot place the information on water bills.

6. Post material meeting the content requirements of 42.2(2)“a” on the water 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 so those items previously listed, systems must implement at least three activities from one or more of the following categories. The educational content and selection of these activities must be determined in consultation with the department.

- public service announcement,
- paid advertisement,

- public area information displays,
- e-mails to customers,
- public meetings,
- household deliveries,
- targeted individual customer contact,
- direct material distribution to all multi-family homes and institutions, and,
- other methods approved by the department.

9. For systems that are required to conduct monitoring annually or less frequently, 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) Continuing public education at a CWS. As long as a CWS exceeds the action level, it must repeat the activities pursuant to 42.2(2)“b”(2) as follows:

1. A CWS shall repeat the tasks contained in 42.2(2)“b”(2)“1”, 42.2(2)“b”(2)“2”, and 42.2(2)“b”(2)“8” every 12 months.

2. A CWS shall repeat the tasks contained in 42.2(2)“b”(2)“5” with each billing cycle.

3. A CWS serving a population greater than 100,000 shall post and retain material on a publicly accessible website pursuant to 42.2(2)“b”(2)“6”.

4. A CWS shall repeat the task in 42.2(2)“b”(2)“7” twice every 12 months on a schedule agreed upon with the department. The department can allow activities in 42.2(2)“b”(2) to extend beyond the 60-day requirement if needed for implementation purposes 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 public education activities prior to the end of the 60-day deadline.

(4) Delivery of public education at a NTNC system. Within 60 days of the date of notification of the action level exceedance, a NTNC system shall deliver the public education materials specified 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 and/or brochures on lead in drinking water to each person served by the non-transient non-community water system. The department may allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as it achieves at least the same coverage. If the system serves children 18 years of age and under, such as a school or childcare facility, the public education notice must be provided to the parents or legal guardians of the children.

3. For systems that are required to conduct monitoring annually or less frequently, 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.

(5) Continuing public education at a NTNC system. A NTNC system shall repeat the tasks contained in 42.2(2)“b”(4) at least once during each calendar year in which the system exceeds the lead action level. The department can allow activities in 42.2(2)“b”(4) to extend beyond the 60-day requirement if needed for implementation purposes 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 public education activities prior to the end of

the 60-day deadline.

(6) Discontinuation of public education activities. A CWS or NTNC system may discontinue delivery of public education materials if the system has met the lead action level during the most recent six-month monitoring period conducted pursuant to 567—paragraph 41.4(1)“c”. Such system shall recommence public education in accordance with 42.2(2) if it subsequently exceeds the lead action level during any monitoring period.

(7) Special population CWS allowance. A CWS that meets the following criteria may apply to the department in writing for reduced public education and notification requirements:

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

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 42.2(2)“a”(7) and must deliver the public education in accordance with 42.2(2)“b”(4) and 42.2(2)“b”(5), in lieu of 42.2(2)“b”(2) and 42.2(2)“b”(3).

(8) CWS serving 3,300 or fewer people. A CWS serving 3,300 or fewer people may limit certain aspects of their public education programs as follows:

1. The system must implement at least one of the activities listed in 42.2(2)“b”(2)“8”.

2. The system may limit the distribution of the public education materials in 42.2(2)“b”(2)“2” and 42.2(2)“b”(2)“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 42.2(2)“b”(2)“7” for the system provided the system distributes notices to every household served by the system.

c. Supplemental monitoring and notification of results. A water system that fails to meet the lead action level 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 required to collect and analyze the sample itself.

ITEM 42. Adopt the following new subparagraph **42.3(3)“b”(6)**:

(6) A report that contains information regarding a Level 1 or Level 2 Assessment required under 567—subrule 41.2(1) must include the applicable definitions:

1. “Level 1 Assessment” is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

2. “Level 2 Assessment” is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred or why total coliform bacteria have been found in our water system on multiple occasions.

ITEM 43. Rescind and reserve numbered paragraph **42.3(3)“c”(1)“6”**.

ITEM 44. Amend numbered paragraph **42.3(3)“c”(1)“7”** as follows:

7. For ~~fecal coliform~~*E. coli* analytical results under 567—subrule 41.2(1), the total

number of positive samples.

ITEM 45. Amend subparagraph **42.3(3)“f”(3)** as follows:

(3) 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 United States Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

ITEM 46. Amend subparagraph **42.3(3)“g”(5)** as follows:

~~(5) Lead 95th percentile levels above the action level (0.015 mg/L). Systems which detect lead above the action level in more than 5 percent (95th percentile) and up to and including 10 percent (90th percentile) of homes sampled: Lead information statement for all CWS. Every report must include the following lead-specific information:~~

~~1. Must include a short informational statement about the special impact of lead on children using language such as: Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline ((800)426-4791).A short informational statement about lead in drinking water and its effects on children. The statement must include the following information:~~

~~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. [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 Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

2. ~~May~~ A system may write its own educational statement, but only in consultation with the department.

ITEM 47. Amend paragraph **42.3(3)“h”** as follows:

h. Additional mandatory report requirements.

(1) The report must include the telephone number of the owner, operator, or designee of the community water system as a source of additional information concerning the report.

(2) In communities with a large proportion of non-English speaking residents, as determined by the department, the report must contain information in the appropriate language(s) regarding the importance of the report 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.

(3) The report must include information (e.g., time and place of regularly scheduled board meetings) about opportunities for public participation in decisions that may affect the

quality of the water.

(4) The systems may include such additional information as they deem necessary for the public education consistent with, and not detracting from, the purpose of the report.

(5) Systems required to comply with 567—41.7(455B), the groundwater rule, must include the following when applicable:

1. Any groundwater 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 report. The system must continue to inform the public annually until the department determines that particular significant deficiency is corrected. Each report must include the following elements:

- The nature of the particular significant deficiency and the date the significant deficiency was identified by the department;
- For each significant deficiency, the department-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed;
and
- Only if directed by the department, a system with significant deficiencies that have been corrected before the next report is issued must inform its customers of the significant deficiency, how the deficiency was corrected, and the date of correction.

2. Any groundwater system that receives notice from the department or laboratory of a fecal indicator-positive groundwater source sample that is not invalidated by the department under 567—paragraph 41.7(3)“d” must inform its customers of any fecal indicator-positive groundwater source sample in the next report. The system must continue to inform the public annually until the department determines that the fecal contamination in the groundwater source

is addressed under 567—paragraph 41.7(4)“a”. Each report must include the following elements:

- The source of the fecal contamination (if the source is known) and the dates of the fecal indicator-positive groundwater source samples;

- If the fecal contamination in the groundwater source has been addressed under 567—paragraph 41.7(4)“a” and the date of such action;

- For each fecal contamination in the groundwater 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

- If the system receives notice of a fecal indicator-positive groundwater source sample that is not invalidated by the department under 567—paragraph 41.7(3)“d”, the potential health effects using the health effects language of Chapter 42, Appendix C “Fecal coliform or E. coli” or “Fecal Indicators (enterocci or coliphage)”.

(6) Pursuant to 567—subrule 41.2(1), any system required to comply with the Level 1 assessment requirement or a Level 2 assessment requirement that is not due to an E. coli MCL violation must include in the report the text in 42.3(3)“h”(6)“1” to “3” as appropriate, filling in the blanks accordingly and including the text found in 42.3(3)“h”(6)“4” bulleted paragraphs if appropriate.

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 ACTIONS] 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 treatment technique requirement and must also include one or both of the following statements, as appropriate:

- During the past year we failed to conduct all of the required assessment(s).
- During the past year, we failed to correct all identified defects that were found during the assessment.

(7) 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 in the report the text in 42.3(3)“h”(7)“1” to “3” as appropriate, filling in the blanks accordingly and including the text

found in 42.3(3) “h”(7)“3” bulleted paragraphs if appropriate.

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 treatment technique requirement and must also include one or both of the following statements, as appropriate:

- We failed to conduct the required assessment.
- We failed to correct all sanitary defects that were identified during the assessment

that we conducted.

(8) Pursuant to subrule 567—41.2(1), if a system detects *E. coli* and violated the *E. coli* MCL, in addition to completing the table as required in 42.3(3) “c”, the system must include 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.

(9) 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 table as required in 42.3(3)“c”, the system may include a statement that explains that although they have detected *E. coli*, they are not in violation of the *E. coli* MCL.

ITEM 48. Amend paragraph **42.3(4)“c”** as follows:

c. Waiver from mailing requirements for systems serving fewer than 10,000 persons.

All community public water supply systems with fewer than 10,000 persons served will be granted the waiver, except for those systems which have the following: one or more exceedances of a maximum contaminant level, treatment technique, action level, or health advisory; an administrative order; a court order; significant noncompliance with monitoring or reporting requirements; or an extended compliance schedule contained in the operation permit. Even though a public water supply system has been granted a mailing waiver, subparagraphs 42.3(4)“a”(2) ~~to (4)~~ and (3) and paragraph 42.3(4)“b” still apply to all community public water supply systems. A mailing waiver is not allowed for the report covering the year during which one of the previously listed exceptions occurred. Systems which use the mailing waiver must:

(1) Publish the reports in one or more local newspapers serving the area in which the system is located;

(2) Inform the customers that the reports will not be mailed, either in the newspapers in which the reports are published or by other means approved by the department; and

(3) Make the reports available to the public upon request.

ITEM 49. Amend paragraph **42.3(4)“d”** as follows:

d. Waiver from mailing requirements for systems serving 500 or fewer in population.

All community public water supply systems serving 500 or fewer persons will be granted the waiver, except for those systems which have the following: one or more exceedances of a maximum contaminant level, treatment technique, action level, or health advisory; an administrative order; a court order; significant noncompliance with monitoring or reporting requirements; or an extended compliance schedule contained in the operation permit. Systems serving 500 or fewer persons which use the waiver may forego the requirements of subparagraphs 42.3(4)“c”(1) and (2) if they provide notice at least once per year to their customers by mail, door-to-door delivery, or by posting that the report is available upon request, in conspicuous places within the area served by the system acceptable to the department. A mailing waiver is not allowed for the report covering the year during which one of the previously listed exceptions occurred. Even though a public water supply system has been granted a mailing waiver, subparagraphs 42.3(4)“a”(2) ~~to (4)~~ and (3) and paragraph 42.3(4)“b” still apply to all community public water supply systems.

ITEM 50. Adopt the following **new** paragraph **42.4(1)“d”**:

d. Groundwater rule. Additional reporting requirements for the groundwater rule are listed in 567—paragraph 41.7(6)“a”.

ITEM 51. Adopt the following new paragraph **42.4(1)“e”**:

e. Coliform rule. Additional reporting requirements for the coliform rule are listed in 567—paragraph 41.2(1)“n”.

ITEM 52. Amend the subparagraph **42.4(2)“a”(1)**, introductory paragraph, as follows:

(1) Except as provided in 42.4(2)“a”(1)“8,” a water system shall report the information specified below for all tap water samples specified in 567—paragraph 41.4(1)“c” and for all water quality parameter 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) (i.e., every six months, annually, or every three years). 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 as specified in 41.4(1)“c” and 41.4(1)“d”

(1 to 8 no change.)

ITEM 53. Amend subparagraph **42.4(2)“a”(2)** as follows:

(2) Certain systems that do not have enough taps that can provide first-draw samples that have met the six-hour stand time criteria, such as an NTNC that has 24-hour operation or a CWS that meets the criteria of ~~42.2(4)“g”(1) and (2)~~ 42.2(2)“b”(7), must either:

1. In the case where 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 selected by

the system, 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 include this information in writing with the lead and copper tap sample results required to be submitted pursuant to 567—paragraph 41.4(1)“d”(1)“1.”

ITEM 54. Amend subparagraph **42.4(2)“a”(3)** as follows:

(3) ~~No later than 60 days after the addition of a new source or any change in water treatment, unless the department specifies earlier notification,~~ At a time specified by the department, or if no specific time is designated by the department, then as early as possible prior to the addition of a new source or any long-term change in water treatment, a water system that has optimized corrosion control under 567—subparagraph 43.7(1)“b”(3), a water system subject to reduced monitoring pursuant to 567—paragraph 41.4(1)“c”(4)“4,” or a water system subject to a monitoring waiver pursuant to 567—subparagraph 41.4(1)“c”(7), shall send written documentation to the department describing the change or addition. The department must review and approve the addition of a new source or long-term change in treatment before it is implemented by the water system. Examples of long-term treatment changes include the addition of a new treatment process or modification of an existing treatment process. Examples of modifications include switching secondary disinfectants, switching coagulants (e.g., alum to ferric chloride), and switching corrosion inhibitor products (e.g., orthophosphate to blended phosphate.) Long-term changes can include dose changes to existing chemicals if the system is planning long-term changes to its finished water pH or residual inhibitor concentration. Long-term treatment changes would not include chemical dose fluctuations associated with daily water quality changes. In those instances where prior department approval of the treatment change or

new source is not required, water systems are encouraged to provide the notification to the department beforehand to minimize the risk that the treatment change or new source will adversely affect optimal corrosion control.

ITEM 55. Amend subparagraph **42.4(2)“e”(1)** as follows:

(1) ~~Within~~ No later than 12 months after the end of a monitoring period in which a system exceeds the lead action level in sampling referred to in 567—paragraph 43.7(4)“a,” the system ~~shall demonstrate in writing~~ must submit written documentation to the department ~~that it has conducted a materials evaluation, including of the~~ material evaluation pursuant to 567—subparagraph 41.4(1)“c”(1), ~~to~~ identify the initial number of lead service lines in its distribution system at the time the system exceeds the lead action level, and ~~shall~~ provide the department with the system’s schedule for replacing annually at least 7 percent of the initial number of lead service lines in its distribution system.

ITEM 56. Amend subparagraph **42.4(2)“e”(2)** as follows:

(2) ~~Within~~ No later than 12 months after the end of a monitoring period in which a system exceeds the lead action level in sampling referred to in 567—paragraph 43.7(4)“a”, and every 12 months thereafter, the system shall demonstrate in writing that the system has either:

1. Replaced in the previous 12 months at least 7 percent of the initial lead service lines (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 which 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 and those lines which meet the criteria in 567—paragraph 43.7(4)“c” shall equal at least 7 percent of the initial number of lead lines identified under ~~567—paragraph 43.7(4)“b”~~ 42.4(2)“e”(1) or the percentage specified by the department under 567—paragraph 43.7(4)“e.” A lead service line 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.

ITEM 57. Amend paragraph **42.4(2)“f”** as follows:

f. Public education program reporting requirements.

(1) Any water system that is subject to the public education requirements in ~~567—42.2(455B)~~ 42.2(2) shall, within ten days after the end of each period in which the system is required to perform public education tasks in accordance ~~within 42.2(4)~~ with 42.2(2)“b”, send written documentation to the department that contains:

1. A demonstration that the system has delivered the public education materials that meet the content requirements in ~~42.2(2) and 42.2(3)~~ 42.2(2)“a” and the delivery requirements in ~~42.2(4)~~ 42.2(2)“b”; and

2. A list of all the newspapers, radio stations, television stations, facilities and organizations to which the system delivered public education materials during the period in which the system was required to perform public education tasks.

(2) Unless required by the department, a system that previously has submitted the information required by 42.4(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 public

education materials were distributed to the same list previously submitted. The certification is due within ten days after the end of each period in which the system is required to perform public education.

(3) No later than 3 months following the end of the monitoring period, each system must mail a sample copy of the consumer notification of tap results to the department along with a certification that the notification has been distributed in a manner consistent with the requirements of 42.2(1).

ITEM 58. Amend numbered paragraph **42.4(3)“a”(1)“4”** as follows:

4. Does not use a treatment technique such as blending to achieve compliance with a maximum contaminant level, treatment technique, action level, or health advisory.

The reports shall be completed as described in 42.4(3)“a”(2) and maintained at the facility for inspection by the department for a period of five years. For CWS and NTNC PWSs, the monthly operation report must be signed by the certified operator in charge. For TNC PWSs, the monthly operation report, if required by the department, must be signed by the owner or the owner’s designee.

All public water supplies using a surface water or influenced groundwater source must also comply with the applicable record-keeping requirements in 567—43.5(455B), 567—43.9(455B), ~~and 567—43.10(455B)~~, and 567—43.11(455B).

ITEM 59. Amend paragraph **42.4(3)“b,”** introductory paragraph, as follows:

b. Chemical quality and application. Any drinking water system chemical which is added to raw, partially treated, or finished water must be suitable for the intended use in a

potable water system. Effective on October 1, 2000, the chemical must be certified ~~to meet the current~~ by an American National Standards Institute (ANSI) accredited third party for conformance with American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 60, if such certification exists for the particular product, unless certified chemicals are not reasonably available for use, in accordance with guidelines provided by the department. If the chemical is not certified ~~by~~ to meet the ANSI/NSF Standard 60 or no certification is available, the person seeking to supply or use the chemical must prove to the satisfaction of the department that the chemical is not toxic or otherwise a potential hazard in a potable public water supply system.

The supplier of water 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 effectiveness of the treatment will be monitored through an appropriate indicative parameter.

ITEM 60. Amend numbered paragraph **42.4(3)“b”(1)“1”** as follows:

1. When required. Continuous disinfection must be provided at all public water supply systems, except for the following: groundwater supplies that have no treatment facilities or have only fluoride, sodium hydroxide or soda ash addition and that meet the bacterial standards as provided in ~~567—41.2(455B)~~ 567—subrule 41.2(1) and do not show other actual or potential hazardous contamination by microorganisms. For a noncommunity system that only uses a cation-exchange softening unit that meets the requirements of 42.3(4)“a”(7), the

requirement for continuous disinfection is based upon its history of both coliform bacteria detection and compliance with the coliform bacteria monitoring requirements as provided in 567—subrule 41.2(1).

ITEM 61. Amend numbered paragraph **42.4(3)“b”(1)“3”** as follows:

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 water 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.

ITEM 62. Amend numbered paragraph **42.4(3)“c”(2)“3”** as follows:

3. The information on the samples taken in the distribution system in conjunction with total coliform monitoring listed in 567—paragraph 43.5(2)“d” and pursuant to 567—subparagraph 41.2(1)“c”(7).

ITEM 63. Adopt the following **new** subparagraph **42.4(3)“c”(3)**:

(3) Total inactivation ratio. 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 monthly operation report. If the total inactivation ratio is below 1.0, the system must notify the

department within 24 hours.

ITEM 64. Amend the subparagraph **42.4(3)“d”(3)**, introductory sentence, as follows:

(3) Disinfectants. In addition to the requirements in 567—subparagraph 41.2(1)“c”~~(2)~~(7), systems must report the information specified in the following table:

(table no change)

ITEM 65. Adopt the following new paragraph **42.5(1)“i”**:

i. Groundwater rule. Additional recordkeeping requirements for the groundwater rule are listed in 567—paragraph 41.7(6)“b”.

ITEM 66. Adopt the following new paragraph **42.5(1)“j”**:

j. Level 1 and 2 Assessment forms and corrective action. These recordkeeping requirements pertain to the coliform bacteria requirements in 567—subrule 41.2(1).

(1) The system must maintain any assessment form, regardless of who conducts the assessment, and documentation of corrective actions completed as a result of those assessments, or other available summary documentation of the sanitary defects and corrective actions taken under 567—paragraph 41.2(1)“m” for department review. This record must be maintained by the system for a period not less than five years after completion of the assessment or corrective action.

(2) The system 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 as provided for under 567—paragraph 41.2(1)“j”.

ITEM 67. Rescind the “Microbiological Contaminants” section of 567—Chapter 42

Appendix A and adopt the following **new** Microbiological Contaminants section in lieu thereof:

Contaminant	Standard Health Effects Language
Microbiological Contaminants	
Coliform assessment and/or corrective action violations, under 567—subrule 41.2(1)	<p>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 a 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 assessments to identify problems and to correct any problems that are found. [THE SYSTEM MUST INCLUDE THE FOLLOWING APPLICABLE SENTENCES]</p> <ul style="list-style-type: none"> • We failed to conduct the required assessment. • We failed to correct all identified sanitary defects that were found during the assessment(s).
<i>E. coli</i>	<p><i>E. coli</i> 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.</p>
<i>E. coli</i> assessment and/or corrective action violations, under 567—subrule 41.2(1)	<p><i>E. coli</i> 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 violated the standard for <i>E. coli</i>, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct a detailed assessment to identify problems and to correct any problems that are found. [THE SYSTEM MUST INCLUDE THE FOLLOWING APPLICABLE SENTENCES]</p> <ul style="list-style-type: none"> • We failed to conduct the required assessment.

Contaminant	Standard Health Effects Language
	<ul style="list-style-type: none"> We failed to correct all identified sanitary defects that were found during the assessment(s).
Seasonal System Treatment Technique Violation	<ul style="list-style-type: none"> When this violation includes the failure to monitor for total coliforms or <i>E. coli</i> prior to serving water to the public, the mandatory language for monitoring violation in 42.1(5)“c”(2) must be used. When this violation includes failure to complete other actions, the appropriate elements found in 42.1(5)“c” to describe the violation must be used.
Fecal Indicators for the Groundwater Rule (<i>E. coli</i> , enterococci, and coliphage)	Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

ITEM 68. Adopt the following new “Groundwater Treatment Technique Requirements” section in 567—Chapter 42 Appendix A, after “Microbiological Contaminants” section:

Contaminant	Standard Health Effects Language
Groundwater Treatment Technique Requirements	
Groundwater rule treatment technique violations	<p>Inadequately treated or inadequately protected water may contain disease-causing organisms.</p> <p>These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches.</p>

ITEM 69. Rescind the “Bacteria” section of 567—Chapter 42, Appendix C, and adopt the following **new** “Microbiological

Contaminants” section in lieu thereof:

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Microbiological Contaminants						
Total coliform bacteria	TT		TT	N/A	Naturally present in the environment	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 a potential pathway exists through which contamination may enter the drinking water distribution system.
<i>E. coli</i>	Routine and repeat samples are total coliform- positive and either is <i>E. coli</i> -		Routine and repeat samples are total coliform- positive and either is <i>E. coli</i> -	0	Human and animal fecal waste	<i>E. coli</i> 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.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
	positive, or system fails to take repeat samples following <i>E. coli</i> - positive routine sample, or system fails to analyze total coliform- positive repeat sample for <i>E. coli</i> .		positive, or system fails to take repeat samples following <i>E. coli</i> - positive routine sample, or system fails to analyze total coliform- positive repeat sample for <i>E. coli</i> .			
Fecal Indicators (enterococci or coliphage)	TT		TT	N/A	Human and animal fecal waste	Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
						<p>short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.</p>

ITEM 70. Amend subrule **43.1(7)** as follows:

43.1(7) Sanitary surveys. Each public water supply system must have a periodic sanitary survey, conducted by the department or its designee, which is a records review and on-site inspection of the system. Systems must provide the department, at its request, any existing information that will enable the department to conduct the sanitary survey. The inspection evaluates the system's ability to produce and distribute safe drinking water and identifies improvements necessary to maintain or improve drinking water quality. The sanitary survey includes review and inspection of the following areas: water source; treatment facilities; ~~(treatment, storage, distribution system);~~ distribution system; finished water storage; pumps, pump facilities, controls and other equipment; monitoring, reporting, and data verification including self-monitoring requirements; system operation and management; maintenance; ~~self-monitoring requirements;~~ properly certified operators; and records. A report of the sanitary survey is issued by the department or its designee, and may include both enforceable required actions for remedying significant deficiencies and nonenforceable recommended actions. The frequency of the sanitary survey inspection must be at least once every five years for noncommunity systems; and ~~once every five~~ three years for community systems ~~using groundwater, and once every three years for community systems using surface water or influenced groundwater sources.~~ The department or its designee must provide the system with a written notice describing any significant deficiencies identified no later than 30 days after the department identifies the significant 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 within the time period specified in the report, indicating

how and on what schedule the system will address significant deficiencies noted in the survey. At a maximum, the written response must be received within ~~45~~30 days of receiving the survey report. All systems must take the steps necessary to address significant deficiencies identified in the sanitary survey report that are within the control of the system and its governing body.

ITEM 71. Amend paragraph **43.3(2)**“*a*,” introductory paragraph, as follows:

a. The standards for a project are the Ten States Standards as adopted through ~~2007~~ 2012 and the American Water Works Association (AWWA) Standards as adopted through ~~2010~~ 2016 and 43.3(7) to 43.3(9). To the extent of any conflict between the Ten States Standards and the American Water Works Association Standards and 43.3(7) to 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 to 3 no change.)

ITEM 72. Amend subparagraph **43.3(7)**“*c*”(2) as follows:

(2) Groundwater sources. Water samples collected from groundwater sources in accordance with 43.3(7)“*c*”(1) shall be conducted 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. Water samples should also be analyzed for alkalinity, ~~ammonia~~, pH, calcium, chloride, copper, hardness, iron, magnesium, manganese, potassium, silica, specific conductance, sodium, sulfate, filterable and nonfilterable solids, and zinc.

ITEM 73. Amend subparagraph **43.3(7)“c”(3)**, Table A, as follows:

TABLE A: SEPARATION DISTANCES

SOURCE OF CONTAMINATION	REQUIRED MINIMUM <u>LATERAL</u> DISTANCE FROM WELL <u>AS HORIZONTAL ON THE GROUND SURFACE, IN FEET</u>	
	Deep Well ¹	Shallow Well ¹
WASTEWATER STRUCTURES:		
Point of Discharge to Ground Surface		
Sanitary & industrial discharges	400	400
Water treatment plant wastes	50	50
Well house floor drains	5	5
Sewers & Drains ²		
Sanitary & storm sewers, drains	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer pipe	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer main pipe
Sewer force mains	0 – 75 feet: prohibited 75 – 400 feet if water main pipe 400 – 1000 feet if water main or sanitary sewer pipe	0 – 75 feet: prohibited 75 – 400 feet if water main pipe 400 – 1000 feet if water main or sanitary sewer main pipe
Water plant treatment process wastes that are treated onsite	0 – 5 feet: prohibited 5 – 50 feet if sanitary sewer pipe	0 – 5 feet: prohibited 5 – 50 feet if sanitary sewer main pipe
Water plant wastes to sanitary sewer	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer pipe	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer main pipe

SOURCE OF CONTAMINATION	REQUIRED MINIMUM <u>LATERAL DISTANCE FROM WELL AS HORIZONTAL ON THE GROUND SURFACE, IN FEET</u>	
	Deep Well ¹	Shallow Well ¹
Well house floor drains to sewers	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer pipe	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer main pipe
Well house floor drains to surface	0 – 5 feet: prohibited 5 – 50 feet if sanitary sewer pipe	0 – 5 feet: prohibited 5 – 50 feet if sanitary sewer main pipe
Land Disposal of Treated Wastes		
Irrigation of wastewater	200	400
Land application of solid wastes ³	200	400
Other		
Cesspools & earth pit privies	200	400
Concrete vaults & septic tanks	100	200
Lagoons	400	1000
Mechanical wastewater treatment plants	200	400
Soil absorption fields	200	400
CHEMICALS:		
Chemical application to ground surface	100	200
Chemical & mineral storage above ground	100	200
Chemical & mineral storage on or under ground	200	400
Transmission pipelines (such	200	400

SOURCE OF CONTAMINATION	REQUIRED MINIMUM <u>LATERAL DISTANCE FROM WELL AS HORIZONTAL ON THE GROUND SURFACE</u> , IN FEET	
	Deep Well'	Shallow Well'
as fertilizer, liquid petroleum, or anhydrous ammonia)		
ANIMALS:		
Animal pasturage	50	50
Animal enclosure	200	400
Earthen silage storage trench or pit	100	200
Animal Wastes		
Land application of liquid or slurry	200	400
Land application of solids	200	400
Solids stockpile	200	400
Storage basin or lagoon	400	1000
Storage tank	200	400
MISCELLANEOUS:		
Basements, pits, sumps	10	10
Cemeteries	200	200
Cisterns	50	100
Flowing streams or other surface water bodies	50	50
<u>GHEX loop boreholes</u>	<u>200</u>	<u>400</u>
Railroads	100	200
Private wells	200	400

SOURCE OF CONTAMINATION	REQUIRED MINIMUM <u>LATERAL DISTANCE FROM WELL AS HORIZONTAL ON THE GROUND SURFACE, IN FEET</u>	
	Deep Well ¹	Shallow Well ¹
Solid waste landfills and disposal sites ⁴	1000	1000

¹Deep and shallow wells, as defined in 567—40.2(455B): A deep well is a well located and constructed in such a manner 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. A shallow well is a well located and constructed in such a manner 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.

²The separation distances are dependent upon two factors: the type of piping that is in the existing sewer or drain, as noted in the table, and that the piping was properly installed in accordance with the standards.

³Solid wastes are those derived from the treatment of water or wastewater. Certain types of solid wastes from water treatment processes may be land-applied within the separation distance on an individual, case-by-case basis.

⁴Solid waste means garbage, refuse, rubbish, and other similar discarded solid or semisolid materials, including but not limited to such materials resulting from industrial, commercial, agricultural, and domestic activities.

ITEM 74. Amend subrule 43.3(8) as follows:

43.3(8) *Drinking water system components.* Any drinking water system component which comes into contact with raw, partially treated, or finished water must be suitable for the intended use in a potable water system. The component must ~~meet the current~~ be certified by an American National Standards Institute (ANSI) accredited third party for conformance with American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 61

specifications, if such specification exists for the particular product, unless approved components are not reasonably available for use, in accordance with guidance provided by the department. If the component does not meet the ANSI/NSF Standard 61 specifications or no specification is available, the person seeking to supply or use the component must prove to the satisfaction of the department that the component is not toxic or otherwise a potential hazard in a potable public water supply system.

ITEM 75. Amend subparagraph **43.3(10)“b”(1)** as follows:

(1) Inorganic compounds. The department identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for the inorganic contaminants listed in 567—paragraph 41.3(1)“b,” except ~~arsenic and~~ fluoride.

(table no change)

ITEM 76. Amend paragraph **43.5(2)“a”** as follows:

a. Disinfection treatment criteria. The disinfection treatment must be sufficient to ensure that the total treatment processes of that system achieve at least 99.9 percent (3-log) inactivation or removal of *Giardia lamblia* cysts and at least 99.99 percent (4-log) inactivation or removal of viruses, acceptable to the department. 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. Each system is required to calculate the total inactivation ratio ($CT_{\text{calculated}}/CT_{\text{required}}$) each day the treatment plant is in operation. The system’s total inactivation ratio must be equal to or greater than 1.0 in order to ensure that the minimum inactivation and removal requirements have been

achieved. If the system’s total inactivation ratio for the day is below 1.0, the system must notify the department within 24 hours.

ITEM 77. Amend subparagraph **43.5(4)“a”(1)** as follows:

(1) Turbidity analytical methodology. Turbidity analysis shall be conducted using the following methodology: methodology in the following table. Each turbidimeter must be calibrated 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 standards, the manufacturer’s proprietary calibration confirmation device, or by a method approved by the department. 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.

Methodology	Analytical Method				
	EPA	SM	GLI	HACH	Other
Nephelometric ⁵	180.1 ¹	2130B ²	Method 2 ³	FilterTrak 10133 ⁴	
<u>Laser Nephelometry (on-line)</u>					<u>Mitchell M5271⁶</u> ; <u>Mitchell M5331</u> <u>Rev. 1.2¹⁰</u>
<u>LED Nephelometry (on-line)</u>					<u>Mitchell M5331⁷</u> ; <u>Mitchell M5331</u> <u>Rev. 1.2¹⁰</u> ; <u>AMI</u> <u>Turbiwell⁹</u>
<u>LED Nephelometry (portable)</u>					<u>Orion AQ4500⁸</u>

Methodology	Analytical Method				
	EPA	SM	GLI	HACH	<u>Other</u>
<u>360 degree Nephelometry</u>					<u>Hach Method 10258¹¹</u>

¹“Methods for the Determination of Inorganic Substances in Environmental Samples,” EPA-600/R-93-100, August 1993. Available at NTIS, PB94-121811.

²Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, 19th edition, 1995, ~~or~~ 20th edition, 1998, 21st edition, 2005, and 22nd edition, 2012 (any of ~~the three~~ these editions may be used), American Public Health Association, ~~1015 Fifteenth Street NW,~~ 800 I Street, NW, Washington, DC ~~20005~~ 20001-3710.

³GLI Method 2, “Turbidity,” November 2, 1992, Great Lakes Instruments, Inc., 8855 North 55th Street, Milwaukee, WI 53223.

⁴Hach FilterTrak Method 10133, “Determination of Turbidity by Laser Nephelometry,” January 2000, Revision 2.0, Hach Co., P.O. Box 389, Loveland, CO 80539-0389, telephone (800)227-4224.

⁵Styrene divinyl benzene beads (e.g., AMCO-AEPA-1 or equivalent) and stabilized formazin (e.g., Hach StablCalTM or equivalent) are acceptable substitutes for formazin.

⁶Mitchell Method M5271, Revision 1.1. “Determination of Turbidity by Laser Nephelometry,” March 5, 2009. Available at <http://www.nemi.gov> or from Leck Mitchell, 656 Independence Valley Drive, Grand Junction, CO 81507.

⁷Mitchell Method M5331, Revision 1.1. “Determination of Turbidity by LED Nephelometry,” March 5, 2009. Available at <http://www.nemi.gov> or from Leck Mitchell, 656 Independence Valley Drive, Grand Junction, CO 81507.

⁸Orion Method AQ4500, Revision 1.0. “Determination of Turbidity by LED Nephelometry,” May 8, 2009. Available at <http://www.nemi.gov> or from Thermo Scientific, 166 Cummings Center, Beverly, MA 01915, <http://www.thermo.com>.

⁹AMI Turbiwell, “Continuous Measurement of Turbidity Using a SWAN AMI Turbiwell Turbidimeter,” August 2009. Available at <http://www.nemi.gov> or from Markus Bernasconi, SWAN Analytische Instrumente AG,

Studbachstrasse 13, CH-8340 Hinwil, Switzerland.

¹⁰Mitchell Method M5331, Revision 1.2. ‘Determination of Turbidity by LED or Laser Nephelometry.’
February 2016. Available from Dr. Leck Mitchell, 656 Independence Valley Drive, Grand Junction, CO 81507.

¹¹Hach Company. ‘Hach Method 10258 – Determination of Turbidity by 360-degree Nephelometry.’
January 2016. Available at www.hach.com.

ITEM 78. Amend subparagraph **43.5(4)“a”(5)** as follows:

(5) Residual disinfectant analytical methodology. The residual disinfectant concentrations shall be determined in compliance with one of the analytical methods in the following table. Residual disinfectant concentrations for free chlorine and combined 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 ~~calibrated~~ verified with a grab sample measurement at least every ~~five~~ 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 conducted.

Disinfectant Analytical Methodology

Residual	Methodology	<u>Standard Method</u> s ^{1,2}	<u>Standard Methods</u> <u>Online</u> ⁶	<u>Other</u>
Free chlorine	Amperometric Titration	4500-C1 D	<u>4500-C1 D-00</u>	<u>D1253-03⁴, 08, 14</u>
	DPD Ferrous Titrimetric	4500-C1 F	<u>4500-C1 F-00</u>	

Residual	Methodology	<u>Standard Method</u> s ^{1,2}	<u>Standard Methods</u> <u>Online</u> ⁶	<u>Other</u>
	DPD Colorimetric Syringaldazine (FACTS) <u>On-line Chlorine Analyzer</u> <u>Amperometric Sensor</u> <u>Indophenol Colorimetric</u>	4500-Cl G 4500-Cl H	<u>4500-Cl G-00</u> <u>4500-Cl H-00</u>	<u>Hach Method</u> <u>10260</u> ¹⁰ <u>EPA 334.0</u> ⁷ <u>ChloroSense</u> ⁸ <u>Hach Method</u> <u>10241</u> ¹¹
Total chlorine	Amperometric Titration Amperometric Titration (low-level measurement) DPD Ferrous Titrimetric DPD Colorimetric Iodometric Electrode <u>On-line Chlorine Analyzer</u> <u>Amperometric Sensor</u>	4500-Cl D 4500-Cl E 4500-Cl F 4500-Cl G 4500-Cl I	<u>4500-Cl D-00</u> <u>4500-Cl E-00</u> <u>4500-Cl F-00</u> <u>4500-Cl G-00</u> <u>4500-Cl I-00</u>	<u>D1253-03</u> ⁴ , <u>08, 14</u> <u>Hach Method</u> <u>10260</u> ¹⁰ <u>EPA 334.0</u> ⁷ <u>ChloroSense</u> ⁸
Chlorine dioxide	Amperometric Titration DPD Method Amperometric Titration <u>Amperometric Sensor</u> <u>Spectrophotometric</u>	4500-ClO ₂ C 4500-ClO ₂ D 4500-ClO ₂ E	<u>4500-ClO₂ C-00</u> <u>4500-ClO₂ E-00</u>	 <u>ChlordioX Plus</u> ⁹ <u>327.0, Revision 1.1</u> ⁵

Residual	Methodology	<u>Standard Method</u> s ^{1,2}	<u>Standard Methods</u> <u>Online</u> ⁶	<u>Other</u>
Ozone	Indigo method	4500-O ₃ B ³	<u>4500-O₃ B-97</u>	

¹Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, 19th edition, 1995, ~~or~~ 20th edition, 1998, 21st edition, 2005, or 22nd edition, 2012 (any of ~~the three~~ these editions may be used), American Public Health Association, ~~1015 Fifteenth Street NW,~~ 800 I Street, NW, Washington, DC ~~20005~~ 20001-3710. Only the 18th, 19th, and 20th editions may be used for chlorine dioxide Method 4500-ClO₂ D.

²Other analytical test procedures are contained within Technical Notes on Drinking Water Methods, EPA-600/R-94-173, October 1994, which is available as NTIS PB95-104766.

³Standard Methods for the Examination of Water and Wastewater, 18th edition (1992), ~~and~~ 19th edition (1995), 21st edition (2005), and 22nd edition (2012) (~~either any~~ either any edition may be used); American Public Health Association, ~~1015 Fifteenth Street NW,~~ 800 I Street, NW, Washington, DC ~~20005~~ 20001-3710.

⁴Annual Book of ASTM Standards, Vol. 11.01, 2004; ASTM International; any year containing the cited version of the method may be used. Copies of this method may be obtained from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959.

⁵EPA 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,” US EPA, May 2005, EPA 815-R-05-008. Available online at <http://www.nemi.gov>.

⁶Standard Methods Online are available at <http://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.

⁷EPA Method 334.0, “Determination of Residual Chlorine in Drinking Water Using an On-Line Chlorine Analyzer,” August 2009. EPA 815-B-09-013. Available at <http://www.nemi.gov>.

⁸ChloroSense, “Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense.” September 2009. Available at <http://www.nemi.gov> or from Palintest Ltd., 21 Kenton Lands Road, PO Box 18395, Erlanger, KY 41018.

⁹ChlordioX Plus. “Chlorine Dioxide and Chlorite in Drinking Water by Amperometry using Disposable

Sensors,” November 2013. Available from Palintest Ltd., Jamike Avenue (Suite 100), Erlanger, KY 41018.

¹⁰Hach 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. Available at www.hach.com.

¹¹Hach Company. “Hach Method 10241 – Spectrophotometric Measurement of Free Chlorine in Finished Drinking Water.” November 2015, Revision 1.2. Available at www.hach.com.

ITEM 79. Amend paragraph **43.5(4)“b”**, introductory paragraph, as follows:

b. Monitoring requirements. A public water system that uses a surface water source or groundwater source under the influence of surface water must monitor in accordance with this paragraph ~~or some interim requirements required by the department, until filtration is installed.~~

ITEM 80. Amend subparagraph **43.5(4)“b”(1)** as follows:

(1) Turbidity.

1. Routine turbidity monitoring requirements. Turbidity measurements as required by 43.5(3) must be performed on representative samples of the system’s filtered water every four hours (or more frequently as long as measurements are recorded at equal time intervals and detailed in the turbidity protocol) that the system serves water to the public. A public water system may substitute continuous turbidity monitoring for grab sample monitoring or may monitor more frequently than every four hours if it validates the continuous measurement for accuracy on a regular basis using a ~~calibration~~ 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, method of calibration, calibration frequency,

calibration standards, method of verification, verification frequency, documentation, data collection, data recording frequency, and data reporting. For any systems using slow sand filtration or filtration treatment other than conventional treatment, direct filtration, or diatomaceous earth filtration, the department may reduce the sampling frequency to once per day if it determines that less frequent monitoring is sufficient to indicate effective filtration performance. For systems serving 500 or fewer persons, the department may reduce the turbidity sampling frequency to once per day, regardless of the type of filtration treatment used, if the department determines that less frequent monitoring is sufficient to indicate effective filtration performance. Approval shall be based upon documentation provided by the system, acceptable to the department and pursuant to the conditions of an operation permit.

2. Turbidity monitoring requirements for population greater than 100,000. A supplier of water serving a population or population equivalent of greater than 100,000 persons shall provide a continuous or rotating cycle turbidity monitoring and recording device or take hourly grab samples to determine compliance with 43.5(3). The system must meet the requirements in 43.5(4)“b”(1)“1”, including the turbidity protocol.

3. Failure of the continuous turbidity 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 it is in violation. The system must notify the department within 24 hours of both when the turbidimeter was taken off-line and when it was returned on-line.

ITEM 81. Amend numbered paragraph **43.5(4)“b”(2)“2”** as follows:

2. Residual disinfectant in the system. The residual disinfectant concentration 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—paragraph 41.2(1)“e”~~ 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 public water system that uses both a groundwater source and a surface water source or a groundwater source under direct influence of surface water 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. Heterotrophic plate count bacteria (HPC) may be measured in lieu of residual disinfectant concentration, using ~~Method 9215B, Pour Plate Method, Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992~~ the analytical methods specified in 567—subparagraph 41.2(3)“e”(1). The time from sample collection to initiation of analysis shall not exceed eight hours. ~~Samples~~ HPC samples must be kept below 10 degrees C during transit to the laboratory. All HPC samples must be analyzed by a department-certified laboratory meeting the requirements of 567—Chapter 83.

ITEM 82. Adopt the following new paragraph **43.5(5)“e”**:

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.

ITEM 83. Amend subparagraph **43.6(1)“d”(1)** as follows:

(1) Analytical methods. Systems must measure residual disinfectant concentrations 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	Standard Methods	Other Method	Residual measured ¹			
			Free Chlorine	Combined Chlorine	Total Chlorine	Chlorine Dioxide
Amperometric Titration	4500-Cl D	ASTM: D 1253-86 (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	<u>Hach Method 10260⁴</u>	X	X	X	
Syringaldazine (FACTS)	4500-Cl H		X			
<u>Amperometric Sensor</u>		<u>ChloroSense³</u>	<u>X</u>		<u>X</u>	
<u>On-Line Chlorine Analyzer</u>		<u>EPA 334.0²</u>	<u>X</u>		<u>X</u>	
<u>Indophenol Colorimetric</u>		<u>Hach Method 10241⁶</u>	<u>X</u>	<u>X</u>	<u>X</u>	
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

Methodology	Standard Methods	Other Method	Residual measured ¹			
			Free Chlorine	Combined Chlorine	Total Chlorine	Chlorine Dioxide
<u>Amperometric Sensor</u>		<u>ChlordioX</u> <u>Plus⁵</u>				<u>X</u>

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 of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA’s Drinking Water Docket, 401 M Street SW, Washington, DC 20460 (telephone: (202)260-3027); or at the Office of Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC 20408.

The following method is available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428:

Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 1996: Method D 1253-86.

The following methods are available from the American Public Health Association, ~~1015 Fifteenth Street NW, 800 I Street, NW, Washington, DC 20005~~ 20001-3710:

Standard Methods for the Examination of Water and Wastewater, 19th (1995) ~~and 20th (1998)~~, 21st (2005), and 22nd (2012) editions, American Public Health Association, ~~1995 and 1998, respectively (both editions are acceptable)~~; Methods: 4500-Cl D, 4500-Cl E, 4500-Cl F, 4500-Cl G, 4500-Cl H, 4500-Cl I, 4500-ClO₂ ~~D~~, 4500-ClO₂ E. Only the 19th and 20th editions may be used for the chlorine dioxide Method 4500-ClO₂ D.

The following methods are available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161 (telephone: (800)553-6847):

“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,” USEPA, May 2005, EPA 815-

R-05-008.

¹X indicates method is approved for measuring 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.

²EPA Method 334.0, “Determination of Residual Chlorine in Drinking Water Using an On-Line Chlorine Analyzer.” August 2009. EPA 815-B-09-013. Available at http://epa.gov/safewater/methods/analyticalmethods_ogwdw.html.

³ChloroSense, “Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense.” September 2009. Available at <http://www.nemi.gov> or from Palintest Ltd., 21 Kenton Lands Road, PO Box 18395, Erlanger, KY 41018.

⁴Hach Method 10260, “Determination of Chlorinated Oxidants (Free and Total) in Water Using Disposable Planar Reagent-filled Cuvettes and Mesofluidic Channel Colorimetry,” April 2013. Available at Hach Company, PO Box 389, Loveland, CO 80539, or www.hach.com.

⁵ChlordioX Plus. “Chlorine Dioxide and Chlorite in Drinking Water by Amperometry using Disposable Sensors,” November 2013. Available from Palintest Ltd., Jamike Avenue (Suite 100), Erlanger, KY 41018.

³⁴Hach Company. “Hach Method 10241 – Spectrophotometric Measurement of Free Chlorine in Finished Drinking Water,” November 2015, Revision 1.2. Available at www.hach.com.

ITEM 84. Amend subparagraph **43.6(2)“c”(1)** as follows:

(1) Analytical methods. Systems required to monitor disinfectant byproduct precursors must use the following methods, which must be conducted by a certified laboratory pursuant to 567—Chapter 83, unless otherwise specified.

Approved Methods for Disinfection Byproduct Precursor Monitoring¹

Analyte	Methodology	EPA	Standard Methods	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	<u>415.3 Rev.</u> <u>1.2</u>	5310B or 5310B-00		
	Persulfate-UV or heated-persulfate oxidation	<u>415.3 Rev.</u> <u>1.2</u>	5310C or 5310C-00		
	Wet oxidation	415.3 Rev. 1.1, <u>415.3 Rev. 1.2</u>	5310D or 5310D-00		
pH ³	Electrometric	150.1	4500-H ⁺ -B	D 1293-84	
		150.2			
<u>Specific Ultraviolet Absorbance (SUVA)</u>	<u>Calculation using DOC and UV₂₅₄ data</u>	<u>415.3 Rev.</u> <u>1.2</u>			
Total Organic Carbon ⁴	High temperature combustion	<u>415.3 Rev.</u> <u>1.2</u>	5310B or 5310B-00		

Analyte	Methodology	EPA	Standard Methods	ASTM	Other
	Persulfate-UV or heated-persulfate oxidation	<u>415.3 Rev. 1.2</u>	5310C or 5310C-00		<u>Hach Method 10267⁷</u>
	Wet oxidation	415.3 Rev. 1.1, <u>415.3 Rev. 1.2</u>	5310D or 5310D-00		
	<u>Ozone Oxidation</u>				<u>Hach Method 10261⁸</u>
Ultraviolet Absorption at 254 nm ⁵	UV absorption <u>Spectrophotometry</u>	415.3 Rev. 1.1, <u>415.3 Rev. 1.2</u>	5910B or 5910B-00, <u>11</u>		

¹The 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 of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, 401 M Street SW, Washington, DC 20460 (telephone: (202)260-3027); or at the Office of Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC 20408.

The following methods are available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428:

Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 1996: Method D 1067-92B and Method D 1293-84.

Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 2001 (or any year containing the cited version): Method D 6581-00.

The following methods are available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161 (telephone: (800)553-6847):

“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,” USEPA, 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,” USEPA, 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,” USEPA, 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,” USEPA, September 2009, EPA/600/R-09/122: Method 415.3 Revision 1.2.

The following methods are available from the American Public Health Association, ~~1015 Fifteenth Street~~ 800 I Street, NW, Washington, DC 20005 ~~20001-3710~~:

Standard Methods for the Examination of Water and Wastewater, 19th (1995), 21st (2005), and 22nd (2012) editions, American Public Health Association, ~~1995~~: 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).

Standard Methods for the Examination of Water and Wastewater, Supplement to the 19th edition (1996), 21st (2005), and 22nd editions, American Public Health Association, ~~1996~~: Methods: 5310B, 5310C, and 5310D.

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 is available from the Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, CO 80225-0425.

²Dissolved Organic Carbon (DOC). DOC and UV₂₅₄ 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, DOC samples must be filtered 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. Inorganic carbon must be removed 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.

³pH must be measured by a laboratory certified by the department to perform analysis under 567—Chapter 83; a Grade II, III or IV operator meeting the requirements of 567—Chapter 81; or any person under the supervision of a Grade II, III or IV operator meeting the requirements of 567—Chapter 81.

⁴Total Organic Carbon (TOC). Inorganic carbon must be removed from the 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.

⁵Ultraviolet Absorption at 254 nm (UV₂₅₄). DOC and UV₂₅₄ 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. UV absorption must be measured at 253.7 nm (may be rounded off to 254 nm). Prior to analysis, UV₂₅₄ samples must be filtered through a 0.45 μ pore-diameter filter. The pH of UV₂₅₄ samples may not be adjusted. Samples must be analyzed as soon as practical after sampling, not to exceed 48 hours.

⁶Alkalinity must be measured by a laboratory certified by the department to perform analysis under 567—Chapter 83; a Grade II, III or IV operator meeting the requirements of 567—Chapter 81; or any person under the supervision of a Grade II, III or IV operator meeting the requirements of 567—Chapter 81. Only the listed titrimetric

methods are acceptable.

⁷Hach Company. “Hach Method 10267 – Spectrophotometric Measurement of Total Organic Carbon (TOC) in Finished Drinking Water.” December 2015, Revision 1.2. Available at www.hach.com.

⁸Hach Company. “Hach Method 10261 - Total Organic Carbon in Finished Drinking Water by Catalyzed Ozone Hydroxyl Radical Oxidation Infrared Analysis.” December 2015, Revision 1.2. Available at www.hach.com.

ITEM 85. Amend numbered paragraph **43.7(1)“b”(3)“3”** as follows:

3. Any water system deemed to have optimized corrosion control pursuant to this paragraph shall notify the department in writing pursuant to 567—subparagraph 42.4(2)“a”(3) of any upcoming long-term change in treatment or the addition of a new source as described in 567—subparagraph 42.4(2)“a”(3). ~~The department may require any such system to conduct additional monitoring or to take other action the department deems appropriate to ensure that the system maintains minimal levels of corrosion in the distribution system.~~ 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.

ITEM 86. Amend subparagraph **43.7(1)“e”(1)** as follows:

(1) Step 1. The 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 the system either exceeds the lead or copper action level or becomes eligible for reduced monitoring under 567—paragraph 41.4(1)“c”(4)“4.” A system exceeding the lead or copper action level shall recommend optimal corrosion control treatment under 43.7(2)“a” within six months after the end of the monitoring period during which it exceeds one of the action levels.

ITEM 87. Amend subparagraph **43.7(1)“e”(2)** as follows:

(2) Step 2. Within 12 months after the end of the monitoring period during which a system exceeds the lead or copper action level, 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 optimal corrosion control treatment 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 action level, and, for small systems, within 24 months after the end of the monitoring period during which such system exceeds the lead or copper action level.

ITEM 88. Amend subparagraph **43.7(3)“a”(1)** as follows:

(1) Step 1. A public water supply system exceeding the lead or copper action level 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 ~~within six months after exceeding~~ no later than 180 days after the end of the monitoring period during which the lead or copper action level was exceeded.

ITEM 89. Amend paragraph **43.7(4)“b”** as follows:

b. Lead service line replacement schedule. A public water supply system shall replace annually at least 7 percent of the initial number of lead service lines in its distribution system. The initial number of lead service lines is the number of lead lines in place at the time the replacement program begins. The system shall identify the initial number of lead service lines 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 such as contracts and local ordinances.

(1) The first year of lead service line replacement shall begin on the first day following the end of the monitoring period in which the date the action level 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 water system resuming a lead service line replacement program after the cessation of its lead service line replacement program as allowed by 43.7(4)“g” shall update its inventory of lead service lines to include those sites that were previously determined not to require replacement through the sampling provision under 43.7(4)“c”. The system will then divide the updated number of remaining lead service lines by the number of remaining years in the program to determine the number of lines that must be replaced per year. Seven percent lead service line replacement is based on a 15-year replacement program, so, for example, systems resuming lead service line replacement after previously conducting two years of replacement would divide the updated inventory by 13.

(3) For those systems that have completed a 15-year lead service line replacement 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 action level.

ITEM 90. Amend paragraph **43.9(3)“a”** as follows:

a. Conventional filtration treatment or direct filtration.

(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 (combined filter effluent or CFE) must be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month, measured as specified in 43.5(4)“a”(1) and 43.5(4)“b”(1).

(2) Maximum turbidity level. The turbidity level of representative samples of a system’s filtered water (combined filter effluent or CFE) must at no time exceed 1 NTU, measured as specified in 43.5(4)“a”(1) and 43.5(4)“b”(1). If at any time the combined filter effluent turbidity exceeds 1 NTU, either in a grab sample used for compliance or in a continuously monitored flow, 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 public notification requirements under 567—subparagraph 42.1(3)“b”(3).

(3) Systems with lime-softening treatment. A system that uses lime softening may acidify representative samples prior to analysis using a protocol approved by the department.

ITEM 91. Amend paragraph **43.9(4)“a”** as follows:

a. Monitoring requirements for systems using filtration treatment. In addition to monitoring required by 43.5(4), a public water system subject to the requirements of this rule that provides conventional filtration treatment or direct filtration must conduct continuous monitoring of turbidity for each individual filter using an approved method in 43.5(4)“a”(1) and must calibrate turbidimeters ~~using the procedure specified by the manufacturer~~ 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 standards, the manufacturer's proprietary calibration confirmation device, or by a method approved by the department. 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.

ITEM 92. Amend paragraph **43.9(5)“a”** as follows:

a. Turbidity. Turbidity measurements as 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. Information that must be reported includes:

(1) The total number of filtered water (combined filter effluent or CFE) turbidity measurements taken during the month;

(2) The number and percentage of filtered water (combined filter effluent or CFE) turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in 43.9(3)“a” or “b”; and

(3) The date and value of any combined filter effluent or CFE turbidity measurements taken during the month which exceed 1 NTU for systems using conventional filtration treatment or direct filtration or which exceed the maximum level set by the department under 43.9(3)“b.”

(4) The dates and summary of calibration and verification of all compliance turbidimeters.

ITEM 93. Amend subparagraph **43.9(5)“b”(2)** as follows:

(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 ~~at the end of~~ anytime following the first four hours of continuous filter operation after the filter has been backwashed or otherwise taken offline, the system must report the filter number, the turbidity, and the date(s) on which the exceedance occurred. 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.

ITEM 94. Amend paragraph **43.9(5)“c”** as follows:

c. Additional reporting requirement for turbidity combined filter effluent.

(1) If at any time the turbidity exceeds 1 NTU in representative samples of filtered water (combined filter effluent or CFE) in a system using conventional filtration treatment or direct filtration, 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 public notification requirements under 567—subparagraph 42.1(3)“b”(3).

(2) If at any time the turbidity in representative samples of filtered water (combined filter effluent or CFE) exceeds the maximum level set by the department under 43.9(3)“b” for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, 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 public notification requirements under 567—subparagraph 42.1(3)“b”(3).

ITEM 95. Amend subparagraph **43.10(4)“a”(3)** as follows:

(3) The turbidity in the combined filter effluent must never exceed 1 NTU at any time during the month. If at any time the combined filter effluent turbidity exceeds 1 NTU, either in a grab sample used for compliance or in a continuously monitored flow, 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 public notification requirements under 567—subparagraph 42.1(3)“b”(3) and 567—subparagraph 42.1(2)“a”(8).

ITEM 96. Amend subparagraph **43.10(5)“a”(2)** as follows:

(2) Calibration of turbidimeters must be conducted ~~using procedures specified by the manufacturer~~ 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 standards, the manufacturer’s proprietary calibration confirmation device, or by a method approved by the department. 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;

ITEM 97. Adopt the following **new** numbered paragraph **43.10(6)“a”(1)“4”**:

4. The dates and summary of calibration and verification of all compliance turbidimeters.

ITEM 98. Amend subparagraph **43.10(6)“b”(2)** as follows:

(2) For any filter that had two consecutive measurements taken 15 minutes apart that exceeded 1.0 NTU, the following information must be reported:

1. The filter number(s);
2. The corresponding dates; ~~and~~
3. The turbidity values that exceeded 1.0 NTU; and,
4. Cause, if known, of the exceedance.

ITEM 99. Adopt the following new subparagraph **43.10(6)“b”(5)**:

5. The dates and summary of calibration and verification of all compliance turbidimeters.

ITEM 100. Amend numbered paragraph **43.11(3)“b”(3)“2”** as follows:

2. Systems with plants that operate less than six months per year and that monitor for *Cryptosporidium* must collect at least six samples per year for two years. The samples must be evenly spaced throughout the period the plant operates.

ITEM 101. Amend paragraph **43.11(3)“d”**, introductory paragraph, as follows:

d. Sampling locations. Systems must collect samples for each treatment plant that treats a surface water or influenced groundwater 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 – 4 no change.)

ITEM 102. Amend numbered paragraph 43.11(3)“e”(1)“1” as follows:

1. ~~There are two~~ These are the approved analytical methods for *Cryptosporidium*:
 - “Method 1623: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/FA,” 2005, US EPA, EPA-815-R-05-002. Available at <http://www.nemi.gov>; and,
 - “Method 1622: *Cryptosporidium* in Water by Filtration/IMS/FA,” 2005, US EPA, EPA-815-R-05-001. Available at <http://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. Available at <https://nepis.epa.gov>.

ITEM 103. Amend numbered paragraph 43.11(3)“e”(1)“2” as follows:

2. Using one of the ~~two~~ 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.

ITEM 104. Amend numbered paragraph 43.11(3)“e”(2)“1” as follows:

1. The 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	Standard Methods: 18th, 19th, and 20th editions	Other
Most probable number with multiple tube or multiple well ^{1,2}		9223 B ^{3,11}	991.15 ⁴ Colilert ^{3,5} Colilert-18 ^{3,5,6}
Membrane filtration single step ^{1,7,8}	1603 ⁹		m-ColiBlue24 ¹⁰
<u>Membrane filtration, two step</u>		<u>9222D/9222G</u> ¹²	

¹Tests 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.

²Samples shall be enumerated by 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 Most Probable Number (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.

³These 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*.

⁴Association 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.

⁵Descriptions of the Colilert®, Colilert-18®, Quanti-Tray®, and Quanti-Tray® 2000 may be obtained from IDEXX Laboratories, Inc., 1 IDEXX Drive, Westbrook, ME 04092.

⁶Colilert-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 C rather than the 24 hours required for the

Colilert® test.

⁷The filter must be a 0.45 micron membrane filter or a membrane filter with another pore size certified by the manufacturer to fully retain organisms to be cultivated and to be free of extractables which could interfere with organism growth.

⁸When 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), USEPA, July 2006.” US EPA, Office of Water, Washington, DC EPA 821-R-06-011. Available at <https://nepis.epa.gov>.

¹⁰A description of the m-ColiBlue24® test, Total Coliforms and *E. coli*, is available from Hach Company, 100 Dayton Ave., Ames, IA 50010.

¹¹Standard Methods for the Analysis of Water and Wastewater, 18th (1992), 19th (1995), and 20th (1998) editions, American Public Health Association. Available from APHA, 800 I Street, NW, Washington, DC 20001-3710.

¹²Standard Methods for the Examination of Water and Wastewater, 20th edition (1998). Available from APHA, 800 I Street, NW, Washington, DC 20001-3710.

ITEM 105. Adopt the following new subparagraph **43.11(10)“c”(6)**:

(6) 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”.

ITEM 106. Adopt the following new subparagraph **43.11(10)“c”(7)**:

(7) 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).

1. The study must follow a protocol approved by the department and must involve the collection of data on the removal of *Cryptosporidium* or a surrogate for *Cryptosporidium* and related hydrogeologic and water quality parameters during the full range of operating conditions.

2. The study must include sampling both from the production well(s) and from monitoring wells that are screened and located along the shortest flow path between the surface water source and the production well(s).

ITEM 107. Adopt the following new Appendix C in 567—Chapter 43:

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 6.0-9.0¹

Inactivation Log Credit	Water Temperature, °C																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
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	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	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	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	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	4.4	4.0	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.2	2.0

¹ CT values provided in the table are modified by linear interpolation between 0.5 °C increments.

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 6.0-9.0¹

Inactivation Log Credit	Water Temperature, °C											
	1	2	3	4	5	6	7	8	9	10	11	12
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	25.6	23.5	21.4	19.2	17.1	16.2	15.4	14.5	13.7	12.8	12.0	11.1
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

¹ CT values provided in the table are modified by linear interpolation between 0.5 °C increments.

Inactivation Log Credit	Water Temperature, °C												
	13	14	15	16	17	18	19	20	21	22	23	24	25
2	3.4	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	10.3	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	20.1	18.4	16.7	15.9	15.0	14.2	13.3	12.5	11.7	10.9	10.0	9.2	8.4

¹ CT values provided in the table are modified by linear interpolation between 0.5 °C increments.

TABLE 4: CT Values (mg-min/L) for Inactivation of Viruses by Ozone¹

Inactivation Log Credit	Water Temperature, °C											
	1	2	3	4	5	6	7	8	9	10	11	12
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
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
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

¹ CT values provided in the table are modified by linear interpolation between 0.5 °C increments.

Inactivation Log Credit	Water Temperature, °C												
	13	14	15	16	17	18	19	20	21	22	23	24	25
2	0.38	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	0.62	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	0.76	0.68	0.60	0.58	0.56	0.54	0.52	0.50	0.46	0.42	0.38	0.34	0.30

¹ CT values provided in the table are modified by linear interpolation between 0.5 °C increments.

No CT table is provided for chloramines or total chlorine because the CT values would be prohibitively high for groundwater systems.

Tables are from the *EPA Groundwater Rule Implementation Guidance, EPA 816-R-09-004, January 2009, pages 97-98*

ITEM 108. Amend rule **567—44.10 (455B)** as follows:

44.10(1) Allowable costs. Allowable costs shall be limited to those costs deemed necessary, reasonable, and directly related to the efficient completion of the project. The director will determine project costs eligible for state assistance in accordance with rule 567—44.6(455B). Land purchase, easement, or rights-of-way costs are ineligible with the exception of land which is integral to a project needed to meet or maintain public health protection and which is needed to locate eligible treatment or distribution works. Source water protection easements are considered to be integral to a project. (The acquisition of land or easements has to be from a willing seller.) In addition to those costs identified in this chapter, unallowable costs include the following:

- a.* Costs of service lines, except lead-containing service lines and connectors which are exterior to a home.
- b.* ~~and~~ Costs of in-house plumbing.
- ~~*b.c.*~~ Administrative costs of the loan recipient.
- ~~*e.d*~~ Vehicles and tools.

ITEM 109. Adopt the following **new** definitions of “Operating Shift” and “Shift Operator” in rule **567—81.1(455B)**:

“*Operating Shift*” means a specified period of time when an operator is present to conduct testing or evaluation to control operations of the plant or distribution system, to make process control changes, and to be responsible for the repair or maintenance of a plant or distribution system. An operating shift may include on-call shifts.

“*Shift Operator*” means the operator on-site who has responsibility for making process control changes and adjustments to the operation, repair, and maintenance of a plant or

distribution system during any operating shift. Duties include testing or evaluation to control operations of the plant or distribution system.

ITEM 110. Amend rule ~~567—81.1(455B)~~, definition of “Rural Water District,” as follows:

“*Rural water district*” means a water supply incorporated and organized as such pursuant to Iowa Code chapter ~~357, 357A or 504A-358~~.

ITEM 111. Adopt the following new paragraph **81.6(1)“c”**:

c. Transient noncommunity water system. A transient noncommunity water system which serves a population of 500 persons or less and provides no treatment other than hypochlorination or treatment which does not require any chemical addition, process adjustment, backwashing or media regeneration by an operator shall be classified as a Grade A water system.

ITEM 112. Amend subrule 81.7(1) as follows:

81.7(1) Education and experience requirements. All applicants shall meet the education and experience requirements for the grade of certificate shown in the table below prior to being allowed to take the examination. Experience shall be in the same classification for which the applicant is applying except that partial credit may be given in accordance with 81.7(2) and 81.7(3). Directly related post-high school education shall be in the same subject matter as the classification in which the applicant is applying. ~~Directly related post-high school education will be granted education credit 2.0 times the number of semester, quarter or CEU credits until January 1, 2006.~~ The director will determine which courses qualify as “directly related” in cases

which are not clearly defined. A military service applicant may apply for credit for verified military education, training, or service toward any education or experience requirement for certification, pursuant to subrule 81.7(4).

ITEM 113. Rescind and reserve subrule **81.8(2)**.

ITEM 114. Amend subrule 81.9(5) as follows:

81.9(5) *Reexamination.* Upon failure of the first examination, the applicant may be ~~reexamined at the next scheduled examination~~ apply for reexamination. Upon failure of the second examination, the applicant shall be required to wait a period of ~~180~~ at least 30 days between each subsequent examination.

ITEM 115. Rescind and reserve subrule **81.9(9)**.

ITEM 116. Amend subrule 81.9(10) as follows:

81.9(10) *Reasonable accommodation.* Upon request for certification by an applicant, the director will consider on an individual basis reasonable accommodation to allow administration of the examination without discrimination on the basis of disability. The applicant shall request the accommodation 30 days prior to the date of the examination. The applicant must provide documentation of eligibility for the accommodation. Documentation shall be submitted with the completed examination application. ~~Accommodations based on documentation may include site accessibility, oral examination, extended time, separate testing area, or other concerns.~~

ITEM 117. Amend rule 567—81.12(455B) as follows:

567—81.12(455B) Restricted and temporary certification.

~~81.12(1) *Restricted certification.*~~ Upon written request by an operator, the director may determine that further education requirements be waived when a plant or distribution system grade has been increased and the operator has been in direct responsible charge of the existing plant or distribution system. An operator successfully completing the examination will be restricted to that plant or distribution system until the education requirements are met.

~~81.12(2) *Temporary certification.*~~ Upon written request by the owner of a plant or system not previously required to have a certified operator, the director may issue a temporary certificate of the appropriate grade and classification to the operator(s) in charge. The temporary certificate holder will be restricted to that plant or distribution system until all certification requirements, in accordance with rules 567—81.6(455B), 567—81.8(455B) and 567—81.9(455B), are met. The temporary certificate is not renewable and will expire 24 months after issuance. No temporary certificates will be issued to operators of new water plants or distribution systems, as defined in 567—subrule 43.8(1).

ITEM 118. Amend rule 567—83.2(455B), definition of “Manual for the Certification of Laboratories Analyzing Environmental Samples for the Iowa Department of Natural Resources,” as follows:

“Manual for the Certification of Laboratories Analyzing Environmental Samples for the Iowa Department of Natural Resources” ~~(2003)~~ (2017) (Iowa Manual) is incorporated by reference in this chapter.

Chapter 1 of the Iowa Manual pertains to certification of laboratories analyzing samples

of drinking water and incorporates by reference the Manual for the Certification of Laboratories Analyzing Drinking Water, 4th edition, March 1997, EPA document 815-B-97-001, 5th edition, January 2005, EPA document 815-R-05-004, January 2005; Supplement 1, June 2008, EPA 815-F-08-006; and Supplement 2, November 2012, EPA 815-F-12-006.

Chapter 2 of the Iowa Manual, 2003 (2017), pertains to laboratories analyzing samples for the underground storage tank program.

Chapter 3 of the Iowa Manual, 2003 (2017), pertains to laboratories analyzing samples for wastewater and sewage sludge disposal programs.

Chapter 4 of the Iowa Manual, 2003 (2017), pertains to laboratories analyzing samples for the solid waste and contaminated site programs.

ITEM 119. Amend paragraph 83.3(2)“c”, table entry of “Basic Drinking Water,” as follows:

Basic Drinking Water	SDWA (includes total and fecal coliform bacteria, <i>E. coli</i> , heterotrophic plate count, nitrate, nitrite, and fluoride)	\$800
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ITEM 120. Amend paragraph 83.3(2)“c”, table entry of “Bacteria,” as follows:

Bacteria	CWA (includes total coliform, fecal coliform, <u>and <i>E. coli</i></u> and enterococci bacteria)	\$800
	SDWA (includes total coliform, fecal coliform,	\$800

	<i>E. coli</i> , and heterotrophic plate count)	
	SDWA & CWA combined	\$1,300

ITEM 121. Amend paragraph **83.3(2)“d”** as follows:

d. Payment of fees. Fees shall be paid by bank draft, check, money order, credit card, electronic payment, or other means acceptable to the department, made payable to the Iowa Department of Natural Resources. Credit card or electronic payment may incur an additional fee. Purchase orders are not an acceptable form of payment.

ITEM 122. Amend subrule 83.3(3) as follows:

83.3(3) Reciprocity. Reciprocal certification of out-of-state laboratories by Iowa, and of Iowa laboratories by other states or accreditation providers, is ~~encouraged~~ allowed. A laboratory must meet all Iowa certification criteria and pay all applicable fees as listed in this chapter. Any laboratory which is granted reciprocal certification in Iowa using primary certification from another state or provider is required to report any change in certification status from the accrediting state or provider to the department within 44 15 days of notification. A laboratory that loses primary certification, either in its resident state program or third-party accreditation program, will also immediately lose certification for the same program area and parameters in Iowa, pursuant to 83.7(5)“a”(9).

a. Out-of-state laboratories. Where an out-of-state laboratory has received an on-site visit within its own state, the fee for certification shall not be reduced if an on-site visit is not performed by Iowa.

b. Third-party accreditation. The department may accept third-party accreditation

from national accreditation providers on an individual basis.

ITEM 123. Rescind and reserve rule ~~567—83.4(455B)~~.

ITEM 124. Amend subrule 83.6(1) as follows:

83.6(1) Approved methodology required. Laboratories must use the approved methodology for all analyses the results of which are to be submitted to the department. A laboratory may not analyze and report data from samples collected for an environmental program area until certified in that area.

ITEM 125. Amend subrule 83.6(2) as follows:

83.6(2) Performance evaluation (proficiency testing) samples required. Certified laboratories must satisfactorily analyze PEs at least once every 12 months for each analyte by each method for which the laboratory wishes to retain certification unless a PE sample is not available for the particular analyte or method. Results must be submitted to Iowa department of natural resources and the state of Iowa hygienic laboratory, or as otherwise directed, along with a statement of the method used within 30 days of receipt from the provider. The laboratory must maintain records of all PE samples for a minimum of 5 years.

ITEM 126. Amend subrule 83.6(3) as follows:

83.6(3) Notification of major changes. Laboratories must notify the department, in writing, within 15 days of major changes in essential personnel, equipment, laboratory location,

or other major change which might alter or impair analytical capability. An example of a major change in essential personnel includes the loss or replacement of the laboratory supervisor, or a trained and experienced analyst is no longer available to analyze a particular parameter for which certification has been granted.

ITEM 127. Amend paragraph **83.6(6)“a”** as follows:

a. Water supply program.

(1) Certified laboratories must report to the department, or its designee ~~such as SHL,~~ all analytical test results for all public water supplies, in a manner acceptable to the department, using forms, including electronic forms, provided or approved by the department or by electronic means acceptable to the department. If a public water supply is required by the department to collect and analyze a sample for an analyte not normally required by 567— Chapters 41 and 43, the laboratory testing for that analyte must also be certified and report the results of that analyte to the department. It is the responsibility of the laboratory to correctly assign and track the sample identification number as well as facility ID and source/entry point data for all reported samples.

1. The following are examples of sample types for which data results must be reported:

- Routine: a regular sample which includes samples collected for compliance purposes from such locations as the source/entry point and in the distribution system, at various sampling frequencies;

- Repeat: a sample which must be collected after a positive result from a routine or previous repeat total coliform sample, per ~~567—41.2(455B)~~ 567—paragraph 41.2(1)“j”. Repeat samples must be analyzed at the same laboratory from which the associated original routine

sample was analyzed;

- Confirmation: a sample which verifies a routine sample, normally used in determination of compliance with a health-based standard, such as nitrate;
- Special: a nonroutine sample, such as raw, plant, and troubleshooting samples, which cannot be used to comply with monitoring requirements assigned by the department;
- Maximum residence time: a sample which is collected at the maximum residence time location in the distribution system, usually for disinfection byproduct measurement; and
- Replacement: a sample which replaces a missed sample from a prior monitoring period resulting in a monitoring violation.

2. The following additional types of data must be reported to the department:

- Monthly Operation Report (MOR) data which has been specifically required by the department to demonstrate compliance with public health standards;
- Chemical results not required to be analyzed but which are detected during analysis, such as detection of a synthetic organic chemical during a routine analysis of that related analytical series for compliance reporting; and
- Raw water sampling results specifically covered by 567—Chapters 40 to 43 for new surface water or groundwater sources, or reconstruction of groundwater sources.

3. The following are examples of data results that are not required to be reported by the laboratory to the department:

- Routine MOR data;
- Distribution samples for the Total Coliform Rule (567—subrule 41.2(1)) for water main repair or installation; or
- Results for contaminants that are not required by the department to be analyzed, which are below detection level.

4. The sample type cannot be changed after submittal to the laboratory, without written approval by the department. The prescreening, splitting, or selective reporting of compliance samples is not allowed.

(2) Certified laboratories must report all analytical results to the public water supply for which the analyses were performed.

(3) Analytical results must be reported to and received by the department's designee by the seventh day of the month following the month in which the samples were analyzed.

(4) In addition to the monthly reporting of the analytical results, the following results must be reported within 24 hours of the completion of the analysis to the department by ~~facsimile transmission (fax)~~ email or other method acceptable to the department, and to the public water supply for which the analyses were conducted:

1. Results of positive routine coliform bacteria samples, and all repeat and follow-up samples, reported within 24 hours of the completion of each sample's analysis.

2. Results of any contaminant which exceeds public drinking water standards (maximum contaminant level, treatment technique, action level, or health advisory), and any subsequent confirmation samples, ~~excluding lead and copper~~.

For results available outside of routine business hours, the results must also be reported to the department's Environmental Emergency Reporting Hotline number at (515)725-8694.

(5) If requested by the department, certified laboratories shall report their method detection levels, levels of quantitation, and any other pertinent information when reporting results for public water supplies.

ITEM 128. Adopt the following new subrule 83.6(8):

83.6(8) Recordkeeping. The laboratory certification program appraisal authority must

retain the records for on-site laboratory assessments and certification program reviews. The records must be maintained in an easily accessible manner for a period of at least six years to include the last two on-site audits. The records include correspondence used to determine compliance with the laboratory certification program requirements, and may include checklists, corrective action reports, final reports, certificates, performance evaluation/proficiency testing study results, and any other related documents.

ITEM 129. Amend paragraph **83.7(1)“c”** as follows:

c. A laboratory will not be granted provisional certification by the department for water supply contaminants which pose an acute risk to human health, including nitrate, nitrite, ~~fecal coliform bacteria~~, and *Escherichia coli* bacteria.

ITEM 130. Amend subparagraph **83.7(3)“a”(1)** as follows:

(1) Failure to analyze a PE sample annually for water supply contaminants which pose an acute risk to human health, including nitrate, nitrite, ~~fecal coliform bacteria~~, and *Escherichia coli* bacteria, or which pose an imminent risk to the environment;

ITEM 131. Amend subparagraph **83.7(3)“a”(2)** as follows:

(2) Failure to analyze a PE sample annually within Iowa acceptance limits for water supply contaminants which pose an acute risk to human health, including nitrate, nitrite, ~~fecal coliform bacteria~~, and *Escherichia coli* bacteria, or which pose an imminent risk to the environment;

Chuck Gipp, Director

Date

**Administrative Rules
JOBS IMPACT STATEMENT**

1. BACKGROUND INFORMATION

Agency:	Department of Natural Resources (DNR) / Environmental Protection Commission
IAC Citation:	567 – Chapters 40, 41, 42, 43, 81, and 83
Agency Contact:	Diane Moles, 725-0281
Statutory Authority:	Iowa Code sections 455B.105, 455B.113, 455B.173, 455B.222, and Chapter 272C

Objective:	Adopt final federal drinking water rules that provide improved public health protection for Iowans drinking water from public systems and keep Iowa's public water supply systems in compliance with federal requirements. Adoption of the federal rules allows Iowa to retain delegation of the federal Safe Drinking Water Act (SDWA), which allows the state to use authorized flexibility in rule implementation as well as to receive the federal capitalization grants for both the program and the drinking water state revolving loan program.
Summary:	<p>The federal rules are a requirement of all public water supply systems across the country. If DNR does not adopt and implement these rules in Iowa, then the EPA will require Iowa systems to comply with the federal rules without the state staff assistance. Since these rules are already federally enforceable, a significant amount of work has been done by Iowa systems and DNR staff to comply with these rules.</p> <p>The purpose of the proposed rules is adoption of the federal Groundwater Rule, Lead and Copper Rule Short-term Revisions, Revised Total Coliform Rule, and changes to existing federal drinking water rules, primarily in analytical methods. In addition, other rule changes are proposed to:</p> <ul style="list-style-type: none"> • update the water supply construction standards to current editions, • update the DNR's emergency response phone number, • change American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) 60 and 61 reference to allow for certification by an ANSI accredited third party for conformance with ANSI/NSF 60 and 61 (allows for more vendors to provide the needed chemicals and products), • clarify chlorination requirements, • include daily calculation of contact time ratio, • include separation distance for ground heat exchange (GHEX) loop boreholes to private wells, • include turbidimeter calibration and verification criteria, • clarify turbidity combined filter effluent compliance treatment technique, • change the replacement of a lead service line to an allowable cost under a DWSRF loan, • define operating shift and shift operator, • correct rural water district's Code of Iowa reference, • include transient non-community systems into Grade A operator criteria (same as for non-transient non-community systems), • rescind outdated oral examination criteria for operator certification, • rescind outdated temporary certification for operators, • allow an operator to re-test after a failed exam after 30 days instead of 180 days, • update lab certification manuals to current editions,

	<ul style="list-style-type: none"> • rescind outdated initial laboratory certification rules for solid waste, • include recordkeeping requirements for laboratory certification appraisal auditors, and • correct rules citations and typographic errors.
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2. JOB IMPACT ANALYSIS

■ *Fill in this box if impact meets these criteria:*

No Job Impact on private sector jobs and employment opportunities in the State.
(If you make this determination, you must include the following statement in the preamble to the rule: "After analysis and review of this rulemaking, no impact on jobs has been found.")

Explanation: The federal rules are a requirement of all public water supply systems across the country. If DNR does not adopt and implement these rules in Iowa, then the EPA will require Iowa systems to comply with the federal rules without the state staff assistance. Since these rules are already federally enforceable, a significant amount of work has been done by Iowa systems and DNR staff to comply with these rules.

□ *Fill in this box if impact meets either of these criteria:*

___ Positive Job Impact on private sector jobs and employment opportunities in the State.
 ___ Negative Job Impact on private sector jobs and employment opportunities in the State.

Description and quantification of the nature of the impact the proposed rule will have on private sector jobs and employment opportunities:

Categories of jobs and employment opportunities that are affected by the proposed rule:

Number of jobs or potential job opportunities:

Regions of the state affected:

Additional costs to the employer per employee due to the proposed rule: (if not possible to determine, write "Not Possible to Determine.")

3. COST-BENEFIT ANALYSIS

The Agency has taken steps to minimize the adverse impact on jobs and the development of new employment opportunities before proposing a rule. See the following Cost-Benefit Analysis:

No other less intrusive or less expensive method is available for achieving the purpose of the proposed rules. Public water supply systems must comply with the federal requirements regardless of whether the DNR adopts the rules. By adopting these rules, DNR becomes the delegated authority and the DNR can provide compliance assistance and outreach to Iowa's systems.

4. FISCAL IMPACT

Please see the Fiscal Impact Statement for an identification and description of costs the Department anticipates state agencies, local governments, the public, and the regulated entities, including regulated

businesses and self-employed individuals, will incur from implementing and complying with the proposed rule.

**Administrative Rules
FISCAL IMPACT STATEMENT**

Date: November 21, 2017

Agency: Department of Natural Resources (DNR) / Environmental Protection Commission

IAC Citation: 567 – Chapters 40, 41, 42, 43, 81, and 83

Agency Contact: Diane Moles, 725-0281

Summary of the Rule: The purpose of this rule package is to adopt the federal Groundwater Rule, Lead and Copper Rule Short-term Revisions Rule, Revised Total Coliform Rule, amend the previously adopted Stage 2 Disinfectants and Disinfection Byproducts Rule and Long-term 2 Enhanced Surface Water Treatment Rule, update analytical methods, and update construction standards to current editions, plus other updates to the rules. Of the three federal rules:

- The Groundwater Rule provides for increased protection against microbial pathogens such as *E. coli* in public water systems that use ground water sources. All systems served by groundwater sources are affected by this rule, which is approximately 1,730 systems (out of 1,880 in Iowa), and serves approximately 1.6 million people.
- The Lead and Copper Rule Short-term Revisions provides for clarification of the existing rule in several areas, and requires each system to notify the homeowners of the lead level in their specific home when tested by the system, and makes changes to the mandatory public education language required when a system exceeds the lead action level. All community and non-transient non-community systems (NTNC) are affected by this rule, which include 1,239 systems serving 2.8 million people.
- The Revised Total Coliform Rule provides for increased public health protection through the reduction of potential pathways of entry for fecal contamination into distribution systems. It is a revision of the existing total coliform rule. This rule affects all 1,880 public water supply systems, serving approximately 2.9 million people.

In addition, other rule changes are proposed to:

- update the water supply construction standards to current editions (2012 Ten States Standards; 2016 American Water Works Association);
- update the DNR's emergency response phone number,
- change American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) 60 and 61 reference to allow for certification by an ANSI accredited third party for conformance with ANSI/NSF 60 and 61,
- clarify chlorination requirements,
- include daily calculation of contact time ratio,
- include separation distance for ground heat exchange (GHEX) loop boreholes,
- include turbidimeter calibration and verification criteria,
- clarify turbidity combined filter effluent compliance treatment technique,
- change the replacement of a lead service line to an allowable cost under a DWSRF loan,
- define operating shift and shift operator,
- correct rural water district's Code of Iowa reference,
- include transient non-community systems into Grade A operator criteria (same as for NTNC systems),
- rescind outdated oral examination criteria for operator certification,
- rescind outdated temporary certification for operators,
- allow an operator to re-test after a failed exam after 30 days instead of 180 days,
- update lab certification manuals to current editions,
- rescind outdated initial laboratory certification rules for solid waste,
- include recordkeeping requirements for laboratory certification appraisal auditors, and
- correct rules citations and typographic errors.

Fill in this box if the impact meets any of these criteria:

No Fiscal Impact to the State.

Fiscal Impact of less than \$100,000 annually or \$500,000 over 5 years.

Fiscal Impact cannot be determined.

Brief Explanation:

The additional cost to the state program from the implementation activities (assistance, compliance, and enforcement) will be absorbed into the existing budget so there is no additional fiscal impact to the State.

Fill in this box if the impact meets this criteria:

Fiscal Impact of \$100,000 annually or \$500,000 over 5 years.

Brief Explanation:

Assumptions: Currently, the Safe Drinking Water Act (SDWA) is implemented in Iowa by the DNR, through delegated authority from EPA. As a condition of SDWA delegation, Iowa is required to adopt and implement drinking water rules that are no less stringent than the federal rules. These rules are intended to ensure the water from public water supply systems meets federal health-based standards, protecting public health by reducing health risks to consumers. DNR staff will implement these rules; no additional costs are anticipated.

Describe how estimates were derived:

Estimated Impact to the State by Fiscal Year

	<u>Year 1 (FY)</u>	<u>Year 2 (FY)</u>
Revenue by Each Source:		
GENERAL FUND	\$0	\$0
FEDERAL FUNDS	\$0	\$0
OTHER (Specify)	\$0	\$0
	\$0	\$0
TOTAL REVENUE		
Expenditures:		
GENERAL FUND	\$0	\$0
FEDERAL FUNDS	\$0	\$0
OTHER (Specify)	\$0	\$0
	\$0	\$0
TOTAL EXPENDITURES		
	\$0	\$0
NET IMPACT		

This rule is required by State law or Federal mandate.

Please identify the state or federal law:

- The SDWA: 42 U.S. Code §§ 300f to 300j-26: Safety of Public Water Systems
- The DNR has delegated authority for the federal SDWA: Iowa Code §§ 455B.172(1) and 455B.177(2). Environmental laboratory certification (required under SDWA) is under DNR's jurisdiction: Iowa Code § 455B.113. Certification of water operators (required under SDWA) and wastewater operators is under DNR's jurisdiction: Iowa Code § 455B.213. Drinking water state revolving loan fund (DWSRF, for which SDWA primacy is required) is under DNR's jurisdiction: Iowa Code § 455B.294 and 455B.298
- The three national primary drinking water regulations proposed for adoption: 40 CFR Part 141 Subpart S (Groundwater Rule) and 40 CFR Part 141 Subpart Y (Revised Total Coliform Rule); revision to 40 CFR Part 141 Subpart I (Lead and Copper Rule – Short-term Revisions)

Funding has been provided for the rule change.

Please identify the amount provided and the funding source:

The work necessary to implement these rules is being done by existing state drinking water staff covered by the current funding for the drinking water program as part of the routine program activities: federal grants (Public Water Supply Supervision Grant and Drinking Water State Revolving Loan Fund Set-Asides), Water Quality Protection Fund (operation permit fees and construction permit fees), and Environment First funds.

Funding has not been provided for the rule.

Please explain how the agency will pay for the rule change:

Fiscal impact to persons affected by the rule:

People drinking water from systems affected by the rules will be provided water that meets all federal health-based standards, thus lessening the public health risks in those systems. The systems must monitor regardless if Iowa or EPA administers the SDWA, and thus would incur these costs. The costs for the total coliform with *E. coli* analytical tests were obtained from two labs (\$13.50 – \$16.50) and an upper estimate was used (\$18.00). The estimate for the completion of the lead consumer notice was derived from completion of the templated letter plus paper handling and postage (15 minutes; \$10 per letter).

Groundwater Rule: The purpose of this rule is to determine if a system’s groundwater source is contaminated by fecal bacteria or viruses, and to require correction if contamination is found. Analytical costs for *E. coli* bacteria would be incurred for those groundwater systems that triggered groundwater monitoring requirements by having microbial contamination indicated by a positive coliform bacteria sample in either their distribution system or in that of a consecutive system to which they sell water.

The costs are dependent upon the number of wells at the system and the number of positive coliform bacteria samples incurred during the year; estimated cost is \$18 per sample. A system that inactivates or removes 99.99% of viruses on a continual basis is eligible to conduct daily on-site monitoring activities in lieu of triggered source water monitoring. A groundwater system that does not have any positive total coliform bacteria samples during the year will have no additional monitoring costs. Any significant deficiency that could allow microbial contamination into the system that is discovered during a sanitary survey inspection is required to be corrected. All public water supply systems using groundwater sources are required to comply with this rule.

Revised Total Coliform Rule: This is a revision of an existing rule in which water systems monitor for microbial contamination in their distribution systems. For the vast majority of systems, it does not change the monitoring requirements.

Seasonal systems (those not in operation during the entire year, such as parks and golf courses) are required to conduct a startup checklist, collect a coliform bacteria sample that is negative for bacteria presence before opening to the public for the season, and conduct monthly bacteria sampling (estimated at \$18 per month). All systems (seasonal and those open year-round) that have positive bacteria samples are required to conduct checklist self-assessments instead of conducting public notice (a cost savings from the previous notification process, which included newspaper publication, bill stuffers, etc.); any sanitary defect is required to be fixed. Systems that do not have a positive coliform bacteria sample during the year will see no change or added cost. Systems that do have microbial contamination in the distribution systems are required to determine the cause and take corrective action. All public water supply systems are required to comply with this rule.

Lead and Copper Rule Short-term Revisions: This revision requires a new “consumer report” which provides the analytical lead result to each home that was sampled during the compliance period. The compliance period can be every six months, every year, or every three years; at this time, most Iowa systems are on an every three year frequency. The number of required samples is dependent upon the system population; the smallest systems collect 5 samples per sampling period; the largest systems collect 100 samples during the sampling period. The consumer notice is a fill-in-the-blank letter that the system sends to the specific homeowner within 30 days of receiving the laboratory report; assume a cost of \$10 per letter to include completion of the template and postage. All community and non-transient non-community public water supply systems are required to conduct lead sampling. Other changes are to existing rules with little fiscal impact.

Analytical Methods: The analytical methods and alternative analytical methods for contaminant analysis have been updated to include all of those allowed by EPA. This allows the certified laboratories to utilize all of the available methods for their clients, the regulated public water supply system.

With all of these rules, should a system have elevated levels of a contaminant, a sanitary defect, or a significant deficiency, the system is required to improve their treatment or adopt other practices that will rectify the situation so that the system reliably and consistently provides safe water.

Fiscal impact to Counties or other Local Governments (required by Iowa Code 25B.6):

Systems owned by a governmental entity to which the microbial rules (Groundwater Rule and Revised Total Coliform Rule) are applicable will have additional costs for monitoring only under certain circumstances when microbial contamination or significant defects or deficiencies are found, as previously mentioned. Additional costs could also be incurred by a system if the monitoring and assessment results indicate changes in operational practices, maintenance of wells, additional treatment processes, etc., are needed in order to meet the public health standards. For systems required to conduct lead sampling, there is the new requirement for the homeowner consumer notice that lets the homeowner know the lead level of their home. The change in allowing replacement of lead service lines under a DWSRF loan is beneficial to those systems wanting to use a loan for such purpose.

During 2017 the EPC Commission continued to have a significant role in supporting the Department of Natural Resources' goal to improve air, water, and overall environmental standards in Iowa. The Commission awarded over 16 million dollars in funds, from state and federal sources, which support this goal.

The EPC Commission met twelve times during the 2017 calendar year. In order to increase public participation in the monthly EPC Commission meetings the Commission met at various locations throughout Iowa, specifically Ames, Altoona, and Mt. Pleasant. The Commission also toured four different facilities during the 2017 calendar year; ISU Composting and Waste Reduction facility, Terrace Hills Golf Course, HearthNHome Manufacturing and Mt Pleasant Municipal Utility.

The EPC Commission referred three cases to the Iowa Attorney General's office for enforcement action.

Looking towards the future the EPC Commission respectfully submits the following:

The EPC Commission, in its 2016 Annual Report, asked for legislative review to increase the legal amounts on penalties that the DNR can levy on polluters and repeat violators. These penalties were established decades ago and need revision. The Commission respectfully requests that the upcoming legislature review the current penalty structure.

The EPC Commission is well aware of current and future budget constraints within the State of Iowa budget. The DNR was allocated \$1.2 million fewer dollars in fiscal 2017. In response to the decreased allocation the DNR enacted numerous cost savings measures, some of them included:

- Reduction of Administrative staff
- Elimination of Forestry Bureau
- Realignment of staff within all DNR Divisions
- Air Quality Bureau moving from leased space to Wallace Office Building
- Elimination of underutilized telephone phone lines
- Elimination of paid lunches for EPC Commissioners during monthly business meetings
- Utilization of conference calls for monthly EPC meetings when appropriate

The dedicated DNR staff has worked tirelessly to fulfill its mission statement, "To conserve and enhance our natural resources in cooperation with individuals and organizations to improve the quality of life in Iowa and ensure a legacy for future generations". Future reductions in General Fund allocations may compromise the DNR's ability to effectively carry out its mission. The EPC Commission respectfully requests the 2018 legislature to support and pass a Supplementary Salary Bill for the DNR for fiscal year 2018-2019.

On Tuesday July 18, 2017 the EPC Commission received a rule making petition from ICCI requesting changes to the Master Matrix. Pursuant to state statute the EPC Commission considered the ICCI petition at the Monday September 18th meeting. After presentations in support and opposition to the petition the EPC Commission voted unanimously to deny petitioner's request.

The Master Matrix was developed fifteen years ago through the administrative rules process at the direction of the state legislature. The EPC Commission respectfully requests that the 2018 legislature review the current Master Matrix and provide the EPC Commission with guidance; affirm the current Master Matrix or direct the EPC Commission to revisit the Master Matrix through the administrative rule process.

The State Revolving Fund (SRF) is one of Iowa's primary sources for investments in safe and clean water.

Individual communities in Iowa face challenges in providing safe drinking water, meeting regulatory requirements for wastewater treatment, replacing aging infrastructure, and planning for shrinking or growing population. Nationally, \$600 billion is needed for water infrastructure improvements over the next 20 years. In Iowa, surveys show more than \$10 billion worth of needs. In addition to these numbers, Iowa's farmers and landowners, livestock producers, watershed organizations, and others need funding to address nonpoint source pollution, including nutrients, sediment, and bacteria.

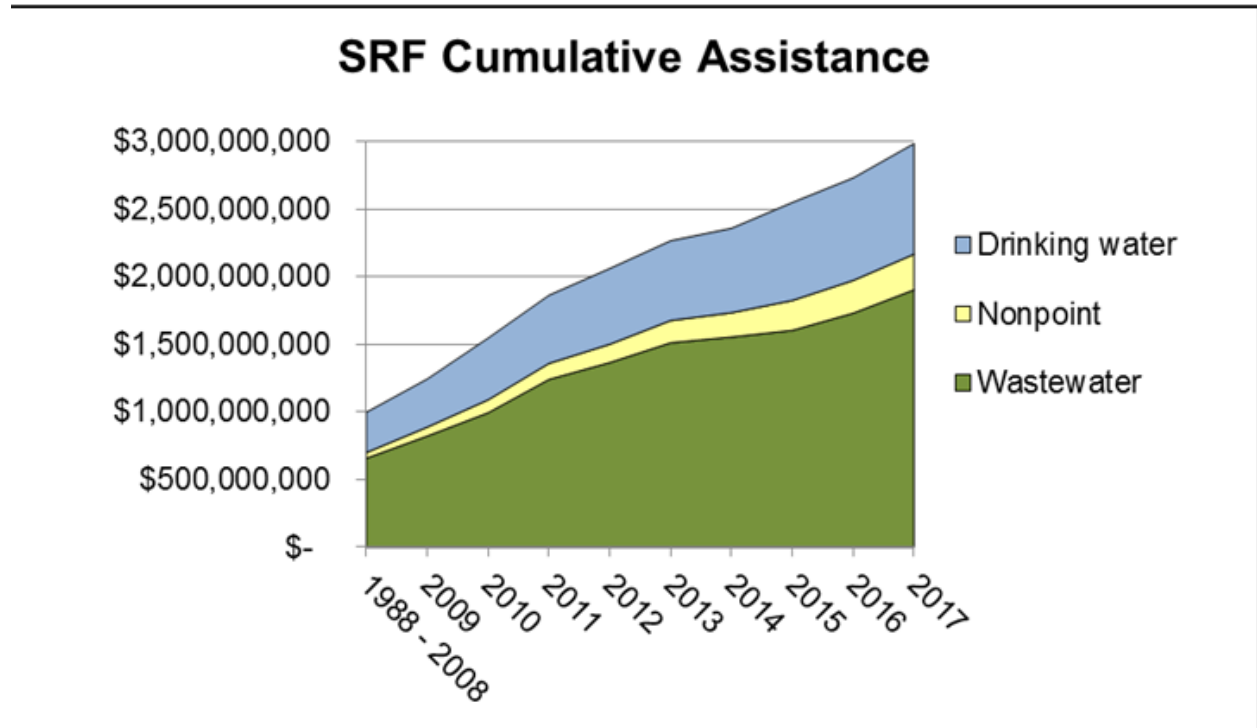
Iowa's SRF program cannot meet all of those needs, but it continues to be an effective and cost-efficient vehicle for financing projects to protect water quality and public health, as intended by Congress and state policy-makers. Iowa, through the work of the Iowa Department of Natural Resources and the Iowa Finance Authority with assistance from the Iowa Department of Agriculture and Land Stewardship, dynamically manages its SRF to fully utilize available resources, serve its borrowers, and create opportunities for innovative financing.

Since 1989, the Clean Water SRF has provided subsidized loans to meet Iowa's publicly owned wastewater infrastructure needs. This includes assistance agreements with cities, counties, sanitary districts, and utility management organizations.

Since 2000, the Drinking Water SRF has provided loans to help Iowa's water systems keep drinking water safe. This includes assistance agreements with cities, municipal utilities, rural water associations, and homeowners' associations.

The SRF was just shy of the \$3 billion mark in cumulative assistance provided during SFY 2017, as shown in the graph. Because the funds are continually being loaned out and repaid with

interest, the SRF continues to grow. This source of financing will continue to meet future needs for a wide variety of Iowa's priority water issues.



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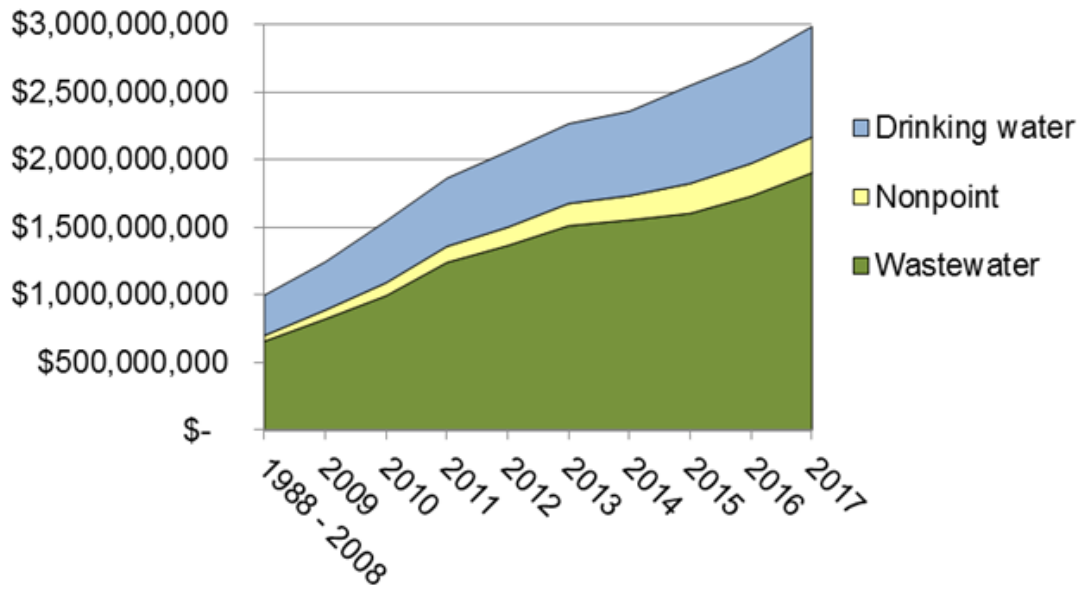
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SRF Cumulative Assistance



During 2017 the EPC Commission continued to have a significant role in supporting the Department of Natural Resources' goal to improve air, water, and overall environmental standards in Iowa. The Commission awarded over 16 million dollars in funds, from state and federal sources, which support this goal.

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One of the EPC's roles is to make decisions on petitions for rulemaking filed by the public. The EPC considered a petition filed by Iowa Citizens for Community Improvement and the Food and Water Watch on July 18, 2017. After analyzing the rule change proposed by the petitioners and taking both written and oral comments from the public, the EPC unanimously denied the petition on September 18, 2017 because the proposal was inconsistent with Iowa law. For example, the petition would have resulted in a moratorium on all livestock farms that are subject to the master matrix. This result would have been contrary to Iowa Code section 459.305(2) which requires the master matrix rule to feasibly provide for a satisfactory rating. Additionally, the current matrix was established with broad stakeholder input and discussion. The EPC will continue to regularly review and update its rules when appropriate, as authorized by Iowa law.

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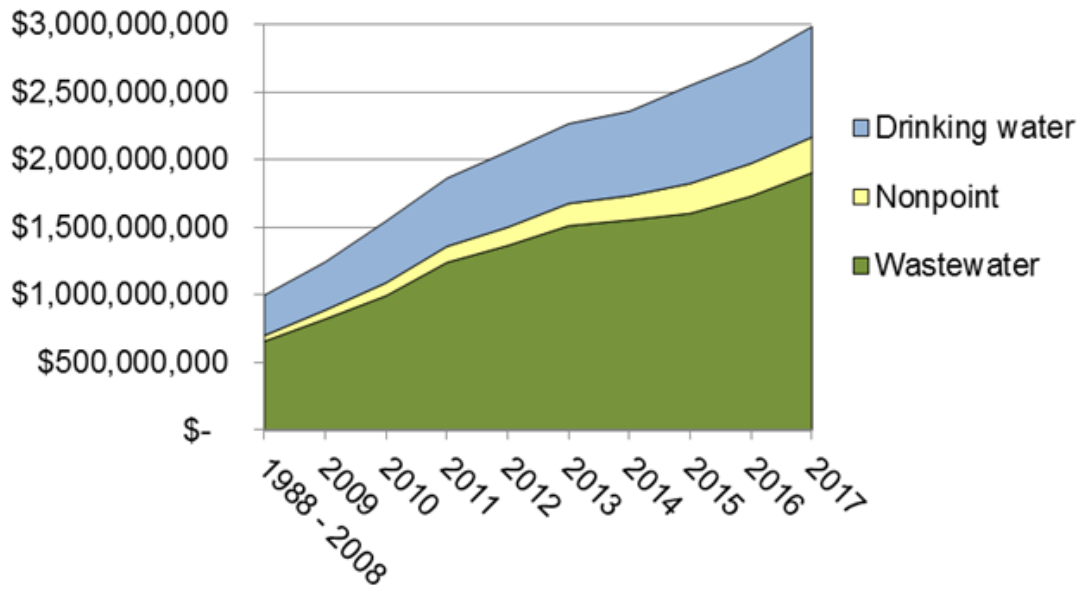
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SRF Cumulative Assistance



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

ITEM

13

DECISION

TOPIC

Notice of Intended Action –Chapter 111, Annual Reports of Solid Waste Environmental Management Systems

The Department is requesting permission from the Commission to proceed with the rulemaking process and publish a Notice of Intended Action to amend Chapter 111, “Annual Reports of Solid Waste Environmental Management Systems,” of the 567 Iowa Administrative Code.

Reason for Rulemaking

The proposed amendments are needed to make changes to the administrative rules consistent with House File 202, signed by former Governor Branstad on April 12, 2017. House File 202 amended the Iowa Code chapter related to environmental management systems, Iowa Code Chapter 455J. An “environmental management system” is a “solid waste planning or service area which has been designated as an environment management system.” An “environmental management system” is a “planning or service area ... that is providing multiple environmental services in addition to solid waste disposal and that is planning for the continuous improvement of solid waste management by appropriately and aggressively mitigating the environmental impacts of solid waste disposal.” Iowa Code section 455J.2.

House File 202 removed the Solid Waste Alternatives Program Advisory Council (council) from Chapter 455J. This council had been vital in the oversight of the establishment of the Environmental Management Systems program, however once the program was established, it was determined that the council was no longer necessary. House File 202 also changed the due date by which the DNR (formerly the council) must review the annual report submitted by each designated system to determine if that system remains in compliance with Chapter 455J. The amendments implement these changes from House File 202.

The proposed amendments also reformat and clarify the annual report submittal information required of program participants.

Summary of Proposed Rule Changes

The proposed rule:

- Eliminates an advisory council for the Solid Waste Environmental Management Systems program and moves the council’s prior responsibilities to the DNR.
- Amends definitions to be consistent with terminology used in Iowa Code Chapter 455J.
- Reformats subrule 111.6 to clarify annual report submittal information requirements for program participants.

- Amends subrule 111.7 to change the annual report review date from October 1 to January 1 of each year.

Stakeholder Involvement

The DNR emailed the draft Notice of Intended Action (NOIA) to all environmental management system participants in Iowa, to the Iowa Society of Solid Waste Operations (ISOSWO), and it was made publicly-available on the DNR's website. No comments were received.

Public Comments and Public Hearing

If the Commission approves the proposed rulemaking, the Department will hold a public hearing on Tuesday, February 13, 2018, at the DNR offices in the Wallace State Office Building, 502 E. Ninth Street, Des Moines. The Department will accept written public comments until 4:30 p.m. on February 14, 2018.

Leslie Goldsmith, Program Planner III
Financial & Business Assistance Section, Land Quality Bureau
Environmental Services Division

Memo date: November 21, 2017

ENVIRONMENTAL PROTECTION COMMISSION[567]

Notice of Intended Action

Pursuant to the authority of Iowa Code section 455J.4(2), the Environmental Protection Commission (Commission) hereby gives Notice of Intended Action to amend Chapter 111 “Annual Reports of Solid Waste Environmental Management Systems”, Iowa Administrative Code.

Many of the proposed amendments are necessary to conform to House File 202, signed by Governor Branstad on April 12, 2017. House File 202 amended the Iowa Code chapter related to Environmental Management Systems, Iowa Code chapter 455J. This legislation removed the Solid Waste Alternatives Program Advisory Council (council) from chapter 455J. This council had been vital in the oversight of the establishment of the Environmental Management Systems program, however once the program was established, it was determined that the council was no longer necessary. House File 202 shifted the duties of the council to the Department of Natural Resources. This legislation also changed the due date by which the Department of Natural Resources (formerly the council) must review the annual report submitted by each designated system to determine if that system remains in compliance with Chapter 455J. The proposed amendments implement these changes from House File 202. The amendments also reformat and clarify the required annual report submittal information.

Specifically, the proposed amendments:

- Eliminate the council and move the council’s prior responsibilities to the Department of Natural Resources;
- Amend definitions to be consistent with terminology used in Iowa Code chapter 455J;

- Reformat subrule 111.6 to clarify annual report submittal information requirements for program participants; and
- Amend subrule 111.7 to change the annual report review date from October 1 to January 1 of each year.

Any interested person may make written suggestions or comments on the proposed amendments on or before February 14, 2018. Such written materials should be directed to Leslie Goldsmith, Iowa Department of Natural Resources, 502 E. 9th Street, Des Moines, IA 50309-0034; via fax at (515)725-8202; or via e-mail at leslie.goldsmith@dnr.iowa.gov.

Oral or written comments will also be accepted at a public hearing that will be held February 13, 2018, at 10:00 a.m. in the DNR's 5W Conference Room at 502 E. Ninth Street, Wallace State Office Building, Des Moines. At the hearing, persons will be asked to give their names and addresses for the record and to confine their remarks to the subject of the amendments. All comments must be received no later than 4:30 p.m. on Wednesday, February 14, 2018.

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

The DNR has determined that the proposed rule will have no impact on employment opportunities in the State. It will also result in a small cost savings to the Environmental Management Systems program because the program will no longer have to pay for council members' travel costs and for the routine meetings held by the council.

These amendments are intended to implement Iowa Code chapter 455J.

The following amendments are proposed.

ITEM 1. Amend rule **567—111.4(455J)** by rescinding the definition of “Council” as follows:

~~“Council” means the solid waste alternatives program advisory council appointed by the director pursuant to Iowa Code section 455J.6.~~

Further amend rule **567—111.4(455J)** by adopting the following **new** definition of “*Department*.”

“*Department*” means the department of natural resources.

Further amend rule **567—111.4(455J)** definition of “Plan component” as follows:

“*Plan component*” means each of the six areas that are required to be addressed in an environmental management system, including: ~~yard~~ organics waste management, hazardous household ~~waste~~ materials collection, water quality improvement, greenhouse gas reduction, recycling services, and environmental education.

ITEM 2. Amend subrule **567—111.6(5) to 111.6(7)** as follows:

111.6(5) ~~*Plan components. Objectives and targets. The following elements shall be addressed for each of the six plan components.*~~

~~*a. Objectives and targets. This element describes*~~ The annual report shall describe the objective(s) relevant to ~~the~~ each of the six plan ~~component~~ components and the targets established for achieving the objective(s).

~~*b. 111.6(6) Action plan. This element provides*~~ The annual report shall provide a plan

that describes the actions necessary to achieve the objectives and targets. The plan includes the identification of ~~the individuals and organizations responsible for carrying out~~ specific tasks, time lines for completion of each step in the plan, and a schedule for periodically reviewing and updating, as conditions dictate, the objectives and targets.

111.6(7) Roles and responsibilities. The annual report shall include identification and documentation of individuals and organizations responsible for specific tasks to carry out the objectives.

~~e. 111.6(8) Communication and training. This element describes~~ The annual report shall describe the processes that have been established for internal and external communication.

(1) a. External communication includes reaching out to those groups and organizations that have been identified as having an interest, stake, or role in the planning or service area's ongoing EMS program. There shall also be procedures for receiving and responding to relevant communication from external interested parties.

(2) b. Internal communication is directed to individuals, organizations and entities that have a role or responsibility within the action plan. Internal communication includes a process to ensure that all responsible parties are familiar with the EMS and have the training necessary to capably execute their roles. A description of the training provided to responsible parties shall be included.

~~d. 111.6(9) Monitoring and measurement. This element describes~~ The annual report shall describe the documented process for monitoring key activities and, at a minimum, measuring performance related to each objective and target.

~~e. 111.6(10) Audit/Assessment. This element provides~~ The annual report shall provide documented procedures for assessing the performance of the component's action plan(s) in terms of achieving the stated objectives and targets and conformance with the overall

EMS. The assessment ~~element~~ shall draw conclusions from the performance measurements.

a. Internal audit. A copy of the result of the latest internal audit that includes the date(s) it was conducted and the identity of the auditor(s) shall be provided as part of the report. An internal audit shall be conducted each state fiscal year.

b. External audit. An external audit shall occur each state fiscal year. The date of the latest external audit or the date the audit will take place, along with the identity and pertinent qualifications of the independent, third-party auditor(s) shall be provided. The results of the external audit shall be incorporated into the report. The department has a prequalification process for external auditors.

~~§ 111.6(11)~~ *Reevaluation and modification.* ~~The reevaluation~~ Reevaluation and modification ~~element is an activity~~ are activities that ~~allows~~ allow a planning or service area to improve and strengthen the EMS on an ongoing basis. ~~This element considers~~ The annual report shall describe areas where the EMS has met, exceeded, or failed to meet expectations. For each plan component, the report shall identify root causes of those outcomes and develop revised goals and activities appropriate to each.

~~111.6(6) Internal audit.~~ A copy of the result of the latest internal audit that includes the date(s) it was conducted and the identity of the auditor(s) shall be provided as part of the report. An internal audit shall be conducted each state fiscal year.

~~111.6(7) External audit.~~ An external audit shall occur each state fiscal year. The date of the latest external audit or the date the audit will take place, along with the identity and pertinent qualifications of the independent, third party auditor(s) shall be provided. The results of the external audit shall be incorporated into the report. The department has a prequalification process for external auditors.

ITEM 3. Amend rule **567-111.7(455.J)** as follows:

567—111.7 (455J) Evaluation criteria. Each annual report shall be reviewed by the ~~council~~ department, and a determination as to whether a planning or service area's EMS is in compliance with Iowa Code section 455J.3 shall be made by ~~October~~ January 1 of each year. Reports shall be reviewed for the following:

1. Completeness in terms of addressing all of the elements set forth in 567—111.6(455J).
2. Progress toward achieving the objectives and targets set forth in the EMS.
3. Clear demonstration of continuous improvement in terms of progress toward achieving the objectives and targets set forth in the EMS.

Upon achievement of these objectives and targets, a reevaluation and decision will be needed to verify whether a new target should be assigned to an objective or, if the objectives and targets were not achieved, what new initiatives should be incorporated into the EMS. Planning and service areas shall review procedures on a regular basis and revise as appropriate.

ITEM 4. Amend rule **567-111.8(455.J)** as follows:

567—111.8 (455J) Evaluation outcomes.

111.8(1) If the ~~council~~ department determines that the annual report adequately demonstrates compliance with the requirements of Iowa Code section 455J.3, the planning or service area shall remain designated as an EMS and shall continue to be qualified for the incentives set forth in Iowa Code section 455J.5.

111.8(2) If the ~~council~~ department determines that the annual report clearly demonstrates that the planning or service area's EMS is no longer in compliance with Iowa Code section 455J.3, the ~~council~~ department may recommend to the environmental

protection commission the revocation of the EMS designation. If the commission concurs with the ~~council's~~ department's recommendation, the planning or service area shall adhere to the comprehensive planning requirements in 567—Chapter 101.

111.8(3) Failure by a planning or service area to submit an annual report by September 1 in any year will result in revocation of the EMS designation, following which the planning or service area shall adhere to the comprehensive planning requirements in 567 – Chapter 101.

Date

Chuck Gipp, Director

Administrative Rules

JOBS IMPACT STATEMENT

1. BACKGROUND INFORMATION

Agency:	Environmental Protection Commission / Department of Natural Resources (DNR)
IAC Citations:	567 IAC Chapter 111
Agency Contact:	Leslie Goldsmith 515-725-8319
Statutory Authority:	Iowa Code Section 455J.4(2)

Objective:	<p>The proposed rule:</p> <ul style="list-style-type: none">• Eliminates an advisory council for the Solid Waste Environmental Management Systems program and moves the council's prior responsibilities to the DNR.• Amends definitions to be consistent with terminology used in Iowa Code Chapter 455J.• Reformats rule 111.6 to clarify annual report submittal information requirements for program participants.• Amends rule 111.7 to change the annual report review date from October 1 to January 1 of each year.
Summary:	<p>The proposed amendments are needed to make changes to the administrative rules consistent with House File 202, signed by former Governor Branstad on April 12, 2017. House File 202 amended the Iowa Code chapter related to environmental management systems, Iowa Code Chapter 455J. This legislation removed the Solid Waste Alternatives Program Advisory Council (council) from Chapter 455J. This council had been vital in the oversight of the establishment of the Environmental Management Systems program, however once the program was established, it was determined that the council was no longer necessary. House File 202 also changed the due date by which the DNR (formerly the council) must review the annual report submitted by each designated system to determine if that system remains in compliance with Chapter 455J.</p> <p>The proposed amendments also reformat and clarify the annual report submittal information required of program participants.</p>

2. JOB IMPACT ANALYSIS

Fill in this box if impact meets these criteria:

 X No Job Impact on private sector jobs and employment opportunities in the State.
(If you make this determination, you must include the following statement in the preamble to the rule: "After analysis and review of this rulemaking, no impact on jobs has been found.")

Explanation: Eliminating the council and shifting its responsibilities to the DNR, as well as making other minor rule formatting clarifications, will have no impact on private sector jobs.

Fill in this box if impact meets either of these criteria:

 Positive Job Impact on private sector jobs and employment opportunities in the State.

 Negative Job Impact on private sector jobs and employment opportunities in the State.

Description and quantification of the nature of the impact the proposed rule will have on private sector jobs and employment opportunities:

Categories of jobs and employment opportunities that are affected by the proposed rule:

Number of jobs or potential job opportunities:

Regions of the state affected:

Additional costs to the employer per employee due to the proposed rule: (if not possible to determine, write "Not Possible to Determine.")

3. COST-BENEFIT ANALYSIS

The Agency has taken steps to minimize the adverse impact on jobs and the development of new employment opportunities before proposing a rule. See the following Cost-Benefit Analysis:

The DNR has determined that the proposed rule will have no impact on employment opportunities in the State. It will also result in a small cost savings to the Environmental Management Systems program because the program will no longer have to pay for council members' travel costs and for the routine meetings held by the council.

4. FISCAL IMPACT

Please see the Fiscal Impact Statement for an identification and description of costs the DNR anticipates state agencies, local governments, the public, and the regulated entities, including regulated businesses and self-employed individuals, will incur from implementing and complying with the proposed rule.

**Administrative Rules
FISCAL IMPACT STATEMENT**

Date: November 6, 2017

Agency: Environmental Protection Commission / Department of Natural Resources (DNR)

IAC Citations: 567 IAC Chapter 111

Agency Contact: Leslie Goldsmith, phone: 515-725-8319

Summary of the Rule: The proposed rule:

- Eliminates an advisory council for the Solid Waste Environmental Management Systems program and moves the council's prior responsibilities to the DNR.
- Amends definitions to be consistent with terminology used in Iowa Code Chapter 455J.
- Reformats subrule 111.6 to clarify annual report submittal information requirements for program participants.
- Amends subrule 111.7 to change the annual report review date from October 1 to January 1 of each year.

Fill in this box if the impact meets any of these criteria:

No Fiscal Impact to the State.

Fiscal Impact of less than \$100,000 annually or \$500,000 over 5 years.

Fiscal Impact cannot be determined.

Brief Explanation:

The proposed administrative rule changes will not impact the Environmental Management Systems program funding designated in Iowa Code section 455J.7. It will also result in a small cost savings to the Environmental Management Systems program because the program will no longer have to pay for council members' travel costs and for the routine meetings held by the council.

Fill in this box if the impact meets this criteria:

Fiscal Impact of \$100,000 annually or \$500,000 over 5 years.

Brief Explanation:

Assumptions:

Describe how estimates were derived:

Not Applicable

Estimated Impact to the State by Fiscal Year

	<u>Year 1 (FY18)</u>	<u>Year 2 (FY19)</u>
Revenue by Each Source:		
GENERAL FUND	\$0	\$0
FEDERAL FUNDS	\$0	\$0
OTHER (Specify)	\$0	\$0
TOTAL REVENUE	<hr/> \$0	<hr/> \$0
Expenditures:		
GENERAL FUND	\$0	\$0
FEDERAL FUNDS	\$0	\$0
OTHER (Specify)	\$0	\$0
TOTAL EXPENDITURES	<hr/> \$0	<hr/> \$0

NET IMPACT

This rule is required by State law or Federal mandate.

Please identify the state or federal law:

Iowa Code section 455J.4(2)

Funding has been provided for the rule change.

Please identify the amount provided and the funding source:

Funding has not been provided for the rule.

Please explain how the agency will pay for the rule change:

The DNR will use existing staff to implement the proposed rule.

Fiscal impact to persons affected by the rule:

Participants of the Environmental Management Systems program will see a slight increase in funds available to the program because funds will no longer paying for council meetings and council members' travel reimbursement.

Fiscal impact to Counties or other Local Governments (required by Iowa Code 25B.6):

There will be no fiscal impact to counties or local governments.

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

ITEM

14

INFORMATION

TOPIC

**Environmental Management System Program Fiscal Year 2017
Annual Report**

The Department of Natural Resources is providing the Commission the Environmental Management System (EMS) Program Fiscal Year 2017 Annual Report submitted in accordance with House File 202, signed by former Governor Branstad on April 12, 2017. House File 202 amended the Iowa Code chapter related to environmental management systems, specifically, Iowa Code Chapter 455J.7(4) which reads: The department shall report an annual report citing the results and costs of the program for submittal to the commission by January 1, 2018, and by January 1 each year thereafter.

The fourteen (14) EMS program participants are each currently carrying out at least six (6) goals, one or more goal in each of the “component areas” noted on the report. They set measurable targets, documenting data and results. Projects vary from twelve months to over two years. Annual internal and third-party audits help ensure that continuous improvement is on-going. Program participants are required to submit an Annual Report to the department on September 1.

December 19, 2017

Leslie Bullock Goldsmith, Program Planner
Financial and Business Assistance, Land Quality Bureau
Environmental Services Division

ENVIRONMENTAL MANAGEMENT SYSTEM

DNR ANNUAL REPORT
FISCAL YEAR 2017

www.iowadnr.gov/swems

502 E. Ninth St. Des Moines, IA 50319 | 515-725-8200

The Iowa Department of Natural Resources (DNR) Environmental Management System (EMS) program provides an opportunity for solid waste planning areas and permitted facility service areas to employ a framework of responsible environmental management initiatives while promoting environmental stewardship and continuous improvement.

Fourteen program participants operate in 30 counties, impacting more than 1.6 million Iowans. Each is required to submit an annual report and undergo an internal and external audit. In Fiscal Year 2017, the program welcomed the Iowa County Regional Environmental Improvement Commission as its newest participant. EMS grant funding provides participants opportunities to leverage local funding with DNR grant dollars to pursue EMS-driven objectives with measured targets. This year, participants supplied 44 percent in cash, bringing the total project value to close to \$500,000.

EMS GRANTS CREATE SUCCESS STORIES

A look at just some of the local successes created through DNR EMS grant funding.

Rathbun Area Solid Waste Commission (RASWC), building on its strong history of local partnerships, worked with five schools and the YMCA to reduce use of disposable plastic water bottles. With \$19,362 in grant funds, with a \$6,454 local match, traditional drinking fountains were replaced with fountain/filling stations, and RASWC distributed reusable bottles. Data collected from the fountains in year one showed more than 120,000 bottles were saved.



The Landfill of North Iowa partnered with the Habitat for Humanity ReStore to promote recycling, and to divert usable building materials and household goods from the landfill. With a \$2,500 EMS grant, matched by \$9,000 in local funding, the landfill modified a warehouse space into a drop-off center. Facility users simply unload items at the convenient warehouse. Through June 2017, more than 4,000 pounds have gone to the ReStore for sale, which helps fund Habitat programs.



South Central Iowa Solid Waste Agency (SCISWA) surveyed its seven most populous cities and discovered residents wanted help with yard waste. A chipper, purchased with \$50,000 in grant funds and \$25,135 in local funding, is available to community partners and to use at the landfill for materials delivered by individuals and cities. SCISWA also offers training and environmental services information. Through June, the chipper was "checked out" five times and was used on-site 34 hours, processing 232 tons of brush.



EMS COMPONENTS

Iowa's EMS program promotes six areas of emphasis, called *components*.

- Organics waste management
- Household hazardous materials collection
- Water quality improvement
- Greenhouse gas reduction
- Recycling services
- Environmental education



EMS PROGRAM COSTS

Third-party external auditor	\$23,940
Technical support and assistance, workshops	\$61,460
Grant funding	\$252,222
TOTAL	\$337,622

FISCAL YEAR 2017 GRANT FUNDING

Funding request	\$252,222
Local cash match	\$200,067
TOTAL	\$452,289

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

ITEM

14

DECISION

TOPIC

PROPOSED CONTESTED CASE DECISION –Diana Costello

This contested case concerns an appeal filed by Diana Costello from the issuance of Flood Plain Development Permit No. FP 2015-258. This permit was issued by the Department to Grand Mound Sportsman’s Club (Grand Mound) for repair of a miscellaneous structure in the flood plain. An evidentiary hearing was held before an Administrative Law Judge on November 6, 2017. On November 22, 2017, the Administrative Law Judge presiding over the hearing issued a Proposed Decision which affirmed the issuance of this permit.

To date there has been no appeal. However, the 30 day appeal period has not expired. Nevertheless, the Department has brought this Proposed Decision to the Commission pursuant to 567 Iowa Administrative Code (IAC) Chapter 7 (incorporating 561 IAC Chapter 7), which requires that a proposed decision be brought to the Commission within 30 days of its issuance. In the absence of an appeal, the Commission may decide on its own motion to review the Proposed Decision. If there is no review of this Proposed Decision, it automatically becomes the final decision of the Commission. Should the Proposed Decision be appealed it will be brought to the Commission again for a hearing of that appeal.

Edmund J. Tormey, Chief
Legal Services Bureau

December 13, 2017

**Iowa Department of Inspections and Appeals
Division of Administrative Hearings
Wallace State Office Building
Des Moines, Iowa 50319**

IN THE MATTER OF:)	DIA NO: 18DNR0006
)	
Diana Costello,)	
Appellant)	
)	PROPOSED DECISION
v.)	
)	
Department of Natural Resources,)	
Respondent)	

This contested case concerns an appeal filed by Diana Costello (Appellant) from the issuance of Flood Plain Development Permit No. FP 2015-258 by the Department of Natural Resources (DNR) to Grand Mound Sportsman’s Club (GMSC) for its Proposed Pond Dike Repair and Streambank Stabilization (Barber Creek) Project. On September 26, 2017, the appeal was transmitted to the Iowa Department of Inspections and Appeals (DIA) for hearing. A Notice of Hearing was issued on September 28, 2017. The hearing was held before the undersigned administrative law judge on November 6, 2017. The DNR was represented by DNR staff attorney Carrie Schoenebaum. Appellant Diana Costello was self-represented.

THE RECORD

The record includes Flood Plain Development Permit No. FP 2015-258 (issued 9/30/15); the Notice of Appeal (filed 10/20/15); appeal transmittal to DIA; Notice of Hearing; Petition; Answer; Department Exhibits 1-9; Appellant Exhibits A-5 to A-39, B-1 to B-38; and the testimony of Andy Jensen, PE and Diana Costello.

At the time of hearing, ruling was reserved on the DNR’s objection to the admission of Appellant Exhibit A-24 to A-25 based on attorney client privilege. The exhibit was a June 8, 2016 email that a DNR Environmental Specialist (Terry Jones) sent to DNR engineer Andy Jensen and DNR attorney Carrie Schoenebaum. Another DNR employee (Deborah Quade) was also copied on the email. The email describes Mr. Jones’ findings when he visited the GMSC’s permitted construction site with Nate Mueller, Flood Plan

Coordinator for Clinton County on June 6, 2016. Although the email ends with Mr. Jones asking if there were any new developments in Costello's permit appeal, the exhibit does not include any response to the email from Ms. Schoenebaum. In addition, the exhibit shows that Mr. Jones forwarded his email to Nate Mueller, who provided it to Diana Costello. The DNR did not provide legal authority for its assertion of attorney-client privilege and stated only that the DNR Director was the client and therefore the Director was the only person who could waive the privilege.

In order for a communication to be protected by attorney-client privilege it must be made in confidence, and the burden of proof is on the person who seeks to establish the privilege. *Bailey v. Chicago, B. & Q.R. Co*, 179 N.W.2d 560, 564 (Iowa 1970). No privilege ordinarily attends when the client imparts information to his attorney for transmittal to others, which attorney is duty bound to make public, or which is contained in any pleading or other document publicly filed or in some manner publicized for or on behalf of communicant. *Id.* The communication in Terry Jones' June 8, 2018 email does not appear to have been made in confidence to the DNR's attorney. Two other DNR employees were copied on the email and the author of the email forwarded it outside the agency to the Clinton County Flood Plain Coordinator and characterized it as "my report to Carrie and Andy." Moreover, as a public agency the DNR's records are assumed to be public records and there is nothing in the content of this email to support an assertion that it is a confidential communication entitled to attorney-client privilege. The objection to A-24, A-25 is overruled.

FINDINGS OF FACT

Background Information. Diana Costello owns property in Clinton County, Iowa that is located north of Barber Creek and that lies almost entirely within the Barber Creek 100 year flood plain. Ms. Costello has owned this property since 1991. Grand Mound Sportsman's Club (hereinafter, "GMSC") owns adjacent land that lies south of Barber Creek. There is a large pond located on the north side of GMSC's property. According to the most recent Flood Insurance Rate Map (FIRM) for this area, only the portion of GMSC's property that lies north, northeast and northwest of the pond lies in the flood plan. There is an existing structure (levee/dike/berm)¹ on the north side of the pond and parallel to Barber Creek. (See DNR Exh. 2; Costello testimony) This appeal is from the

¹ Throughout the exhibits in the record, the structure along the pond has been interchangeably referred to as a "levee" or "dike." The DNR's engineer, Andrew Jensen, testified that the structure would not be classified as a levee or dike under the DNR's administrative rules and that it is classified as "miscellaneous construction." Mr. Jensen referred to the structure as a berm. (Jensen testimony)

permit issued by the DNR for the repair and maintenance of the existing structure by GMSC. (DNR Exh. 4, 8; Notice of Appeal)

The exhibits include the following pertinent history for this structure:

- In 2002, GMSC modified an existing levee located adjacent to the pond by placing spoil material from a pond dredging project onto the levee, thereby increasing its top elevation. This work was done without a permit, and Diana Costello filed a complaint with the DNR. The DNR's field office investigated and confirmed pond excavation with spoil disposal on the north and west edges of the pond. The DNR's report noted that the levee appeared to have been raised by several feet. The DNR sent a standard Notice of Violation (NOV) to GMSC on July 18, 2003. After receiving the NOV, GMSC stopped all work and submitted an application for an after-the fact flood plain permit. The permit was required to repair damage to the dike created by rodents and erosion, to excavate the pond, to cut a hole in the levee to aid in draining the pond for the excavation, and to repair the hole cut in the levee. (DNR Exh. 5)
- In October 2003, GMSC reported that they had restored the top elevation of the levee to its pre-project level. An inspection by the DNR's field office was inconclusive although a comparison of photos from 2002 and 2003 showed that some work had been completed. Diana Costello claimed that the levee was still 4 to 5 feet higher than pre-project conditions. On January 28, 2004, the DNR sent another NOV to GMSC, which stated that it did not appear that the levee had been restored to pre-project conditions. GMSC was directed to restore the levee to verifiable pre-project conditions, to seek after-the-fact approval for the levee as-is, or to completely remove the levee. (DNR Exh. 5)
- When GMSC was unable to show that the levee had been adequately degraded through photos, the DNR suggested an alternative compliance proposal. DNR proposed that GMSC create a hydraulic equivalent condition to the pre-project conditions by excavating a "notch" in the upstream (west) end of the levee to the level of the levee at the east end in order to create a flow path for floodwaters through the pond. GMSC agreed to the notch proposal in March 2004. When the completed notch was inspected, it was determined to be .4 to .8 feet too high. DNR staff met with Ms. Costello and her partner, Ed Kasemodel, and listened to their numerous concerns. On June 23, 2004, the DNR notified GMSC that it needed to complete additional excavation of the notch by July 31, 2004. (DNR Exh. 5; Appellant Exh. 9)

- On August 17, 2004, DNR staff confirmed that the notch had been constructed to the required dimensions. On August 25, 2004, the DNR issued a signoff letter stating that the work was satisfactory and that no further action would be taken. The letter noted that GMSC must contact the DNR prior to any repair, reconstruction, or maintenance (other than mowing) work undertaken on the levee. (DNR Exh. 5; Appellant Exh. 7, 8)

Diana Costello continued to raise concerns/complaints that the restored levee was causing increased flooding on her property. A DNR memo dated January 19, 2006 states that the DNR's flood plain staff discussed whether hydraulic modeling could be undertaken to demonstrate that the "notch" created conditions that are at least hydraulically equivalent to the conditions that existed prior to the 2002 levee work. They determined that although sufficient survey information could be obtained to perform hydraulic modeling for existing conditions, the effort would be of limited benefit because corresponding survey information for pre-2002 conditions did not exist. Without such data, the flood plain staff had to rely on professional judgment to make comparisons between pre- and post-project conditions. Pre-project conditions could only be estimated based on vegetative growth and soil disturbance. The consensus among the experienced flood plain staff was that the "notch" provided substantially more conveyance (less obstruction) and exerted less control on floodwater conveyance than the abandoned road on the south overbank immediately downstream of the site. The staff concluded that hydraulic conditions were as good as, and probably improved, over conditions that existed prior to the 2002 work. (DNR Exh. 5)

On January 23, 2006, DNR Director Jeffrey Vonk sent a letter to Diana Costello and Ed Kasemodel that summarized these staff findings. Director Vonk's letter further stated that the DNR had taken final agency action when it sent its January 14, 2005 letter to them stating that the notch in the levee provided for as much or more conveyance area for floodwaters than was available prior to the placement of the dredge spoil - a "hydraulically equivalent" situation. Director Vonk's letter stated that as of August 2004, the Sportsman's Club was no longer in violation of the rules and that the DNR would take no further action. (DNR Exh. 7; Appellant Exh. 10)

On March 30, 2007, DNR Director Richard Leopold responded in writing to a telephone call from Diana Costello. Director Leopold indicated that he had asked DNR staff to review the project and learned that a final department decision had been issued regarding the levee. Director Leopold advised Ms. Costello that the decision still stands and that all regulatory requirements had been satisfied. The letter informed Ms. Costello that she

has the right to pursue a private legal action against GMSC for damages if she believed that she had been financially harmed by the structure. (Appellant Exhibit 11).

2015 Permit Application and DNR Issuance of Flood Plain Development Permit FP-2015-258. On June 30, 2015, GMSC filed a Joint² Application for a flood plain development permit with the DNR. The project description included in the application stated that it was to repair the existing pond dike to original condition prior to recent heavy rains and flooding that occurred on or before June 15, 2015. The dike was described as approximately 433 feet long, an average of 17 feet wide. It was located on the north side of the pond and parallel to Barber's Creek. The damage had occurred to 57 feet on the west end of the dike and 39 feet on the east end. GMSC's intentions included "filling with soil, compacting, and placement of 4" or less of rip rap, or similar materials." The work was to be done with small equipment (skid loader, mini backhoe, shovels and rakes.) The application further stated that there would be no discharge of dredged materials and that the work area would be seeded for soil stability and to prevent erosion when the repairs were completed. The application included photos showing the damage (blown out areas) of the top side of the berm. The "purpose and need" for the project was described as protecting the existing stocked pond from flood waters and to provide clean water for fish, aquatic life, reptiles and migratory waterfowl that come to rest or raise their young. (DNR Exh. 3; Jensen testimony)

Andrew Jensen is a licensed professional engineer who has been employed by the DNR's Flood Plain Management and Dam Safety Section for 8 years. Mr. Jensen had 20 years' of engineering experience in the public and private sector prior to his employment with the DNR. Mr. Jensen was assigned to review and evaluate the GMSC's flood plain permit application. The review process required by the DNR's rules can be accomplished remotely does not require a site inspection. (Jensen testimony; DNR Exh. 1)

Prior to reviewing the application, Mr. Jensen searched the DNR's Flood Plain Management database, and he found and reviewed the complaint investigation and report for the same location as the permit application, which had been completed and closed in 2004.³ Mr. Jensen then determined that the drainage area of the stream at the project site was 14.7 square miles, which exceeded the regulatory threshold to require a permit. (Jensen testimony; DNR Exh. 5)

² It is referred to as a "joint" application because one copy is filed with the DNR and one copy is filed with the United States Army Corps of Engineers. (Jensen testimony).

³ That prior investigation is summarized in the "Background Information" section of this decision.

Mr. Jensen then reviewed the permit application and prepared a Flood Plain Project Review report. (Jensen testimony; DNR Exh. 5) He used the criteria applicable to miscellaneous construction (structures, obstructions, and deposits).⁴ The criteria provide that miscellaneous structures, obstructions, or deposits shall not be located so as to individually or collectively conflict with 567 IAC 75.4, which is the rule governing the establishment of encroachment limits.⁵ Subrule 75.4(1) provides that the increase in the water surface elevation of Q100 which would result from confining flood flows to the floodway shall not exceed one foot. The "Q100" refers to the flow rate that is considered to be the 100 year flood in that part of the river valley. (Jensen testimony)

Mr. Jensen then conducted a hydrologic/hydraulic review to estimate the effect of GMSC's pond dike on water surface elevations. In order to do this, he first obtained terrain data from LiDAR (Light Detection and Ranging) flights from 2009. LiDAR is a highly accurate sensing method to determine elevations by scanning the earth from aircraft using lasers. 3D digital topography models are developed from the LiDAR data. In addition, because there are no river gauges along Barber Creek, Mr. Jensen estimated the stream flow rate using data that was developed by the United States Geographical Survey (USGS) using a program called "StreamStats." StreamStats uses data from stream gauges all around the country that are all tied back to a regional type of topography and land use. StreamStats is an accepted method to determine the flow rate (75 year, 100 year, etc) for a specific drainage area. Using StreamStats, Mr. Jensen estimated that the 100 year flow rate (flow rate for the 100 year flood event) at this location is 5700 cubic feet per second (cfs). (Jensen testimony; DNR Exh. 5, 6)

The Flood Plain Project Review Report prepared by Mr. Jensen includes graphical depictions (cross-sections) of the shape of the stream channel and the adjacent land. (See DNR Exh. 5, starting at page 3) These were created using the LiDAR data and the 3D digital topography model. The vertical scale on the graph is exaggerated to show finer detail. Mr. Jensen then imported this geometric data into a hydraulic computer program (Iowa Bridge Hydraulics). When he entered the flow rate, the computer program solved for "Manning's equation", which is the most widely accepted equation to describe flows in an open channel. It is dependent on the slope of the stream, the roughness of the channel and the adjacent terrain, and the flow area at a certain water depth. (Jensen testimony; DNR Exh. 5)

- The first cross-section contained in the report shows the terrain that would have existed prior to the pond dike being constructed to its current configuration (pre-

⁴ See 567 IAC 71.12, 72.11, 75.4.

⁵ 567 IAC 72.11(1).

dike). Using the available data and the computer model, Mr. Jensen was able to calculate the base line 100 year flood water surface elevation level (WSEL) at this cross section as 641.9 feet above sea level (NAVD 88 is the latest calibration of sea level).

- The second cross-section reflects the conditions that exist with GMSC's pond with the existing dike (berm) as maintained in accordance with the permit. Mr. Jensen calculated that the base line 100 year flood water surface elevation was 642.2 feet above sea level. This showed that the pond dike creates an estimated 0.3 feet of increase in the 100 year flood elevation, which is within the 1 foot rise that is allowable under the rules.
- Mr. Jensen also included four additional cross-sections that show the terrain just upstream of the GMSC pond, that show the terrain that includes the GMSC pond, that show the terrain just upstream of the abandoned county road embankment that is just east of the GMSC pond, and that shows the abandoned county road embankment. (DNR Exh. 5; Jensen testimony)

Mr. Jensen ultimately determined that the proposed project to repair and maintain the dike/berm would comply with all of the requirements in the DNR's rules, including the requirement that the increase in the water elevation during a 100 year flood event cannot exceed one foot, so long as GMSC complied with the special conditions established in the permit. He noted that the purpose of the conveyance notch is to allow flood waters during a 100 year flood event to flow through the notch and enter the pond. (Jensen testimony; DNR Exh. 4, 5)

On September 30, 2015, the DNR issued Flood Plain Development Permit Number FP 2015-258 to GMSC. This permit authorized the following activity:

In accordance with the approved plans and subject to the following permit conditions, permittee is authorized to construct and maintain fill and riprap revetment to repair an existing pond dike and to construct and maintain riprap revetment along an eroding creek bank on the flood plain of Barber Creek at the above described location.

The permit included 9 conditions. The first 6 conditions are common conditions to all such permits while conditions 7, 8, and 9 are conditions that are specific to this particular permit.

- Condition Number 7 is the revetment requirement, which specifies that the acceptable revetment (material used to armor the creek bank) includes riprap, field

stone, quarry rock and Portland Cement Concrete (PCC). When using broken PCC, all exposed reinforcing steel rod or mesh must be cut flush with the surface of the concrete prior to placement and any concrete pieces larger than 3 feet in diameter must be broken into smaller sizes prior to placement. The revetment was required to consist of a uniform mixture of sizes of material laid to form a compact surface capable of resisting erosion. The finished slope on the revetment shall be no steeper than two feet horizontal to one foot vertical (2H:1V). The purpose of this condition was to avoid having rock slip into the stream and create additional obstruction.

- Condition Number 8 specifies that any spoil material (left over material) resulting from the project shall be removed from the flood plain or may be spread thinly (less than 0.5 feet thick) across the flood plain. The spoil material shall not be placed in an area that is or could be classified as a flood plain. The purpose of this condition was to ensure no further obstructions than what was contemplated in the permit review.
- Condition Number 9 requires repairs to be made so that the dike will be restored to the dimensions and configuration that existed during the field examination by the DNR on August 17, 2004 and further requires that the 60 feet wide flood flow conveyance notch shall not be filled in or obstructed.

(DNR Exhibit 4) The DNR's field offices are responsible for enforcing conditions of flood plain permits based on complaints received from the public. (Jensen testimony)

Events Following Permit Approval. Diana Costello filed a timely appeal of FP Development Permit No. 2015-258 on October 20, 2015. In her appeal, Ms. Costello contended that the existing dike had created a wind dam that diverts all water to her land causing damage to her land, trees, duck houses, etc. Ms. Costello further contended that the dike had increased the width of the creek with damage. (Notice of Appeal; Appellant Exh. A-23)

GMSC moved forward with the work that was authorized by FP Development Permit No. 2015-258. GMSC notified Nate Mueller, Flood Plain Coordinator for Clinton County, that the work had been completed. Mr. Mueller conducted a final inspection of the project and asked Terry Jones, an Environmental Specialist with the DNR field office to meet him at the site to review some concerns. Mueller and Jones met at the site on June 6, 2016. Mr. Jones' summarized his findings in a June 8, 2016 email to Andy Jensen and the DNR's attorney. In this email, Mr. Jones noted deficiencies in GMSC's compliance with the permit conditions. With respect to condition #7, Mr. Jones noted that some of the concrete was larger than 3 feet in diameter, a few metal rods/bars were sticking out

of the concrete chunks, and concrete slabs were dumped and not “laid to form a compact surface capable of resisting erosion. With respect to condition #9, Mr. Jones noted that the 60 foot flood flow conveyance notch was not level across the 60 foot span and was not as defined as before the work. Mr. Jones made some suggestions to address these deficiencies but also noted that Nate Mueller intended to require GMSC to address the revetment deficiencies and to survey the site so that he has official elevations of the finished project. Mr. Jones noted that the elevation survey would go a long way to address Ms. Costello’s argument that the notch is too high to allow flood water to adequately flow through. (DNR Exh. 24, 25; Appellant Exh. 27, 28)

At hearing, Diana Costello testified that after they had a 5 ½ inch rainfall, her land was completely flooded while no water was getting through the notch (cut-out) and entering the pond. She had a drone come in and take photos of this, which are her Exhibits B-12 to B-14. The photos are undated. Ms. Costello believed the 5½ inch rainfall was either in June or August 2016 and that this was when the drone photos were taken. She did not know whether this particular rain constituted a 100 year flood event. (Costello testimony; Appellant Exh. B-12 to B-14)

Ms. Costello also submitted dated photos from December 8, 2016 and July 21, 2017 that show flooding on her property. (Appellant Exh. B-8 to B-11). She submitted undated photographs showing fresh dirt and piles of dirt on the dike and contended that they show fresh dirt being used to fill in the notch (cut-out) in violation of the permit. According to Ms. Costello, work has been done with equipment that is larger than allowed by the permit and the added dirt has fallen into the creek further restricting the flow. (Costello testimony; Appellant Exh. B-15 to B-17) Ms. Costello contends that two undated photos (Exh. B-25 and B-26) show that the creek on her property is now 3 times wider since GMSC have been adding dirt. (Costello testimony)

CONCLUSIONS OF LAW

Iowa Code section 455B.275(3)(a)(1)(2015) requires any person who desires to erect, construct, use or maintain a structure, dam obstruction, deposit, or excavation in or on any floodway or floodplains to file a written application with the DNR. The application shall set forth information as required by rule of the Environmental Protection Commission (Commission). The DNR is authorized by statute to approve or deny the application, following an investigation, and to impose conditions and terms. Iowa Code section 455B.275(3)(b)(2015).

When the DNR receives a permit application for the construction or maintenance of any

structure, dam, obstruction, deposit, or excavation to be erected, used, maintained in or on the flood plains of any river or stream, it is required to investigate the effect of the construction or maintenance project on the efficiency of the floodway. In determining the effect of the proposal, the DNR is required to fully consider its effect on flooding of or flood control for any proposed works and adjacent lands and property, on the wise use and protection of water resources, on the quality of water, on fish, wildlife, and recreational facilities or uses, and on all other public rights and requirements. Iowa Code section 455B.264(3)(2015).

The legislature has authorized the Commission to adopt, modify, or repeal rules establishing procedures by which permits required under Iowa Code chapter 455B, Division III, Part 4 shall be issued, suspended, revoked, modified, or denied. The rules shall include provisions for application, public notice and opportunity for public hearing, and contested cases. Public notice of a decision by the director to issue a permit shall be given in a manner designed to inform persons who may be adversely affected by the permitted project or activity. Iowa Code section 455B.278(1)(2015).

The Commission has adopted rules governing flood plain and floodway development and the criteria for approval at 567 IAC chapters 70-75. 567 IAC 75.4 provides, in relevant part:

567-75.4(455B) Establishment of the floodway. Regulations established by department flood plain management order or by approved local ordinances shall provide for a floodway: An area of the flood plain which must be reserved for the conveyance of flood flows so that flood heights and velocities will not be substantially increased by future encroachment on the flood plain. Delineation of the encroachment limits defining the outer limits of the floodway must conform to the following criteria insofar as possible.

75.4(1) Increase in water surface elevation. The increase in the water surface elevation of the 100-year recurrence interval flood which would result from confining flood flows to the floodway shall not exceed one foot.

75.4(2) Equal and opposite conveyance. The concept of equal and opposite conveyance as defined in chapter 70 of these rules shall be used to locate encroachment limits.

...

567 IAC 70.2 defines “*equal and opposite conveyance*” as the location of development offsets from stream banks so that flood plain lands on each side of a stream convey a share of the flood flows proportionate to the total conveyance available on each respective side of the stream.

The rules relevant to permits for miscellaneous structures, obstructions, or deposits in the floodway or flood plain are found in chapters 71 and 72. Pursuant to 567 IAC 71.12(1), Department approval is required for the construction, operation, and maintenance of miscellaneous structures, obstructions, or deposits on the floodway or flood plain of any river or stream draining more than 10 square miles where such works obstruct more than 3 percent of the cross-sectional area of the stream channel at bankfull stage or where such works obstruct more than 15 percent of the total cross-sectional area of the flood plain at any stage. In determining a 15 percent obstruction of the flood plain, the concept of equal and opposite conveyance as defined in 567-chapter 70 shall apply.

In addition, 567 IAC 72.11 provides the criteria that pertains to miscellaneous construction. Subrule 72.11(1)“a” provides:

- a. Miscellaneous structures, obstructions, or deposits shall not be located so as to individually or collectively conflict with 567_75.4(455B) governing the establishment of encroachment limits.

The preponderance of the evidence in the record established that the DNR followed the proper procedures and employed the relevant criteria when it reviewed the permit application filed by GMSC for its impact on the floodway and approved the issuance of Flood Plain Permit No. FP 2015-258, with special conditions. The DNR’s engineer conducted a hydrologic/hydraulic review of the proposed project using the best available data, analysis tools and methodology and concluded that the approved project would only increase the 100 year flood profile by 0.3 feet, which was within the maximum 1 foot increase allowed by the DNR’s rules. There is no evidence in the record that rebuts the analysis and calculations performed by the DNR’s engineer.

Diana Costello’s presentation at hearing focused on her contentions that GMSC’s repair and maintenance activities on the dike have not been in compliance with the special conditions of the permit and that the “notch” or cut-out is not currently serving its intended purpose by conveying flood waters through the pond. Ms. Costello contends that GMSC has raised the height of the dike and the notch, in violation of the permit and its prior agreement with the DNR. Ms. Costello further maintains that there has been increased flooding on her property since the permit was issued due to GMSC’s activities.

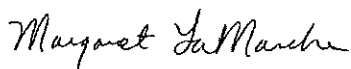
Ms. Costello has provided some evidence, most notably the report of DNR Environmental Specialist Terry Jones, to show that GMSC did not fully comply with the special conditions of the permit when repairing and maintaining the dike. Nevertheless, enforcement of the permit and enforcement of the prior agreement concerning the notch is beyond the scope of this appeal hearing. The issue for this appeal is limited to whether the permit, as written, was properly issued in accordance with the DNR's statute and rules. Enforcement issues are for the DNR to investigate and address when complaints are filed.

The evidence in this record does not establish that the activity that was permitted pursuant to Flood Plain Permit No. FP 2015-258 has resulted or will result in an increase in the water surface elevation in the floodway of more than one foot during a 100 year flood event. It is unknown whether the additional flooding that Ms. Costello has reported on her property after the permit's issuance occurred during a 100 year flood event. Therefore, the record supports the conclusion that the permit was properly issued.

ORDER

IT IS THEREFORE ORDERED that the issuance of Flood Plain Permit No. FP 2015-58 is hereby AFFIRMED.

Dated this 22nd day of November, 2017.



Margaret LaMarche
Administrative Law Judge
Department of Inspections and Appeals
Wallace State Office Building-Third Floor
Des Moines, Iowa 50319

cc: Diana Costello, 2350 270th Street, Grand Mound, IA 52751 (CERTIFIED); Carrie Schoenebaum, Legal Services Bureau, Iowa Department of Natural Resources, Wallace State Office Building-Third Floor, Des Moines, Iowa 50319 (LOCAL)

Either party may file an appeal with the director of the department of natural resources within 30 days after receipt of the proposed decision and order. The agency may also decide on its own to review a proposed decision, notwithstanding the absence of a timely appeal by a party. 561 IAC 7.17(5).