

STATE OF MICHIGAN
IN THE SUPREME COURT

3M COMPANY,

Plaintiff-Appellee,

v

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND
ENERGY,

Defendant-Appellant.

Supreme Court No. 166189

Court of Appeals No. 364067

Court of Claims No. 21-78-MZ

The appeal involves a ruling that a provision of the Constitution, a statute, rule or regulation, or other state governmental action is invalid.

APPELLANT'S APPENDIX

Richard S. Kuhl (P42042)
Assistant Attorney General
Attorney for Defendant-Appellant
Michigan Department of
Environment, Great Lakes, and
Energy
Environment, Natural Resources, and
Agriculture Division
P.O. Box 30755
Lansing, MI 48909
(517) 335-7664
KuhlR@michigan.gov

Dated: March 29, 2024

TABLE OF CONTENTS

Volume One (Pages 001 to 256)

| Description | Volume | Page No. |
|--|--------|----------|
| Register of Actions | 1 | 001–008 |
| Summons and Complaint | 1 | 009–083 |
| September 2, 2021 Opinion and Order | 1 | 084–094 |
| November 15, 2022 Opinion and Order | 1 | 095–114 |
| August 22, 2023 Opinion | 1 | 115–123 |
| Health-Based Drinking Water Value Recommendations for PFAS in Michigan | 1 | 124–165 |
| EGLE-DWEHD Request for Rulemaking | 1 | 166–167 |
| Meeting Packet for October 31, 2019 ERRC Meeting | 1 | 168–244 |
| ERRC Minutes of October 31, 2019 Meeting | 1 | 245–247 |
| November 13, 2019 Letter to Rob Nederhood from Dave Fiedler | 1 | 248–253 |
| ERRC Minutes of November 14, 2019 Meeting | 1 | 254–256 |

Volume Two (Pages 257 to 368)

| Description | Volume | Page No. |
|--|--------|----------|
| EGLE-DWEHD RIS for Rule Set 2019-35 EG | 2 | 257–265 |
| PFAS Rulemaking – Public Comment Summary | 2 | 266–282 |
| ERRC Minutes of February 27, 2020 ERRC Meeting | 2 | 283–286 |
| March 9, 2020 MOAHR Report to the JCAR | 2 | 287–353 |
| March 23, 2020 letter from Rob Nederhood to JCAR | 2 | 354–356 |
| EGLE-RRD RIS for Rule Set 2020-130 EQ | 2 | 357–368 |

| | | | |
|---|------------------------------------|---|---|
| STATE OF MICHIGAN COURT OF CLAIMS | REGISTER OF ACTIONS | CASE ID 21-000078-MZ C/COC/MI | Public 2/10/2023 8:45:10 AM Page: 1 of 8 |
|---|------------------------------------|---|---|

CASE

| Judicial Officer | Date Filed | Adjudication | Status |
|------------------|------------|------------------------------|-----------------|
| SWARTZLE, BROCK | 4/21/21 | SUMMARY DISPOSITION 11/15/22 | CLOSED 11/15/22 |

PARTICIPANTS

| | | |
|---|---|----------------|
| PLAINTIFF 1 | 3M COMPANY | FILED: 4/21/21 |
| | ATTY: AMY M. JOHNSTON # 51272 PRIMARY RETAINED | |
| DEFENDANT 1 | MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY | FILED: 4/21/21 |
| | ATTY: RICHARD S. KUHL # 42042 PRIMARY RETAINED | |
| MISCELLANEOUS 1 INACTIVE AS OF 7/27/21 | ECOLOGY CENTER | FILED: 7/9/21 |
| | ATTY: ERIN ELIZABETH METTE # 83199 PRIMARY RETAINED | |
| MISCELLANEOUS 2 INACTIVE AS OF 7/27/21 | GREAT LAKES ENVIRONMENTAL LAW CENTER | FILED: 7/9/21 |
| | ATTY: ERIN ELIZABETH METTE # 83199 PRIMARY RETAINED | |
| MISCELLANEOUS 3 INACTIVE AS OF 7/27/21 | HURON RIVER WATERSHED COUNCIL | FILED: 7/9/21 |
| | ATTY: ERIN ELIZABETH METTE # 83199 PRIMARY RETAINED | |
| MISCELLANEOUS 4 INACTIVE AS OF 7/27/21 | NATURAL RESOURCES DEFENSE COUNCIL | FILED: 7/9/21 |
| | ATTY: ERIN ELIZABETH METTE # 83199 PRIMARY RETAINED | |
| MISCELLANEOUS 5 INACTIVE AS OF 7/27/21 | PFAS ALLIANCE | FILED: 7/9/21 |
| | ATTY: ERIN ELIZABETH METTE # 83199 PRIMARY RETAINED | |
| MISCELLANEOUS 6 INACTIVE AS OF 7/27/21 | SIERRA CLUB | FILED: 7/9/21 |
| | ATTY: ERIN ELIZABETH METTE # 83199 PRIMARY RETAINED | |
| MISCELLANEOUS 7 INACTIVE AS OF 7/27/21 | TIP OF THE MITT WATERSHED COUNCIL | FILED: 7/9/21 |
| | ATTY: ERIN ELIZABETH METTE # 83199 PRIMARY RETAINED | |
| MISCELLANEOUS 8 INACTIVE AS OF 7/27/21 | FOR LOVE OF WATER | FILED: 7/12/21 |
| | ATTY: JAMES M. OLSON # 18485 PRIMARY RETAINED | |
| MISCELLANEOUS 9 INACTIVE AS OF 7/27/21 | MICHIGAN ENVIRONMENTAL COUNCIL | FILED: 4/21/21 |
| | ATTY: SEAN NATHANIEL HAMMOND # 79566 PRIMARY RETAINED | |
| MISCELLANEOUS 10 INACTIVE AS OF 7/27/21 | ENVIRONMENTAL LAW & POLICY CENTER | FILED: 4/21/21 |
| | ATTY: MARGRETHE K. KEARNEY # 80402 PRIMARY RETAINED | |
| MISCELLANEOUS 11 INACTIVE AS OF 7/27/21 | NATIONAL WILDLIFE FEDERATION | FILED: 7/12/21 |
| | ATTY: ODAY SALIM # 80897 PRIMARY RETAINED | |

RECEIVABLES/PAYMENTS

| | Assessed | Paid/Adjusted | Balance |
|--|----------|---------------|---------|
| PTF 1 3M COMPANY | \$235.00 | \$235.00 | \$0.00 |
| | Assessed | Paid/Adjusted | Balance |
| DEF 1 MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, A | \$85.00 | \$45.00 | \$40.00 |

| | | | |
|---|----------------------------|--|---|
| STATE OF MICHIGAN COURT OF CLAIMS | REGISTER OF ACTIONS | CASE ID 21-000078-MZ C/COC/MI | Public 2/10/2023 8:45:10 AM Page: 2 of 8 |
|---|----------------------------|--|---|

| | Assessed | Paid/Adjusted | Balance |
|-----------------------|----------|---------------|---------|
| MISC 1 ECOLOGY CENTER | \$40.00 | \$40.00 | \$0.00 |

CHRONOLOGICAL LIST OF ACTIVITIES

| Activity Date | Activity | Amount | User | Entry Date |
|---------------|--|----------|------------|--------------------|
| 4/21/21 | SUMMONS AND COMPLAINT PTF 1 DEF 1 | \$175.00 | amd ma | 4/22/21 4/26/21 |
| 4/21/21 | JUDICIAL OFFICER ASSIGNED TO O'BRIEN, COLLEEN A. 33095 | | amd | 1/1/22 |
| 4/21/21 | RECEIVABLE ELECTRONIC FILING SYSTEM FEE | \$25.00 | amd | 4/22/21 |
| 4/21/21 | RECEIVABLE FILING FEE | \$150.00 | amd | 4/22/21 |
| 4/23/21 | NOTIFICATION PURSUANT TO MCR 8.126(A)(A)(1)(B) - JAYNI A. LANHAM | | amd | 4/23/21 |
| 4/23/21 | NOTIFICATION PURSUANT TO MCR 8.126(A)(A)(B) - NESSA ELISE COPPINGER | | amd amd | 4/23/21 4/23/21 |
| 4/23/21 | MOTION FOR PERMISSION FOR TEMPORARY ADMISSION OF JAYNIE A. LANHAM PTF 1 | \$20.00 | amd ma | 4/23/21 4/26/21 |
| 4/23/21 | RECEIVABLE MOTION FEE | \$20.00 | amd | 4/23/21 |
| 4/23/21 | MOTION FOR PERMISSION FOR TEMPORARY ADMISSION OF NESSA ELISE COPPINGER PTF 1 | | amd | 4/23/21 |
| 4/23/21 | RECEIVABLE MOTION FEE | \$20.00 | amd | 4/23/21 |
| 4/26/21 | PAYMENT RECEIPT NUMBER: COC-LAN.0005381 METHOD: ELECTRONIC FUND TRANSFER \$175.00 TEMP-44W1RZ0D-11915223 | \$175.00 | ma | 4/26/21 |
| 4/26/21 | PAYMENT RECEIPT NUMBER: COC-LAN.0005382 METHOD: ELECTRONIC FUND TRANSFER \$20.00 Bundle - 21-000078-MZ-11986378 | \$20.00 | ma | 4/26/21 |
| 4/26/21 | PAYMENT RECEIPT NUMBER: COC-LAN.0005383 METHOD: ELECTRONIC FUND TRANSFER \$20.00 Bundle - 21-000078-MZ-11986392 | \$20.00 | ma | 4/26/21 |
| 4/26/21 | ORDER REGARDING MOTION FOR PERMISSION FOR TEMPORARY ADMISSION OF JAYNIE A LANHAM AND NESSA ELISE COPPINGER O'BRIEN, COLLEEN 33095 | | ma | 4/26/21 |
| 5/10/21 | APPEARANCE WITH PROOF OF SERVICE DEF 1 | | ma | 5/10/21 |
| 5/11/21 | STIPULATION AND PROPOSED ORDER EXTENDING TIME FOR DEFENDANT TO ANSWER OR OTHERWISE RESPOND TO THE VERIFIED COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF PTF 1 DEF 1 | | ma | 5/11/21 |
| 5/12/21 | ORDER EXTENDING THE TIME FOR DEFENDANT TO ANSWER OR OTHERWISE RESPOND TO THE VERIFIED COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF O'BRIEN, COLLEEN 33095 | | ma | 5/12/21 |

| | | | |
|---|----------------------------|--|---|
| STATE OF MICHIGAN COURT OF CLAIMS | REGISTER OF ACTIONS | CASE ID 21-000078-MZ C/COC/MI | Public 2/10/2023 8:45:10 AM Page: 3 of 8 |
|---|----------------------------|--|---|

| Activity Date | Activity | User | Entry Date |
|---------------|---|----------|--------------------|
| 5/12/21 | REVIEW SCAO - MAXIMUM CASE AGE BEFORE: O'BRIEN, COLLEEN | ma | 5/12/21 |
| 6/18/21 | MOTION TO REQUEST AN EXTENSION OF THE PAGE LIMIT ON THE DEFENDANT'S MOTION FOR SUMMARY DISPOSITION UNDER MCR 2.116(C)(8) WITH PROOF OF SERVICE DEF 1 | ma ma | 6/18/21 2/24/22 |
| 6/18/21 | RECEIVABLE MOTION FEE | ma | 6/18/21 |
| 6/18/21 | MOTION FOR SUMMARY DISPOSITION UNDER MCR 2.116 (C)(8) AND BRIEF IN SUPPORT WITH PROOF OF SERVICE DEF 1 | ma | 6/18/21 |
| 6/18/21 | RECEIVABLE MOTION FEE | ma | 6/18/21 |
| 6/18/21 | PROOF OF SERVICE MOTION TO REQUEST EXTENSION AND MOTION FOR SUMMARY DISPOSITION DEF 1 | ma | 6/18/21 |
| 6/21/21 | ORDER GRANTING DEFENDANT'S MOTION TO EXTEND PAGE LIMIT O'BRIEN, COLLEEN 33095 | ma | 6/21/21 |
| 6/21/21 | SUA SPONTE ORDER REGARDING FILING OF BRIEFS O'BRIEN, COLLEEN 33095 | ma | 6/21/21 |
| 7/7/21 | STIPULATION AND PROPOSED ORDER FOR EXTENSION OF THE TIME FOR PLAINTIFF TO RESPOND TO DEFENDANT'S MOTION FOR SUMMARY DISPOSITION UNDER MCR 2.116(C)(8) PTF 1 DEF 1 | ma | 7/7/21 |
| 7/8/21 | ORDER EXTENDING THE TIME FOR PLAINTIFF TO RESPOND TO DEFENDANT'S MOTION FOR SUMMARY DISPOSITION UNDER MCR 2.116(C)(8) O'BRIEN, COLLEEN 33095 | ma | 7/8/21 |
| 7/9/21 | NOTIFICATION PURSUANT TO MCR 8.126(A)(1)(B) - GUSTAFSON | amd | 7/9/21 |
| 7/9/21 | NOTIFICATION PURSUANT TO MCR 8.126(A)(1)(B) - TALLMAN | amd | 7/9/21 |
| 7/9/21 | NOTICE OF APPEARANCE OF ERIN METTE FOR PROPOSED AMICUS CURIAE WITH PROOF OF SERVICE MISC 1 MISC 2 MISC 3 MISC 4 MISC 5 MISC 6 MISC 7 | ma | 7/12/21 |
| 7/9/21 | NOTICE OF APPEARANCE OF NICHOLAS LEONARD FOR PROPOSED AMICUS CURIAE WITH PROOF OF SERVICE MISC 1 MISC 2 MISC 3 MISC 4 MISC 5 MISC 6 MISC 7 | ma | 7/12/21 |
| 7/12/21 | PROOF OF SERVICE | ma | 7/12/21 |

| | | | |
|---|-----------------------------------|--|---|
| <p>STATE OF MICHIGAN COURT OF CLAIMS</p> | <p>REGISTER OF ACTIONS</p> | <p>CASE ID 21-000078-MZ C/COC/MI</p> | <p>Public 2/10/2023 8:45:10 AM Page: 4 of 8</p> |
|---|-----------------------------------|--|---|

| Activity Date | Activity | User | Entry Date |
|---------------|--|---------------------|--------------------|
| | MISC 1 MISC 2 MISC 3 MISC 4 MISC 5 MISC 6 MISC 7 | | |
| 7/12/21 | MOTION FOR LEAVE TO FILE A BRIEF AS AMICI CURIAE IN SUPPORT OF DEFENDANT'S MOTION FOR SUMMARY DISPOSITION UNDER MCR 2.116(C)(8) WITH PROOF OF SERVICE MISC 1 MISC 2 MISC 3 MISC 4 MISC 5 MISC 6 MISC 7 MISC 8 MISC 9 MISC 10 MISC 11 | \$20.00 ma ma | 7/12/21 7/12/21 |
| 7/12/21 | RECEIVABLE MOTION FEE | \$20.00 ma | 7/12/21 |
| 7/12/21 | PAYMENT RECEIPT NUMBER: COC-LAN.0005580 METHOD: ELECTRONIC FUND TRANSFER \$20.00 Bundle - 21-000078-MZ-14506639 | \$20.00 ma | 7/12/21 |
| 7/12/21 | PROPOSED BRIEF OF AMICI CURIAE ENVIRONMENTAL GROUPS IN SUPPORT OF DEFENDANT'S MOTION FOR SUMMARY DISPOSITION UNDER MCR 2.116(C)(8) WITH PROOF OF SERVICE MISC 1 MISC 2 MISC 3 MISC 4 MISC 5 MISC 6 MISC 7 MISC 8 MISC 9 MISC 10 MISC 11 | ma | 7/12/21 |
| 7/12/21 | MOTION FOR LEAVE TO BE CONSIDERED INTERESTED PARTIES WITH PROOF OF SERVICE MISC 1 MISC 2 MISC 3 MISC 4 | ma | 7/12/21 |

| | | | |
|---|------------------------------------|---|---|
| STATE OF MICHIGAN COURT OF CLAIMS | REGISTER OF ACTIONS | CASE ID 21-000078-MZ C/COC/MI | Public 2/10/2023 8:45:10 AM Page: 5 of 8 |
|---|------------------------------------|---|---|

| Activity Date | Activity | User | Entry Date |
|---------------|--|---------------------|--------------------|
| | MISC 5 MISC 6 MISC 7 MISC 8 MISC 9 MISC 10 MISC 11 | | |
| 7/13/21 | MOTION BY PROPOSED AMICI FOR PRO HAC VICE ADMISSION OF SARAH TALLMAN WITH PROOF OF SERVICE MISC 1 MISC 3 MISC 4 MISC 5 MISC 6 MISC 7 | \$20.00 ma ma | 7/13/21 7/13/21 |
| 7/13/21 | RECEIVABLE MOTION FEE | \$20.00 ma | 7/13/21 |
| 7/13/21 | PAYMENT RECEIPT NUMBER: COC-LAN.0005581 METHOD: ELECTRONIC FUND TRANSFER \$20.00 Bundle - 21-000078-MZ-14529324 | \$20.00 ma | 7/13/21 |
| 7/13/21 | MOTION BY PROPOSED AMICI FOR PRO HAC VICE ADMISSION OF ROBERT GUSTAFSON WITH PROOF OF SERVICE MISC 1 MISC 3 MISC 4 MISC 5 MISC 6 | ma | 7/13/21 |
| 7/13/21 | NOTICE OF APPEARANCE OF ROBERT GUSTAFSON MISC 1 MISC 3 MISC 4 MISC 5 MISC 6 MISC 7 | ma | 7/16/21 |
| 7/13/21 | NOTICE OF APPEARANCE OF SARAH TALLMAN MISC 1 MISC 3 MISC 4 MISC 5 MISC 6 MISC 7 | ma | 7/16/21 |
| 7/16/21 | ORDER REGARDING MOTION BY PROPOSED AMICI FOR PRO HAC VICE ADMISSION OF ROBERT GUSTAFSON AND SARAH TALLMAN O'BRIEN, COLLEEN 33095 | ma | 7/16/21 |
| 7/16/21 | RESPONSE TO DEFENDANT'S 6/18/21 MOTION FOR SUMMARY DISPOSITION UNDER MCR 2.116(C)(8) WITH PROOF OF SERVICE | ma | 7/19/21 |

| | | | |
|---|------------------------------------|---|---|
| STATE OF MICHIGAN COURT OF CLAIMS | REGISTER OF ACTIONS | CASE ID 21-000078-MZ C/COC/MI | Public 2/10/2023 8:45:10 AM Page: 6 of 8 |
|---|------------------------------------|---|---|

| Activity Date | Activity | User | Entry Date |
|---------------|--|-----------|---------------------|
| | PTF 1 | | |
| 7/23/21 | REPLY BRIEF TO PLAINTIFF'S RESPONSE TO ITS 6/18/21 MOTION FOR SUMMARY DISPOSITION UNDER MCR 2.116(C)(8) WITH PROOF OF SERVICE DEF 1 | ma | 7/23/21 |
| 7/26/21 | RESPONSE TO MOTION FOR LEAVE TO BE CONSIDERED INTERESTED PARTIES & MOTION FOR LEAVE TO FILE A BRIEF AS AMICI CURIAE IN SUPPORT OF MOTION FOR SUMMARY DISPOSITION UNDER MCR 2.116 (C)(8) WITH PROOF OF SERVICE PTF 1 | ma | 7/26/21 |
| 7/27/21 | ORDER DENYING THE JULY 12, 2021 MOTION FOR LEAVE TO BE CONSIDERED INTERESTED PARTIES AND THE JULY 12, 2021 MOTION FOR LEAVE TO FILE AMICUS CURIAE BRIEF O'BRIEN, COLLEEN 33095 | ma | 7/27/21 |
| 8/3/21 | ORDER FOR THE FILING OF BRIEFS O'BRIEN, COLLEEN 33095 | ma | 8/3/21 |
| 8/17/21 | BRIEF FILED ADDRESSING PLAINTIFF'S STANDING TO MAINTAIN THIS ACTION WITH PROOF OF SERVICE DEF 1 | ma | 8/17/21 |
| 8/17/21 | BRIEF FILED ON STANDING WITH PROOF OF SERVICE PTF 1 | ma | 8/18/21 |
| 9/2/21 | OPINION AND ORDER O'BRIEN, COLLEEN 33095 DEF 1 | ma | 9/2/21 |
| 9/3/21 | SCHEDULING CONFERENCE BEFORE: O'BRIEN, COLLEEN LOC: VIA TELEPHONE | ma | 9/3/21 |
| 9/3/21 | SUA SPONTE ORDER REGARDING SCHEDULING CONFERENCE O'BRIEN, COLLEEN 33095 | ma | 9/3/21 |
| 9/9/21 | STIPULATION AND PROPOSED ORDER EXTENDING THE TIME FOR DEFENDANT TO ANSWER THE VERIFIED COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF PTF 1 DEF 1 | ma ma | 9/9/21 9/9/21 |
| 9/10/21 | ORDER EXTENDING THE TIME FOR DEFENDANT TO ANSWER THE VERIFIED COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF O'BRIEN, COLLEEN 33095 | ma | 9/10/21 |
| 10/8/21 | ANSWER, CIVIL TO THE VERIFIED COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF WITH PROOF OF SERVICE DEF 1 | ma | 10/8/21 |
| 10/12/21 | STIPULATED PROPOSED SCHEDULING ORDER | amd | 10/12/21 |
| 10/13/21 | STIPULATED SCHEDULING ORDER O'BRIEN, COLLEEN 33095 | amd | 10/13/21 |
| 10/13/21 | SCHEDULING CONFERENCE 11/8/21 10:00 AM CANCELLED OTHER Stipulated Scheduling Order cancelled this hearing. | amd | 10/13/21 |
| 10/19/21 | DENIAL OF AFFIRMATIVE DEFENSES PTF 1 | amd | 10/19/21 |
| 11/30/21 | TRANSMITTAL AND CERTIFICATION OF ADMINISTRATIVE RECORD | amd ma | 11/30/21 12/6/21 |

| | | | |
|---|----------------------------|--|---|
| STATE OF MICHIGAN COURT OF CLAIMS | REGISTER OF ACTIONS | CASE ID 21-000078-MZ C/COC/MI | Public 2/10/2023 8:45:10 AM Page: 7 of 8 |
|---|----------------------------|--|---|

| Activity Date | Activity | User | Entry Date |
|---------------|--|----------|--------------------|
| | DEF 1 | | |
| 1/1/22 | JUDICIAL OFFICER REASSIGNED FROM O'BRIEN, COLLEEN A. 33095 | system | 1/1/22 |
| 1/1/22 | REVIEW SCAO - MAXIMUM CASE AGE 4/19/23 8:00 AM RESCHEDULED TO: AUTOMATIC PROFESSIONAL REASSIGNMENT | system | 1/1/22 |
| 1/1/22 | JUDICIAL OFFICER ASSIGNED TO SWARTZLE, BROCK A. P58993 | system | 1/1/22 |
| 1/7/22 | ORDER OF REASSIGNMENT GLEICHER, ELIZABETH 30369 | ma | 1/7/22 |
| 2/3/22 | PROPOSED STIPULATED ORDER AMENDING 10/13/21 SCHEDULING ORDER PTF 1 DEF 1 | ma | 2/3/22 |
| 2/7/22 | ORDER AMENDING 10/13/21 SCHEDULING ORDER | ma | 2/7/22 |
| 2/24/22 | PAYMENT RECEIPT NUMBER: COC-LAN.0006021 METHOD: ELECTRONIC FUND TRANSFER \$20.00 | ma | 2/24/22 |
| 3/11/22 | PROPOSED STIPULATED ORDER INCREASING PAGE LIMITS FOR SUMMARY DISPOSITION BRIEFING PTF 1 | ma | 3/11/22 |
| 3/11/22 | NOTICE OF FILING OF AMENDMENT TO THE ADMINISTRATIVE RECORD WITH PROOF OF SERVICE DEF 1 | ma | 3/11/22 |
| 3/14/22 | ORDER INCREASING PAGE LIMMITS FOR SUMMARY DISPOSITION BRIEFING SWARTZLE, BROCK 58993 | ma | 3/14/22 |
| 3/15/22 | MOTION FOR SUMMARY DISPOSITION UNDER MCR 2.116(C)(10) WITH PROOF OF SERVICE DEF 1 | ma ma | 3/15/22 1/12/23 |
| 3/15/22 | RECEIVABLE MOTION FEE | ma | 3/15/22 |
| 3/16/22 | MOTION FOR SUMMARY DISPOSITION TO DECLARE THE FINAL RULE INVALID AND ENJOIN IMPLEMENTATION OR ENFORCEMENT EFFORTS UNDER MCR 2.116(C)(10), BRIEF IN SUPPORT AND PROOF OF SERVICE PTF 1 | ma ma | 3/16/22 3/16/22 |
| 3/16/22 | RECEIVABLE MOTION FEE | ma | 3/16/22 |
| 3/16/22 | PAYMENT RECEIPT NUMBER: COC-LAN.0006081 METHOD: ELECTRONIC FUND TRANSFER \$20.00 Bundle - 21-000078-MZ-22159615 | ma | 3/16/22 |
| 3/21/22 | STIPULATION AND PROPOSED ORDER EXTENDING THE TIME FOR PARTIES TO FILE RESPONSE BRIEFS PTF 1 DEF 1 | ma | 3/22/22 |
| 3/22/22 | ORDER EXTENDING THE TIME FOR PARTIES TO FILE RESPONSE BRIEFS SWARTZLE, BROCK 58993 | ma | 3/22/22 |
| 4/14/22 | BRIEF FILED IN RESPONSE TO PLAINTIFF'S MOTION FOR SUMMARY DISPOSITION WITH PROOF OF SERVICE DEF 1 | ma | 4/14/22 |

| | | | |
|---|------------------------------------|---|---|
| STATE OF MICHIGAN COURT OF CLAIMS | REGISTER OF ACTIONS | CASE ID 21-000078-MZ C/COC/MI | Public 2/10/2023 8:45:10 AM Page: 8 of 8 |
|---|------------------------------------|---|---|

| Activity Date | Activity | User | Entry Date |
|---------------|--|---------------------|---------------------|
| 4/14/22 | RESPONSE TO DEFENDANT'S MOTION FOR SUMMARY DISPOSITION UNDER MCR 2.116(C)(10) WITH PROOF OF SERVICE PTF 1 | ma ma | 4/15/22 12/14/22 |
| 4/18/22 | REPLY BRIEF TO PLAINTIFF'S RESPONSE BRIEF IN OPPOSITION TO DEFENDANT'S MOTION FOR SUMMARY DISPOSITION WITH PROOF OF SERVICE DEF 1 | ma ma | 4/19/22 12/14/22 |
| 4/21/22 | REPLY BRIEF TO DEFENDANT'S BRIEF IN RESPONSE TO PLAINTIFF'S MOTION FOR SUMMARY DISPOSITION WITH PROOF OF SERVICE PTF 1 | ma ma | 4/21/22 4/21/22 |
| 4/25/22 | VIDEO EXHIBITS TO PLAINTIFF'S RESPONSE BRIEF PTF 1 | ma | 4/26/22 |
| 5/6/22 | MOTION FOR SUMMARY DISPOSITION LOCATION: HALL OF JUSTICE LOC: HALL OF JUSTICE | ma | 5/6/22 |
| 5/6/22 | NOTICE OF HEARING SWARTZLE, BROCK 58993 | ma | 5/6/22 |
| 6/15/22 | ORDER ON SUPPLEMENTAL BRIEFING SWARTZLE, BROCK 58993 | ma | 6/15/22 |
| 6/21/22 | MOTION FOR SUMMARY DISPOSITION 6/14/22 1:00 PM HELD | ma | 11/15/22 |
| 6/29/22 | BRIEF FILED ON STANDING WITH PROOF OF SERVICE PTF 1 | ma | 6/30/22 |
| 6/29/22 | SUPPLEMENTAL BRIEF ON STANDING WITH PROOF OF SERVICE DEF 1 | ma | 6/30/22 |
| 11/15/22 | OPINION AND ORDER SWARTZLE, BROCK 58993 DEF 1 | ma | 11/15/22 |
| 11/15/22 | CLOSE CASE STATUS | ma | 11/15/22 |
| 12/6/22 | CLAIM OF APPEAL DEF 1 | \$25.00 ma ma | 12/6/22 1/12/23 |
| 12/6/22 | RECEIVABLE APPEALS FEE | \$25.00 ma | 12/6/22 |
| 1/12/23 | PAYMENT RECEIPT NUMBER: COC-LAN.0006847 METHOD: ELECTRONIC FUND TRANSFER \$25.00 | \$25.00 ma | 1/12/23 |

| | | |
|--|----------------|--|
| STATE OF MICHIGAN Court of Claims JUDICIAL DISTRICT JUDICIAL CIRCUIT COUNTY PROBATE | SUMMONS | CASE NO. 21-000078-MZ Judge Colleen O'Brien |
|--|----------------|--|

| | |
|---|--|
| Court address Hall of Justice, 925 W. Ottawa St., Lansing, MI 48909 | Court telephone no. (517) 373-0807 |
|---|--|

Plaintiff's name(s), address(es), and telephone no(s).
 3M COMPANY

Defendant's name(s), address(es), and telephone no(s).
 MICHIGAN DEPARTMENT OF ENVIRONMENT,
 GREAT LAKES, AND ENERGY

v

Plaintiff's attorney, bar no., address, and telephone no.
 Amy M. Johnston (P51272)
 Miller, Canfield, Paddock and Stone, PLC
 150 W. Jefferson, Suite 2500
 Detroit, MI 48226 (313) 963-6420

Instructions: Check the items below that apply to you and provide any required information. Submit this form to the court clerk along with your complaint and, if necessary, a case inventory addendum (form MC 21). The summons section will be completed by the court clerk.

Domestic Relations Case

- There are no pending or resolved cases within the jurisdiction of the family division of the circuit court involving the family or family members of the person(s) who are the subject of the complaint.
- There is one or more pending or resolved cases within the jurisdiction of the family division of the circuit court involving the family or family members of the person(s) who are the subject of the complaint. I have separately filed a completed confidential case inventory (form MC 21) listing those cases.
- It is unknown if there are pending or resolved cases within the jurisdiction of the family division of the circuit court involving the family or family members of the person(s) who are the subject of the complaint.

Civil Case

- This is a business case in which all or part of the action includes a business or commercial dispute under MCL 600.8035.
- MDHHS and a contracted health plan may have a right to recover expenses in this case. I certify that notice and a copy of the complaint will be provided to MDHHS and (if applicable) the contracted health plan in accordance with MCL 400.106(4).
- There is no other pending or resolved civil action arising out of the same transaction or occurrence as alleged in the complaint.
- A civil action between these parties or other parties arising out of the transaction or occurrence alleged in the complaint has

been previously filed in this court, _____ Court, where

it was given case number _____ and assigned to Judge _____.

The action remains is no longer pending.

Summons section completed by court clerk.

SUMMONS



NOTICE TO THE DEFENDANT: In the name of the people of the State of Michigan you are notified:

1. You are being sued.
2. **YOU HAVE 21 DAYS** after receiving this summons and a copy of the complaint to **file a written answer with the court** and serve a copy on the other party **or take other lawful action with the court** (28 days if you were served by mail or you were served outside this state).
3. If you do not answer or take other action within the time allowed, judgment may be entered against you for the relief demanded in the complaint.
4. If you require special accommodations to use the court because of a disability or if you require a foreign language interpreter to help you fully participate in court proceedings, please contact the court immediately to make arrangements.

| | | |
|-------------------------|-------------------------------|--|
| Issue date 4/22/2021 | Expiration date* 7/21/2021 | Court clerk <i>Jerome W. Zimmer Jr.</i> |
|-------------------------|-------------------------------|--|

*This summons is invalid unless served on or before its expiration date. This document must be sealed by the seal of the court.

PROOF OF SERVICE

TO PROCESS SERVER: You are to serve the summons and complaint not later than 91 days from the date of filing or the date of expiration on the order for second summons. You must make and file your return with the court clerk. If you are unable to complete service you must return this original and all copies to the court clerk.

CERTIFICATE / AFFIDAVIT OF SERVICE / NONSERVICE

OFFICER CERTIFICATE

OR

AFFIDAVIT OF PROCESS SERVER

I certify that I am a sheriff, deputy sheriff, bailiff, appointed court officer, or attorney for a party (MCR 2.104[A][2]), and that: (notarization not required)

Being first duly sworn, I state that I am a legally competent adult, and I am not a party or an officer of a corporate party (MCR 2.103[A]), and that: (notarization required)

- I served personally a copy of the summons and complaint,
 I served by registered or certified mail (copy of return receipt attached) a copy of the summons and complaint,

together with _____
List all documents served with the summons and complaint _____ on the defendant(s) _____

| Defendant's name | Complete address(es) of service | Day, date, time |
|------------------|---------------------------------|-----------------|
| | | |
| | | |
| | | |

I have personally attempted to serve the summons and complaint, together with any attachments, on the following defendant(s) and have been unable to complete service.

| Defendant's name | Complete address(es) of service | Day, date, time |
|------------------|---------------------------------|-----------------|
| | | |
| | | |
| | | |

I declare under the penalties of perjury that this proof of service has been examined by me and that its contents are true to the best of my information, knowledge, and belief.

| | | | |
|-----------------------|----------------|-----|------------------|
| Service fee | Miles traveled | Fee | |
| \$ | | \$ | |
| Incorrect address fee | Miles traveled | Fee | TOTAL FEE |
| \$ | | \$ | \$ |

Signature

Name (type or print)

Title

Subscribed and sworn to before me on _____, _____ County, Michigan.
Date
 My commission expires: _____ Date Signature: _____
Date Deputy court clerk/Notary public
 Notary public, State of Michigan, County of _____

ACKNOWLEDGMENT OF SERVICE

I acknowledge that I have received service of the summons and complaint, together with _____
Attachments
 _____ on _____
Day, date, time
 _____ on behalf of _____

Signature

RECEIVED by MSC 3/29/2024 10:10:36 AM

RECEIVED by MCCOC 4/21/2021 5:46:05 PM

STATE OF MICHIGAN
Court of Claims **JUDICIAL DISTRICT**
 JUDICIAL CIRCUIT
 COUNTY PROBATE

SUMMONS

CASE NO.

21-000078-MZ
Judge Colleen O'Brien

Court address
Hall of Justice, 925 W. Ottawa St., Lansing, MI 48909

Court telephone no.
(517) 373-0807

Plaintiff's name(s), address(es), and telephone no(s).
3M COMPANY

Defendant's name(s), address(es), and telephone no(s).
MICHIGAN ATTORNEY GENERAL

v

Plaintiff's attorney, bar no., address, and telephone no.
Amy M. Johnston (P51272)
Miller, Canfield, Paddock and Stone, PLC
150 W. Jefferson, Suite 2500
Detroit, MI 48226 (313) 963-6420

Instructions: Check the items below that apply to you and provide any required information. Submit this form to the court clerk along with your complaint and, if necessary, a case inventory addendum (form MC 21). The summons section will be completed by the court clerk.

Domestic Relations Case

- There are no pending or resolved cases within the jurisdiction of the family division of the circuit court involving the family or family members of the person(s) who are the subject of the complaint.
- There is one or more pending or resolved cases within the jurisdiction of the family division of the circuit court involving the family or family members of the person(s) who are the subject of the complaint. I have separately filed a completed confidential case inventory (form MC 21) listing those cases.
- It is unknown if there are pending or resolved cases within the jurisdiction of the family division of the circuit court involving the family or family members of the person(s) who are the subject of the complaint.

Civil Case

- This is a business case in which all or part of the action includes a business or commercial dispute under MCL 600.8035.
- MDHHS and a contracted health plan may have a right to recover expenses in this case. I certify that notice and a copy of the complaint will be provided to MDHHS and (if applicable) the contracted health plan in accordance with MCL 400.106(4).
- There is no other pending or resolved civil action arising out of the same transaction or occurrence as alleged in the complaint.
- A civil action between these parties or other parties arising out of the transaction or occurrence alleged in the complaint has

been previously filed in this court, _____ Court, where

it was given case number _____ and assigned to Judge _____

The action remains is no longer pending.

Summons section completed by court clerk.

SUMMONS



NOTICE TO THE DEFENDANT: In the name of the people of the State of Michigan you are notified:

1. You are being sued.
2. **YOU HAVE 21 DAYS** after receiving this summons and a copy of the complaint to **file a written answer with the court** and serve a copy on the other party **or take other lawful action with the court** (28 days if you were served by mail or you were served outside this state).
3. If you do not answer or take other action within the time allowed, judgment may be entered against you for the relief demanded in the complaint.
4. If you require special accommodations to use the court because of a disability or if you require a foreign language interpreter to help you fully participate in court proceedings, please contact the court immediately to make arrangements.

| | | |
|-------------------------|-------------------------------|--|
| Issue date 4/21/2021 | Expiration date* 7/21/2021 | Court clerk <i>Jerome W. Zimmer Jr.</i> |
|-------------------------|-------------------------------|--|

*This summons is invalid unless served on or before its expiration date. This document must be sealed by the seal of the court.

RECEIVED by MSC 3/29/2024 10:10:36 AM

RECEIVED by MCCOC 4/21/2021 5:46:05 PM

PROOF OF SERVICE

TO PROCESS SERVER: You are to serve the summons and complaint not later than 91 days from the date of filing or the date of expiration on the order for second summons. You must make and file your return with the court clerk. If you are unable to complete service you must return this original and all copies to the court clerk.

CERTIFICATE / AFFIDAVIT OF SERVICE / NONSERVICE

OFFICER CERTIFICATE

OR

AFFIDAVIT OF PROCESS SERVER

I certify that I am a sheriff, deputy sheriff, bailiff, appointed court officer, or attorney for a party (MCR 2.104[A][2]), and that: (notarization not required)

Being first duly sworn, I state that I am a legally competent adult, and I am not a party or an officer of a corporate party (MCR 2.103[A]), and that: (notarization required)

- I served personally a copy of the summons and complaint,
 I served by registered or certified mail (copy of return receipt attached) a copy of the summons and complaint,

together with _____
List all documents served with the summons and complaint _____ on the defendant(s) _____

| Defendant's name | Complete address(es) of service | Day, date, time |
|------------------|---------------------------------|-----------------|
| | | |
| | | |
| | | |

I have personally attempted to serve the summons and complaint, together with any attachments, on the following defendant(s) and have been unable to complete service.

| Defendant's name | Complete address(es) of service | Day, date, time |
|------------------|---------------------------------|-----------------|
| | | |
| | | |
| | | |

I declare under the penalties of perjury that this proof of service has been examined by me and that its contents are true to the best of my information, knowledge, and belief.

| | | | |
|-----------------------|----------------|-----|------------------|
| Service fee | Miles traveled | Fee | |
| \$ | | \$ | |
| Incorrect address fee | Miles traveled | Fee | TOTAL FEE |
| \$ | | \$ | \$ |

Signature _____

Name (type or print) _____

Title _____

Subscribed and sworn to before me on _____, _____ County, Michigan.
Date

My commission expires: _____ Date Signature: _____
Deputy court clerk/Notary public

Notary public, State of Michigan, County of _____

ACKNOWLEDGMENT OF SERVICE

I acknowledge that I have received service of the summons and complaint, together with _____ Attachments

_____ on _____
Day, date, time

Signature _____ on behalf of _____

RECEIVED by MSC 3/29/2024 10:10:36 AM

RECEIVED by MCCOC 4/21/2021 5:46:05 PM

STATE OF MICHIGAN
IN THE COURT OF CLAIMS

3M COMPANY,

Plaintiff,

Case No. 21-000078-MZ

v.

Hon. Colleen O'Brien

MICHIGAN DEPARTMENT OF ENVIRONMENT,
GREAT LAKES, AND ENERGY,

Defendants.

Amy M. Johnston (P51272)
Joseph M. Infante (P68719)
Miller Canfield Paddock & Stone, P.L.C.
150 W. Jefferson Ave., Suite 2500
Detroit, MI 48226
Phone: 313-963-8420
Email: johnston@millercanfield.com

Nessa Horewitch Coppinger
(*pro hac vice* to be submitted)
Beveridge & Diamond P.C.
1350 I Street NW, Suite 700
Washington, DC 20005
Phone: 202-789-6053
Fax: 202-789-6190
Email: ncoppinger@bdlaw.com

Jayni A. Lanham (*pro hac vice* to be
submitted)
Beveridge & Diamond P.C.
201 North Charles Street, Suite 2210
Baltimore, Maryland 21201
Phone: 410-230-1333
Fax: 410-230-1389
Email: janham@bdlaw.com

Attorneys for Plaintiff 3M Company

Michigan Department of Environment, Great
Lakes, and Energy
Constitution Hall
525 West Allegan Street
P.O. Box 30473
Lansing, MI 48909-7973
Phone: 800-662-9278
Defendant

VERIFIED COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF



3M Company (“3M” or “Plaintiff”) files this Complaint for Declaratory and Injunctive Relief against the Michigan Department of Environment, Great Lakes, and Energy (“EGLE”) to invalidate and enjoin enforcement of Rule Set 2019-35 EG, Supplying Water to the Public (the “Final Rule”) which set drinking water standards for certain per- and polyfluoroalkyl substances (“PFAS”)¹ effective August 3, 2020. In support of this Complaint, Plaintiff states as follows:

INTRODUCTION

1. The drinking water standards at issue in this action, also known as maximum contaminant levels (“MCLs”), are the result of a rushed and invalid regulatory process, scientifically flawed, and reliant on speculative and unquantified purported benefits to justify the costly Final Rule.

2. In their haste to meet the unrealistic timeline requested by the Governor to establish drinking water standards, EGLE and the Environmental Rules Review Committee (“ERRC”) failed to comply with the statutory requirements established by the Michigan Safe Drinking Water Act (“SDWA”), MCL 325.1005, and the Michigan Administrative Procedures Act of 1969, 1969 PA 306, MCL 24.201 to 24.328 (“APA”), and established arbitrary and capricious MCLs without sound basis.

3. As a result, approximately 2,700 water supplies in Michigan will be required to test for these substances quarterly or annually and treat any exceedances of the established levels. In addition, property owners and businesses across the state must comply with more stringent

¹ As discussed in Paragraph 14 below, per- and polyfluoroalkyl substances (“PFAS”) refers to thousands of compounds with a wide range of physical and chemical properties (*e.g.*, solids, liquids, and gases), uses, and characteristics. Among other uses, PFAS substances have been used for their water and stain repellency, resistance to high temperatures, and to reduce surface tensions.



groundwater cleanup standards, since those standards have been updated and added to reflect the levels in the drinking water standards.

4. EGLE has expressly acknowledged it did not make a “serious” estimate of the benefits of the Proposed Rule, but the APA requires precisely that. This serious failure to comply with the APA is independently sufficient to invalidate the Final Rule.

5. EGLE also failed to properly evaluate the costs of the Proposed Rule. By EGLE’s estimate, the direct cost of compliance to the regulated community will be over \$17 million in the first year. The cost is likely to be significantly higher, however, because EGLE did not fully account for ongoing operation and maintenance costs for water systems, or the costs for retrofitting, treatment and pretreatment, sampling, and disposing of waste arising from those activities. In addition, EGLE failed to account for the costs associated with the revised groundwater cleanup standards and associated costs related to the management of biosolids, compost, and soils. This is particularly egregious considering that EGLE did not justify such costly standards with evidence of particular benefits to support those standards.

6. Plaintiff seeks a declaration that these drinking water standards are invalid and seeks to enjoin EGLE from implementing and enforcing them.

PARTIES

7. Plaintiff is a Delaware corporation with a principal place of business at 3M Center, St. Paul, Minnesota 55133. Plaintiff is a global manufacturing company that produces a variety of products, including adhesives, automotive products, and medical supplies.

8. Plaintiff has a substantial interest at stake in this matter. Plaintiff operates a facility located at 11900 East 8 Mile Road, Detroit, MI, 48205, that will be subject to the Final Rule. To the extent that perfluorooctanoic acid (“PFOA”), perfluorooctanesulfonic acid



(“PFOS”), perfluorononanoic acid (“PFNA”), perfluorohexanoic acid (“PFHxA”), perfluorohexanesulfonic acid (“PFHxS”), perfluorobutanesulfonic acid (“PFBS”), and hexafluoropropylene oxide dimer acid (“HFPO-DA”) (together, “Regulated PFAS”) are found above regulatory limits at the facility, Plaintiff will be required to do remediation if the Final Rule is not enjoined.

9. In addition, the Michigan Attorney General has filed two lawsuits seeking payment from 3M and others related to the historical uses of the Regulated PFAS and other fluorinated chemicals, including uses by State governmental agencies. Those actions allege natural resource damages, including to surface and groundwater from these fluorinated chemicals. The MCLs for the Regulated PFAS are relevant to the lawsuits already filed against 3M because they establish drinking water standards and, by default, groundwater cleanup standards. The MCLs form the basis for allegations of injury and subsequent damage claims by State agencies, as well as private litigants. Moreover, at least one Michigan court has held, in a case including 3M, that a plaintiff cannot sustain a claim for damages for detections of PFOA and PFOS in water below the MCL. See Opinion at ¶¶ 3-4, *Brimmer v. Wolverine World Wide, Inc.*, No. 18-01136-CZ (Mich. Cir. Ct. Jan. 25, 2021), attached as Exhibit A.

10. Finally, Plaintiff submitted comments to EGLE on the Proposed Rule, outlining significant flaws in EGLE’s proposal. As a participant in the rulemaking process and a party that must comply with the SDWA, Plaintiff will be detrimentally affected if EGLE is not required to follow the APA and is permitted to enforce rules that do not comply with the SDWA.

11. Defendant Michigan Department of Environment, Great Lakes, and Energy is an administrative agency of the State of Michigan. It is the Michigan agency that has responsibility



for environmental regulatory programs, including those relating to drinking water, and is the agency that promulgated the rule at issue in this action.

JURISDICTION AND VENUE

12. This Court has jurisdiction over this action pursuant to MCL 600.6419, et. seq.
13. Venue is proper pursuant to MCL 600.6410 and 600.6419.

FACTUAL BACKGROUND

Per- and Polyfluoroalkyl Substances

14. Per- and polyfluoroalkyl substances (“PFAS”) refers to thousands of compounds with a wide range of physical and chemical properties (*e.g.*, solids, liquids, and gases), uses, and characteristics. Among other uses, PFAS substances have been used for their water and stain repellency, resistance to high temperatures, and to reduce surface tensions. At issue in this suit are the seven PFAS compounds, also with varying characteristics, for which EGLE has promulgated drinking water standards: PFOA, PFOS, PFNA, PFHxA, PFHxS, PFBS, and HFPO-DA.

EGLE’s Rulemaking Authority Under the Michigan Safe Drinking Water Act

15. Under Section 5 of the SDWA, MCL 325.1005, EGLE is authorized to promulgate and enforce “[s]tate drinking water standards and associated monitoring requirements, the attainment and maintenance of which are *necessary to protect the public health.*” (emphasis added).

16. In promulgating any drinking water standards, Section 5 of the SDWA requires that EGLE follow the Michigan APA.

17. The APA requires agencies promulgating rules to follow a process to evaluate whether there are appropriate and necessary policy and legal bases for the rulemaking, evaluate



the regulatory impact of the rule, provide notice to the public and opportunities for public participation, and obtain approvals from the Michigan Office of Administrative Hearings and Rules (“MOAHR”), the Legislative Service Bureau (“LSB”), and the Joint Committee on Administrative Rules (“JCAR”). *See, e.g.*, MCL 24.239, 24.241, 24.242, 24.245 & 24.245a.

18. As part of this process, the agency must prepare a Regulatory Impact Statement (“RIS”) that, among other things, (a) estimates compliance costs on individuals, businesses, and “other groups,” (b) estimates a variety of costs and impacts unique to small businesses, (c) estimates the primary and direct benefits of the rule, and (d) demonstrates that the proposed rule is “necessary and suitable to achieve its purpose in proportion to the burdens it places on individuals.” *See* MCL 24.245(3)(l)-(s), (x).

19. For certain rulemaking proceedings conducted by EGLE, the APA also requires review and approval by the ERRC. *See* MCL 24.266.

20. The ERRC is an independent body within EGLE, which has the responsibility of overseeing rulemaking conducted by EGLE. The ERRC is comprised of twelve members appointed by the Governor and four nonvoting ex-officio members. *See* MCL 24.265 & 324.99923.

21. When a rulemaking proceeds under ERRC review, reviews occur at two stages in the rulemaking proceedings:

- a. After receiving the draft rule and RIS, the ERRC must determine if the draft rule meets specific statutory criteria. These criteria include, among other things, that the rule is: (i) consistent with “the rule-making delegation contained in the statute authorizing the rule-making;” (ii) “necessary and suitable to achieve [its] purpose in proportion to the burdens [it] place[s] on



individuals and businesses,” and (iii) “based on sound and objective scientific reasoning.” MCL 24.266(4).

- b. After the public comment period has ended and the ERRC has received “an agency report containing a synopsis of the comments made at and received in connection with the public hearing and a description of any changes that are suggested by [EGLE] to the draft proposed rule[],” the ERRC must “discuss the report and comments made and testimony given at the public hearing” and determine whether to approve the proposed rule with modifications, approve the proposed rule, or reject the proposed rule. MCL 24.266(8), (9).

EGLE’s Initiation of the Rulemaking Process for PFAS Substances

22. On March 26, 2019, Governor Gretchen Whitmer announced that Michigan was establishing enforceable drinking water standards, also known as Maximum Contaminant Levels (“MCLs”), for PFAS. The announcement did not direct EGLE to establish drinking water standards for any particular PFAS.

23. In Governor Whitmer’s March 26, 2019 announcement, she directed the Michigan PFAS Action Response Team (“MPART”) to “form a science advisory workgroup to review both existing and proposed health-based drinking water standards from around the nation to inform the rulemaking process for appropriate Maximum Contaminant Levels (MCL) for Michigan by no later than July 1, 2019.” Office of Governor Gretchen Whitmer, *Gov. Whitmer Directs MDEQ to File a Request for Rulemaking to Establish PFAS Drinking Water Standards*, https://www.michigan.gov/whitmer/0,9309,7-387-90499_90640-493041--,00.html (accessed March 31, 2021).



24. The March 26, 2019 announcement also directed EGLE “to immediately file a Request for Rulemaking to establish enforceable MCLs for PFAS in our drinking water supplies.” *Id.* Governor Whitmer directed that the proposed regulations “be completed on an accelerated schedule with input from stakeholders by no later than October 1, 2019.” *Id.*

25. Nothing in Governor Whitmer’s announcement could or did amend or abrogate any statutory obligations created by the SDWA and APA for a rulemaking process to establish drinking water standards.

26. In accordance with Governor Whitmer’s direction, EGLE filed a Request for Rulemaking with the Office of Regulatory Reinvention on March 26, 2019 to begin the rulemaking process.

27. Just two days later, on March 28, 2019, the Office of Regulatory Reinvention approved the Request for Rulemaking. Request for Rulemaking, available at https://ars.apps.lara.state.mi.us/Transaction/DownloadFile?FileName=RFRForm_2019-35_EG.pdf&FileType=RFRForm&TransactionID=29&EffectiveDate=8%2F3%2F2020 (accessed March 31, 2021).

Science Advisory Workgroup Report

28. On April 4, 2019, MPART approved a motion to form a Science Advisory Workgroup (“Workgroup”).

29. On April 11, 2019, MPART named three members to the Workgroup: Dr. David Savitz, Kevin Cox, and Dr. Jamie DeWitt. Both Dr. Savitz and Dr. DeWitt have served and continue to serve as experts for plaintiffs in litigation related to PFAS. *E.g.*, *Baker v. Saint-Gobain Performance Plastics Corp.*, No. 1:16-cv-917 (N.D.N.Y); *Brimmer v. Wolverine World Wide, Inc.*, No. 18-01136-CZ (Mich. Cir. Ct.).



30. Under the timeline established by Governor Whitmer, the Workgroup had just eleven weeks to complete its review and develop recommended health-based drinking water standards, or MCLs, for PFAS.

31. The time and resources allocated to developing these MCLs were a mere fraction of the time and resources that are typically needed to develop an MCL. MCL development typically takes multiple years and involves extensive teams of scientists and toxicologists, comprehensive review and analyses of available science, and an independent peer review process in advance of the public notice and comment period.

32. The Workgroup released a report on June 27, 2019, within Governor Whitmer's timeline, titled "Health-Based Drinking Water Value Recommendations for PFAS in Michigan" ("Workgroup Report"), available at [https://www.michigan.gov/documents/pfasresponse/Health-Based Drinking Water Value Recommendations for PFAS in Michigan Report 659258_7.pdf](https://www.michigan.gov/documents/pfasresponse/Health-Based_Drinking_Water_Value_Recommendations_for_PFAS_in_Michigan_Report_659258_7.pdf) (accessed March 31, 2021).

33. Because the Workgroup Report was completed under such an accelerated timeline, *id.* at 36, the Workgroup placed significant limitations on the scope of the review and did not allow for an independent peer review process. *See id.* at 5; *see also* Comments Submitted to EGLE, at 20, 266² available at <https://ars.apps.lara.state.mi.us/Transaction/DownloadFile?FileName=WrittenComments.pdf&FileType=JCARPackageWrittenComments&TransactionID=29&EffectiveDate=8%2F3%2F2020> (accessed March 31, 2021).

34. The Workgroup acknowledged in its report that the short timeframe afforded to it limited the scope of its technical review and analysis to "existing and proposed national- and

² Pincites to PDF page numbers as the document is a compilation of independently paginated materials.



state-derived PFAS assessments to inform its decision-making process as opposed to conducting a full systematic review of available scientific literature on PFAS.” Workgroup Report at 5, available at [https://www.michigan.gov/documents/pfasresponse/Health-Based Drinking Water Value Recommendations for PFAS in Michigan Report 659258_7.pdf](https://www.michigan.gov/documents/pfasresponse/Health-Based_Drinking_Water_Value_Recommendations_for_PFAS_in_Michigan_Report_659258_7.pdf) (accessed March 31, 2021).

35. Some of the assessments the Workgroup considered have significant flaws, are incomplete, and do not reflect the most recent and best data and analysis available.

36. The Workgroup also acknowledged “significant scientific uncertainty” with regard to PFAS exposure and health outcomes. *Id.* at 9.

37. Despite these limitations and uncertainties, the Workgroup recommended the following health-based drinking water standards, *id.* at 3:

- a. PFNA: 6 ppt
- b. PFOS: 16 ppt
- c. PFOA: 8 ppt
- d. PFHxA: 400,000 ppt
- e. PFHxS: 51 ppt
- f. PFBS: 420 ppt
- g. HFPO-DA: 370 ppt

38. The health-based values the Workgroup derived were flawed because, among other things, the Workgroup relied on assumptions and uncertainty values in place of available data, deviated from standard risk assessment methodologies, relied on studies that lacked fundamental scientific rigor, and failed to consider key human studies that would have provided the best available data.



EGLE's Proposed Rule and Regulatory Impact Statement

39. As directed by Governor Whitmer, EGLE developed a draft rule set for PFAS, numbered 2019-35 EG ("Proposed Rule"), by October 1, 2019. See ERRC October 31, 2019 Meeting Packet, available at https://www.michigan.gov/documents/egle/egle-imd-errc-2019-10-31_Meeting_Packet_669637_7.pdf (accessed April 7, 2021); see also March 26, 2019 Office of Governor Gretchen Whitmer Press Release, available at https://www.michigan.gov/whitmer/0,9309,7-387-90499_90640-493041--,00.html (accessed April 6, 2021).

40. The Proposed Rule identified drinking water standards, or MCLs, for seven PFAS substances, and contained requirements for testing water supplies, treating any exceedances of the standards, operator oversight, public notification, and laboratory certification. See ERRC October 31, 2019 Meeting Packet at 64³, available at https://www.michigan.gov/documents/egle/egle-imd-errc-2019-10-31_Meeting_Packet_669637_7.pdf (accessed April 7, 2021)

41. The MCLs in the Proposed Rule were identical to the health-based drinking water standards proposed by the Workgroup, *id.*:

- a. PFNA: 6 ppt
- b. PFOS: 16 ppt
- c. PFOA: 8 ppt
- d. PFHxA: 400,000 ppt
- e. PFHxS: 51 ppt
- f. PFBS: 420 ppt

³ Pincites to PDF page numbers as the document is a compilation of independently paginated materials.



g. HFPO-DA: 370 ppt

42. EGLE representatives have acknowledged that they relied wholly on the Workgroup Report in selecting these MCLs and they did not consider “other studies because that was the charge of the Science Advisory Work Group.” October 31, 2019 ERRC Meeting Video, available at <https://www.youtube.com/watch?v=Zee5nHK7sqs&feature=youtu.be> (accessed March 31, 2021).

43. The RIS accompanying the Proposed Rule provided cursory information about the costs and benefits of the Proposed Rule. *See* October 11, 2019 Regulatory Impact Statement, attached as Exhibit B.

44. In the RIS, EGLE acknowledged that “[m]ore study on the health benefits and impacts of PFAS exposure reduction and the economic benefit is required before a serious estimate [of the benefits] can be made.” *Id.* at 7. But, EGLE went ahead and speculated that the Proposed Rule would result in “a general improvement in public health” and that “there is likely a significant benefit to the reduction [in] exposure to PFAS chemicals given recent findings of the health effects.” *Id.*

45. EGLE did not substantiate its claim of a causal relationship between exposure to PFAS chemicals and “health effects.” The referenced “health effects” are only reported as associations, and the literature on this subject is so inconsistent that both the federal Agency for Toxic Substances and Disease Registry (“ATSDR”) and the Michigan PFAS Science Advisory Panel concluded that causal relationships have not been established for any of the associations reported. *See* ATSDR, *Toxicological Profile for Perfluoroalkyls (PFAS)*, available at https://www.atsdr.cdc.gov/sites/peer_review/tox_profile_perfluoroalkyls.html (accessed March 31, 2021); Michigan PFAS Science Advisory Panel, *Scientific Evidence and Recommendations*



for Managing PFAS Contamination in Michigan at 10 (Dec. 7, 2018), available at https://www.michigan.gov/documents/pfasresponse/Science_Advisory_Board_Report_641294_7.pdf (accessed March 31, 2021).

46. In addition, EGLE entirely failed to evaluate the benefits of setting an MCL at the proposed levels as opposed to 5, 50, or 500 ppt higher or lower. Without evaluating the incremental benefits of setting an MCL at one level versus another, there was no way for EGLE to evaluate whether the Proposed Rule was necessary and suitable to protect human health.

47. EGLE also failed to provide a quantitative estimate of the benefits as required by MCL 24.245(3)(x).

48. EGLE further failed to adequately compare the proposed rule to parallel standards set by other states as required by MCL 24.245(3)(a). The RIS instead merely states that the proposed standards “are similar to standards being proposed by other states” and wholly ignores that the proposed standards are the strictest in the country for PFNA, PFOA, and PFBS, failing to “explain why and specify the costs and benefits arising out of the deviation.” Ex. B at 1–2.

49. Moreover, the RIS fails to provide any support for the proposed PFHxS, PFOS, and HFPO-DA standards where they each arbitrarily fall above or below other state standards without explanation. *Id.*

50. Further, the RIS failed to adequately account for the costs that the Proposed Rule would impose on public water systems, their customers, and other businesses and groups as required by MCL 24.245(3)(k), (l), (n).

51. EGLE failed to fully consider the rule’s ongoing operation and maintenance costs for water systems, or the costs for retrofitting, treatment and pretreatment, sampling, and disposing of waste arising from those activities.



52. In addition, Michigan had existing groundwater cleanup standards for PFOS and PFOA of 70 ppt, combined or individually, under the Part 201 Site Investigation and Cleanup Program (“Part 201 Program”). Adopting the Proposed Rule would automatically result in lowering the PFOS cleanup standard from 70 ppt to 16 ppt and the PFOA cleanup standard from 70 ppt to 8 ppt. *See generally* Ex. B at 2.

53. EGLE failed to account altogether for the costs that would arise from the required changes to the groundwater cleanup standards for PFOS and PFOA under the Part 201 Program.

54. Moreover, once the Proposed Rule was adopted, EGLE could establish new groundwater cleanup standards for PFNA, PFHxS, PFHxA, PFBS, and HFPO-DA that were consistent with the MCLs for those substances. That is precisely what EGLE did after adopting the Final Rule. December 21, 2020 EGLE Press Release, available at https://www.michigan.gov/egle/0,9429,7-135-3308_3323-548018--rss,00.html (accessed April 6, 2021).

55. In the October 11, 2019 RIS, EGLE also failed to account for the costs that would arise from the new and revised cleanup standards and associated costs for the management of biosolids, compost, and soils. *See* Ex. B.

56. Because EGLE relied on speculative benefits not tied to the level of the MCL, and did not fully account for all of the costs associated with the Proposed Rule, EGLE could not and did not demonstrate that “the proposed rule [was] necessary and suitable to achieve its purpose in proportion to the burdens” in accordance with MCL 24.245(3)(m).

ERRC’s First Vote on the Proposed Rule

57. The Proposed Rule and RIS were transmitted to the ERRC on or about October 11, 2019. *See* October 11, 2019 EGLE Press Release, *Michigan Moves Forward on Drinking*



Water Standards for PFAS, available at <https://www.michigan.gov/egle/0,9429,7-135--509830--00.html> (accessed April 7, 2021).

58. The ERRC met on October 31, 2019 to deliberate on and determine whether the Proposed Rule met the criteria in MCL 24.266(4). *See* October 31, 2019 ERRC Meeting Agenda, available at https://www.michigan.gov/documents/pfasresponse/ERRC_Final_Meeting_Agenda_-_October_31_2019_670037_7.pdf (accessed April 6, 2021).

59. During the deliberations at the October 31, 2019 meeting, some members of the ERRC expressed concerns that EGLE did not fully account for all costs associated with the Proposed Rule, such as those related to retrofitting, disposal, and compliance with the new groundwater cleanup standards that would result from the rule. They expressed concern that there was not a full understanding of the burdens the Proposed Rule would place on individual businesses. *See* October 31, 2019 ERRC Meeting Video, available at <https://www.youtube.com/watch?v=Zee5nHK7sqs&feature=youtu.be> (accessed March 31, 2021).

60. Some ERRC members also raised questions about the studies and judgment calls that informed the Workgroup's development of the proposed MCLs. For instance, ERRC members questioned whether sufficient weight was given to studies conducted by other states and why the Workgroup had chosen certain values that were lower than those selected by other states. They also commented that the process used to develop the values was imprecise. The attendees that were present did not address the substance of these comments. Instead, they indicated that the scientific basis for the MCLs had already been addressed during a June 2019 meeting. *See id.*



61. At the close of the October 31, 2019 meeting, the ERRC decided that it needed additional information regarding the Proposed Rule and would not vote on the rule until its next meeting, which it scheduled for November 14, 2019. *See id.*

62. Following the October 31, 2019 meeting, the ERRC forwarded questions on the Proposed Rule and RIS to David Fiedler, the Regulatory Affairs Officer of EGLE. These questions related to the proposed costs associated with the rule, the impact that the rules would have on compliance obligations and associated costs under Michigan's Part 201 Program, and the ability of the rule to adapt to evolving science since "[i]t has been acknowledged that science around these new MCL's [sic] will continue to emerge." ERRC November 14, 2019 Meeting Packet at 7⁴, available at https://www.michigan.gov/documents/egle/egle-imd-errc-2019-11-14_Meeting_Packet_671266_7.pdf (accessed April 7, 2021).

63. Mr. Fiedler first responded to ERRC's questions on behalf of EGLE on November 12, 2019 and updated his response on November 13, 2019. *See id.*

64. In response to ERRC's questions, EGLE updated the RIS to include additional information about the costs to local health departments overseeing the rule and the costs of installing treatment systems, but still failed to fully account for other costs such as ongoing operation and maintenance costs. *See* November 25, 2019 Published RIS at 3, attached as Exhibit C.

65. EGLE's responses to ERRC also explained that Question 3.A of the RIS would be updated to read:

There are surface water standards and groundwater cleanup standards. The groundwater cleanup standards for PFOA and PFOS will be changed as a result of the rule to match the final values adopted for those chemicals. The state may move forward

⁴ Pincites to PDF page numbers as the document is a compilation of independently paginated materials.



for groundwater standards for PFNA, PFHxS, PFBS, PFHxA and HFPO-DA following the process set forth in MCL 324.20120a. However, adoption of the proposed rules does not alter that process. Any new groundwater standards will be factored into future decisions regarding the biosolids application program.

ERRC November 14, 2019 Meeting Packet at 7⁵, available at

[https://www.michigan.gov/documents/egle/egle-imd-errc-2019-11-](https://www.michigan.gov/documents/egle/egle-imd-errc-2019-11-14_Meeting_Packet_671266_7.pdf)

[14 Meeting Packet 671266 7.pdf](https://www.michigan.gov/documents/egle/egle-imd-errc-2019-11-14_Meeting_Packet_671266_7.pdf) (accessed April 7, 2021). However, the RIS

was instead updated as follows:

Since there are not generic groundwater cleanup standards for PFNA, PFHxS, PFBS, PFHxA and HFPO-DA, the department may establish them following the process set forth in Natural Resource and Environmental Protection Act, 1994 PA 451, MCL 324.20120a(23). Ex. C at 2.

66. Even though EGLE's responses to ERRC explained that the rule could impact stakeholders' compliance obligations under Michigan's Part 201 Program, EGLE did not update the RIS to discuss this impact. *See id.* at 3.

67. Moreover, in response to ERRC's specific request that EGLE estimate the impact of changing compliance obligations under the Part 201 Program on small businesses, state agencies, municipalities, and other stakeholders, EGLE stated that "it is not practical to determine the impact of this change."

68. During the November 14, 2019 meeting, some members of the ERRC continued to raise questions about whether the Proposed Rule met all of the criteria set forth in MCL 25.266(4). *See* November 14, 2019 ERRC Meeting Video, available at <https://www.youtube.com/watch?v=deZxu0856qA&feature=youtu.be> (accessed March 31, 2021). Specifically, they raised concerns about the changing compliance obligations under the

⁵ Pincites to PDF page numbers as the document is a compilation of independently paginated materials.



Part 201 Program that would result from the Proposed Rule, and the burdens those obligations would place on individuals and businesses, and the science underlying the Proposed Rule. *See id.*

69. Without ever addressing these questions regarding the burdens of and scientific basis for the Proposed Rule, the ERRC voted that the Proposed Rule met all of the criteria set forth in MCL 25.266(4) and could proceed to the public hearing process. *See id.*

70. Even though they voted that all of the statutory criteria of MCL 25.266(4) were met, some members of the ERRC acknowledged that their view on whether the Proposed Rule met the statutory criteria might change based on the outcome of the public hearing process. *See id.*

Public Comment Period

71. Upon receiving ERRC approval, EGLE filed the Proposed Rule and the RIS with Michigan's Office of Administrative Hearings and Rules ("MOAHR"). *See* EGLE Rulemaking Process Overview, available at

https://www.michigan.gov/documents/egle/Rulemaking_Process_Overview_679312_7.pdf

(accessed April 7, 2021).

72. On December 12, 2019, EGLE published a Notice of Public Hearing. The Notice of Public Hearing announced that three public hearings would be held with respect to the Proposed Rule on January 8, 2020, January 14, 2020, and January 16, 2020. The Notice of Public Hearing also announced that EGLE would accept written comments on the Proposed Rule until January 31, 2020. *See* EGLE Notice of Public Hearing, available at

https://ars.apps.lara.state.mi.us/Transaction/DownloadFile?FileName=NoPHForm_2019-



[35_EG.pdf&FileType=NoPHForm&TransactionID=29&EffectiveDate=8%2F3%2F2020&ReturnHTML=True](#) (accessed at March 31, 2021).

73. During the short public comment period, EGLE received 3,334 written and 82 oral comments on the rules. *See* Summary of Public Comments for Rule Set #2019-35 EG, attached as Exhibit D. Those comments addressed both the rulemaking process and the substance of the Proposed Rule. *See id.* at 3.

74. Some commenters, including Plaintiff, expressed concern that the rulemaking process was so rushed that it had not afforded EGLE adequate time to develop a scientifically sound rule and to fully understand the impacts of the proposed rule. *See id.*

75. Several commenters, including Plaintiff, called into question the seven health-based values established by the Workgroup and incorporated in the Proposed Rule. These commenters did not think it necessary or appropriate to regulate the seven compounds selected by EGLE and questioned whether the levels proposed were necessary to address public health concerns, if any. *See id.*

76. Plaintiff and other commenters highlighted that the rushed rulemaking process resulted in flawed proposed MCLs and that the Workgroup relied on assumptions and uncertainty values in place of available data, deviated from standard risk assessment methodologies, relied on studies that lacked fundamental scientific rigor, and failed to consider key human studies that would have provided the best available data. *See* Comments Submitted to EGLE, at 20–23⁶, available at

<https://ars.apps.lara.state.mi.us/Transaction/DownloadFile?FileName=WrittenComments.pdf&FileType=JCARPackageWrittenComments&TransactionID=29&EffectiveDate=8%2F3%2F2020>

⁶ Pincites to PDF page numbers as the document is a compilation of independently paginated materials.



(accessed March 31, 2021). They urged EGLE to rely on sound scientific data and approaches before moving forward in the rulemaking process. *See id.*

77. Stakeholders, including Plaintiff, also commented that the RIS failed to adequately substantiate and analyze the costs and benefits of the Proposed Rule. *See generally id.*

78. Specifically, these comments pointed out that EGLE had not fully addressed the costs of ongoing operation and maintenance costs for water systems, retrofitting, treatment and pretreatment, sampling, and disposing of waste arising from those activities, and that EGLE failed to account altogether for the costs that would arise from the resulting changes to the groundwater cleanup standards for PFOS and PFOA and associated costs for the management of biosolids, compost, and soils. *See id.* at 23, 253.

79. Plaintiff and other commenters also explained that the purported benefits of the Proposed Rule described in the RIS were speculative and not supported by sound science. *See id.* at 20–22, 281.

EGLE Responses to Public Comments and Revisions to the Proposed Rule

80. On February 21, 2020, just three weeks after receiving *thousands* of public comments, EGLE released a summary of those comments. *See Ex. D.*

81. The summary acknowledged that commenters had raised concerns regarding the scientific basis for the Proposed Rule, the adequacy of the RIS, and the thoroughness and appropriateness of the rulemaking process due to its accelerated nature. *See id.* EGLE itself commented that the “one-year promulgation” timeframe that had been set for the rule “represents an accelerated timetable, with these rules normally taking multiple years to complete.” *Id.* at 5.



82. Although EGLE’s summary generally acknowledged the concerns commenters raised, EGLE failed to describe the concerns with any specificity or respond substantively to them. *See id.*

83. Instead, just three weeks after the close of the public comment period, and despite receiving thousands of comments, some of which included detailed technical information, EGLE determined that no substantive changes to the Proposed Rule were warranted. *See id.* at 6.

84. The only changes that EGLE made to the Proposed Rule were to correct typos in the Chemical Abstract Service (“CAS”) Registry Numbers for PFBS and PFHxS (resulting in the “Revised Proposed Rule”). *Id.*

ERRC’s Second Vote

85. On February 27, 2020, just six days after receiving EGLE’s summary and over 1,000 pages of public comments, the ERRC met to discuss EGLE’s summary of comments and vote on the Revised Proposed Rule. February 27, 2020 ERRC Meeting Minutes, available at https://www.michigan.gov/documents/egle/Environmental-Rules-Review-Committee-ERRC-Meeting-Minutes-Feb-27-2020_711225_7.pdf (accessed March 31, 2021).

86. During the meeting, an ERRC member expressed concern that EGLE’s summary of comments did not fully reflect the substance of the comments submitted to EGLE. February 27, 2020 ERRC Meeting Video, available at <https://www.youtube.com/watch?v=dQKuu9yyPMs> (accessed March 31, 2021).

87. Some ERRC members also noted that EGLE still had not adequately accounted for the full costs and impacts of the rule. *See id.*



88. In addition, multiple ERRC members stated that both EGLE and the ERRC itself had not had enough time to review the lengthy comments that critiqued the scientific basis for the Revised Proposed Rule. *See id.*

89. Nevertheless, other members of the ERRC suggested that ERRC did not need time to review the comments before voting on the Revised Proposed Rule. *See id.*

90. The ERRC discussed how to communicate their comments, concerns, and key points to JCAR. ERRC member Jeremy Orr then made a motion to approve the Revised Proposed Rule without having addressed ERRC's outstanding issues and concerns. Instead, the ERRC voted to approve the Revised Proposed Rule and have Chair Robert Nederhood work with EGLE to draft a supplement to JCAR describing the ongoing concerns as well as the factors that went into the decision. *See id.*

91. ERRC was not required to approve or disapprove the Revised Proposed Rule at its February 27, 2020 meeting. ERRC could have asked EGLE to provide the additional information and clarifications requested *before* voting to approve the Revised Proposed Rule.

92. Nonetheless, a majority of the ERRC ultimately voted to approve the Revised Proposed Rule despite the outstanding questions and concerns that had been raised, and despite the fact that multiple ERRC members had not had time to review the full rulemaking package, including comments and responses. *See id.*

93. ERRC's vote to approve the Revised Proposed Rule meant that neither ERRC nor the public had the opportunity to consider or provide comment on the additional information ERRC requested be added to the rulemaking package.



Promulgation of the Final Rule

94. On March 16, 2020, the Revised Proposed Rule was filed with the JCAR for the final step of the rulemaking process. See March 16, 2020 MOAHR Letter to JCAR, available at http://legislature.mi.gov/publications/jcar/JCAR%20Files/Rule%20Documents%20by%20Department%20and%20Rule%20Number/Department%20of%20Environment,%20Great%20Lakes,%20and%20Energy/2019-035%20EG/2019-035%20EG%20JCARPackage_Letter.pdf (accessed April 7, 2021).

95. On March 23, 2020, despite having approved the Revised Proposed Rule nearly one month earlier, the ERRC sent a letter to JCAR that raised “several questions and concerns regarding the [Revised Proposed Rule] and [its] interpretation and implementation.” March 23, 2020 Email to JCAR at 1, available at https://mimfg.org/Portals/0/Documents/GA/envpfas_errc-jcar-letter_200323.pdf (accessed March 31, 2021). This was not consistent with the understanding at the February 27, 2020 ERRC meeting that such a letter would accompany the Revised Proposed Rule when it was submitted to JCAR. See February 27, 2020 ERRC Meeting, available at <https://www.youtube.com/watch?v=dQKuu9yyPMs&feature=youtu.be> (accessed April 6, 2021).

96. ERRC’s March 23, 2020 letter to JCAR identified several concerns with the Revised Proposed Rule, including that it “create[s] ambiguity with respect to certain regulations which are ancillary to drinking water, including Part 201 clean-up criteria and regulations of biosolids, compost and soils.” March 23, 2020 Email to JCAR at 1, *supra*.

97. In addition, ERRC’s March 23, 2020 letter acknowledged that “[t]he written public comments submitted in response to the [Proposed Rule] include multiple technical reports that exhaustively analyzed the report of the MPART Science Advisory Workgroup” and



“encourage[d] MPART or the Science Advisory Workgroup to provide more detailed written responses to those public comments.” *Id.* at 2.

98. Just as it did when it promised ERRC it would update the Proposed Rule, EGLE again failed to act on ERRC’s letter. In its rush to promulgate a rule, EGLE failed to provide additional information regarding the impacts of the Revised Proposed Rule or a more detailed written response to the public comments, whether from itself, MPART, or the Science Advisory Workgroup.

99. During the fifteen session days that the Revised Proposed Rule was before JCAR, JCAR failed to affirmatively act to object to the Revised Proposed Rule, request that EGLE make changes to the rule, introduce a bill to enact the rule into law, or waive the fifteen session days and allow the rule to proceed to promulgation.

100. On July 27, 2020, following the expiration of fifteen session days, the MOAHR filed the Revised Proposed Rule with the Office of the Great Seal, making the rule final and official. Department of Environment, Great Lakes, and Energy Drinking Water and Environmental Health Division Supply Water to the Public (July 27, 2020), available at <https://ars.apps.lara.state.mi.us/Transaction/DownloadFile?FileName=FinalRule.pdf&FileType=FinalRule&TransactionID=29&EffectiveDate=8%2F3%2F2020> (accessed March 31, 2021).

101. The Final Rule became effective on August 3, 2020. *See id.*

102. As a result of the Final Rule, approximately 2,700 water supplies in Michigan are now subject to the MCLs for PFNA, PFOS, PFOA, PFHxA, PFHxS, PFBS, and HFPO-DA. *See* July 22, 2020 EGLE Press Release, *Michigan Adopts Strict PFAS in Drinking Water Standards*, available at https://www.michigan.gov/pfasresponse/0,9038,7-365-86513_96296-534663--,00.html (accessed April 7, 2021).



103. These water supplies will be required to test for these substances quarterly or annually and treat any exceedances of the MCLs.

104. In addition, the groundwater cleanup standards for PFOS and PFOA under Michigan's Part 201 Program were immediately lowered from 70 ppt to 16 ppt and 8 ppt, respectively. For PFNA, PFHxS, PFHxA, PFBS, and HFPO-DA, EGLE went forward with establishing new groundwater cleanup standards on December 21, 2020 that were consistent with the MCLs for those substances. Those criteria became effective on that same date. *See* December 21, 2020 EGLE Press Release, EGLE Updates PFAS Cleanup Standards, *Adding Five New Compounds*, available at https://www.michigan.gov/egle/0,9429,7-135-3308_3323-548018--rss,00.html (accessed April 6, 2021).

105. Ongoing remediations at contaminated sites in the state are now subject to these lowered and unsupported standards, resulting in increased cleanup costs. *Id.*; Part 201.

106. Lowering the groundwater standards has resulted in at least 42 additional sites, including landfills and over a dozen former plating or manufacturing sites, being investigated by EGLE. It will also likely impact compliance obligations with regard to biosolids, compost, and soils. *See* July 22, 2020 EGLE Press Release, *Michigan Adopts Strict PFAS in Drinking Water Standards*, available at https://www.michigan.gov/pfasresponse/0,9038,7-365-86513_96296-534663--,00.html (accessed April 7, 2021).

CLAIMS FOR RELIEF

COUNT ONE: DECLARATORY JUDGMENT THAT THE RULE IS INVALID BECAUSE IT EXCEEDS EGLE'S AUTHORITY UNDER THE SDWA

107. Plaintiff repeats and incorporates by reference every allegation in the preceding paragraphs.



108. The scope of EGLE’S authority to promulgate drinking water standards is set forth in Section 5 of the SDWA, MCL 325.1005.

109. As set forth in Section 5, EGLE may only promulgate drinking water standards that “are necessary to protect the public health” and must evaluate the costs and benefits of the rule, including impacts on small businesses.

110. The drinking water standards in the Final Rule are not necessary to protect the public health.

111. As described above, EGLE speculated that the impact of the rule would be a “general improvement in public health” and that “there is likely a significant benefit to the reduction [in] exposure to PFAS chemicals given recent findings of the health effects.” Ex. C at 8.

112. EGLE did not evaluate the benefits to be obtained by setting the MCLs at the proposed levels as opposed to 5, 50, or 500 ppt higher or lower.

113. Without evaluating the incremental benefits of setting the MCLs at one level versus another, there was no way for EGLE to evaluate whether the Proposed Rule was necessary to protect public health.

114. EGLE itself acknowledged that “[m]ore study on the health benefits and impacts of PFAS exposure reduction . . . is required.” Ex. C at 8.

115. Because EGLE cannot promulgate a drinking water standard under the SDWA unless it is necessary to protect the public health and EGLE failed to meet this standard, this Court should declare the Final Rule invalid and enjoin EGLE from implementing and enforcing the Final Rule.



**COUNT TWO: DECLARATORY JUDGMENT THAT THE RULE IS INVALID
BECAUSE IT IS ARBITRARY AND CAPRICIOUS**

116. Plaintiff repeats and incorporates by reference every allegation in the preceding paragraphs.

117. Under Michigan law, an administrative rule is invalid if it is arbitrary and capricious. *See Mich. Farm Bureau v. Dep't of Env'tl. Quality*, 292 Mich App 106, 128-29, 807 NW2d 866, 883 (2011).

118. An agency rule will be found to be arbitrary and capricious if the agency “had no reasonable ground for the exercise of judgment.” *See id.* at 890 (internal quotations and citation omitted).

119. In developing the health-based drinking water standards and promulgating the Final Rule, EGLE and its Workgroup relied on assumptions and uncertainty values in place of available data, deviated from standard risk assessment methodologies, relied on studies that lacked fundamental scientific rigor, and failed to consider key human studies that would have provided the best available data.

120. Although EGLE and its Workgroup referenced other state drinking water standards during the rulemaking process, the Final Rule adopted standards that arbitrarily deviated from those adopted by other states without explanation.

121. Even though these significant flaws were brought to EGLE’s attention during the public comment period, EGLE failed to address them through responses to comment or revisions to the health-based drinking water standards.

122. Likewise, even though ERRC “encourage[d] MPART or the Science Advisory Workgroup to provide more detailed written responses to those public comments,” EGLE, MPART, and Workgroup failed to do so. March 23, 2020 Email to JCAR at 2, available at



https://mimfg.org/Portals/0/Documents/GA/envpfas_errc-jcar-letter_200323.pdf (accessed March 31, 2021).

123. Instead, EGLE finalized the proposed drinking water standards even though it was aware of the “significant scientific uncertainty” surrounding the standards and acknowledged that a “serious estimate” of the benefits of those standards could not be made. *See* Workgroup Report at 9, available at [https://www.michigan.gov/documents/pfasresponse/Health-Based Drinking Water Value Recommendations for PFAS in Michigan Report 659258 7.pdf](https://www.michigan.gov/documents/pfasresponse/Health-Based_Drinking_Water_Value_Recommendations_for_PFAS_in_Michigan_Report_659258_7.pdf) (accessed March 31, 2021); Ex. C at 8.

124. EGLE’s decision to promulgate the Final Rule and the associated drinking water standards had no reasonable grounds, and was thus arbitrary and capricious.

125. Accordingly, this Court should declare the Final Rule invalid and enjoin EGLE from implementing and enforcing the Final Rule.

COUNT THREE: DECLARATORY JUDGMENT THAT EGLE FAILED TO ADEQUATELY ASSESS THE IMPACT OF THE RULE IN ITS REGULATORY IMPACT STATEMENT AS REQUIRED BY MCL 24.245.

126. Plaintiff repeats and incorporates by reference every allegation in the preceding paragraphs.

127. Section 5 of the SDWA requires EGLE to follow the procedures set forth in the APA when promulgating state drinking water standards and associated monitoring requirements. MCL 325.1005.

128. A critical requirement in the APA rulemaking process is that the promulgating agency must prepare a RIS. MCL 24.245(3)

129. Under MCL 24.245(3), the RIS must address several topics. Among other things, the RIS must (a) estimate compliance costs on individuals, businesses, and “other groups,” (b)



estimate a variety of costs and impacts unique to small businesses, (c) estimate the primary and direct benefits of the rule, and (d) demonstrate that the proposed rule is “necessary and suitable to achieve its purpose in proportion to the burdens it places on individuals.” MCL 24.245(3)(l)-(s), (x).

130. EGLE did not comply with the APA because the RIS prepared by EGLE failed to adequately address these required topics. In particular:

- a. The RIS failed to adequately account for the costs that the Proposed Rule would impose on public water systems, their customers, and other businesses and groups as required by MCL 24.245(3)(l)-(s) by:
 - i. failing to fully consider the rule’s ongoing operation and maintenance costs for water systems and the costs for retrofitting, treatment and pretreatment, sampling, and disposing of waste arising from those activities; and
 - ii. failing to address altogether the costs that would arise from the resulting changes to the groundwater cleanup standards for PFOS and PFOA and associated costs for the management of biosolids, compost, and soils.
- b. The RIS failed to estimate the primary and direct benefits of the rule as required by MCL 24.245(3)(x). Specifically, EGLE failed to substantiate its claim that the rule would improve public health. Instead, EGLE merely speculated that the impact of the Proposed Rule would be “a general improvement in public health” and that “there is likely a significant benefit to



the reduction [in] exposure to PFAS chemicals given recent findings of the health effects.” Ex. C at 8.

- c. In violation of MCL 24.245(3)(x), the RIS failed to evaluate the benefits to be obtained by setting an MCL at the proposed levels as opposed to 5, 50, or 500 ppt higher or lower. Without evaluating the incremental benefits of setting an MCL at one level versus another, there was no way for EGLE to evaluate whether the Proposed Rule was necessary and suitable to protect human health.
- d. The RIS failed to provide a quantitative estimate of the benefits as required by MCL 24.245(3)(x) and acknowledged that “[m]ore study on the health benefits and impacts of PFAS exposure reduction and the economic benefit is required before a serious estimate [of the benefits] can be made.” Ex. C at 8.
- e. Because EGLE relied on speculative and unquantified benefits not tied to the level of the MCL and did not fully account for all of the costs associated with the Proposed Rule, EGLE could not and did not demonstrate that “the proposed rule [was] necessary and suitable to achieve its purpose in proportion to the burdens” in accordance with MCL 24.245(3)(m).

131. “A rule that does not comply with the procedural requirements of the APA is invalid under Michigan Law.” *Detroit Base Coalition for Human Rights of the Handicapped v. Dep’t of Social Servs.*, 431 Mich. 172, 183, 428 NW 2d 335, 340 (1988).

132. Because EGLE did not comply with the RIS requirements in MCL 24.245(3), this Court should declare the Final Rule invalid and enjoin EGLE from implementing and enforcing the Final Rule.



COUNT FOUR: DECLARATORY JUDGMENT THAT ERRC FAILED TO CONSIDER AND DETERMINE WHETHER THE RULE EXCEEDS EGLE’S RULEMAKING AUTHORITY AS REQUIRED BY MCL 24.266.

133. Plaintiff repeats and incorporates by reference every allegation in the preceding paragraphs.

134. This rulemaking was subject to the ERRC review and approval procedures in MCL 24.266.

135. As required by MCL 24.266(4)(b), ERRC must consider and determine whether the Proposed Rule “reasonably implement[s] and appl[ies] the statute authorizing the rule-making and [is] consistent with all other applicable law” contained in the SDWA.

136. The SDWA requires that any drinking water standards promulgated by EGLE be “necessary to protect the public health.” MCL 325.1005.

137. During its review of the Proposed Rule, ERRC did not consider whether the proposed MCLs reasonably implemented the requirement that the standards be necessary to protect the public health.

138. ERRC simply deferred to EGLE’s mere speculation that the impact of the Proposed Rule would be a “general improvement in public health” and that “there is likely a significant benefit to the reduction [in] exposure to PFAS chemicals given recent findings of the health effects.” Ex. C at 8. EGLE did not and cannot substantiate that the “health effects” are established as cause-and-effect relationships.

139. Under MCL 24.243, “a rule is not valid unless it is processed in compliance with section 66,” MCL 24.266.

140. In addition, it is well settled under Michigan law that a rule is invalid if it is promulgated in violation of the APA. *See Detroit Base Coalition for Human Rights of the*



Handicapped, 431 Mich. at 183 (“A rule that does not comply with the procedural requirements of the APA is invalid under Michigan Law.”)

141. Because ERRC did not comply with the requirements in MCL 24.266(4)(b), this Court should declare the Final Rule invalid and enjoin EGLE from implementing and enforcing the Final Rule.

COUNT FIVE: DECLARATORY JUDGMENT THAT ERRC FAILED TO CONSIDER AND DETERMINE WHETHER THE RULE IS NECESSARY AND SUITABLE TO ACHIEVE ITS PURPOSE IN PROPORTION TO ITS BURDENS AS REQUIRED BY MCL 24.266.

142. Plaintiff repeats and incorporates by reference every allegation in the preceding paragraphs.

143. This rulemaking was subject to the ERRC review and approval procedures in MCL 24.266.

144. As required by MCL 24.266(4)(c), ERRC must consider and determine whether the Proposed Rule is “necessary and suitable to achieve [its] purpose in proportion to the burdens [it] places[s] on individuals and businesses.”

145. During its review of the Proposed Rule, ERRC did not determine whether the proposed MCLs were necessary and suitable to achieve their purpose in proportion to the burden they place on individuals and businesses.

146. The ERRC members questioned the scientific basis for the Proposed Rule and acknowledged that they did not have a full understanding of the burden the rules would place on individuals and businesses. See October 31, 2019 ERRC Meeting Video, available at <https://www.youtube.com/watch?v=Zee5nHK7sqs&feature=youtu.be> (accessed March 31, 2021); November 14, 2019 ERRC Meeting Video, available at <https://www.youtube.com/watch?v=deZxu0856qA&feature=youtu.be> (accessed March 31,



2021). ERRC nevertheless approved the rule without having determined that the rule is necessary and suitable to achieve its purpose and that it is based on sound and objective scientific reasoning.

147. Under MCL 24.243, “a rule is not valid unless it is processed in compliance with section 66,” MCL 24.266.

148. In addition, it is well settled under Michigan law that a rule is invalid if it is promulgated in violation of the APA. *See Detroit Base Coalition for Human Rights of the Handicapped*, 431 Mich at 183 (“A rule that does not comply with the procedural requirements of the APA is invalid under Michigan Law.”)

149. Because ERRC did not comply with the requirements in MCL 24.266(4)(c), this Court should declare the Final Rule invalid and enjoin EGLE from implementing and enforcing the Final Rule.

COUNT SIX: DECLARATORY JUDGMENT THAT ERRC FAILED TO CONSIDER AND DETERMINE WHETHER THE RULE IS BASED ON SOUND AND OBJECTIVE SCIENTIFIC REASONING AS REQUIRED BY MCL 24.266

150. Plaintiff repeats and incorporates by reference every allegation in the preceding paragraphs.

151. This rulemaking was subject to the ERRC review and approval procedures in MCL 24.266.

152. As required by MCL 24.266(4)(e), ERRC must consider and determine whether the Proposed Rule is “based on sound and objective scientific reasoning.”

153. During its review of the Proposed Rule, ERRC did not determine that the proposed MCLs were based on sound and objective scientific reasoning.



154. To the contrary, ERRC members raised questions about the studies that were relied on and the judgment calls that were made by the Workgroup when developing the proposed MCLs. Nevertheless ERRC voted to approve the Proposed Rule without having determined that the criterion was met. *See* October 31, 2019 ERRC Meeting Transcript, available at <https://www.youtube.com/watch?v=Zee5nHK7sqs&feature=youtu.be> (accessed March 31, 2021); November 14, 2019 ERRC Meeting Transcript, available at <https://www.youtube.com/watch?v=deZxu0856qA&feature=youtu.be> (accessed March 31, 2021); February 7, 2020 ERC Meeting Transcript, available at <https://www.youtube.com/watch?v=dQKuu9yyPMs> (accessed March 31, 2021).

155. Under MCL 24.243, “a rule is not valid unless it is processed in compliance with section 66,” MCL 24.266.

156. In addition, it is well settled under Michigan law that a rule is invalid if it is promulgated in violation of the APA. *Detroit Base Coalition for Human Rights of the Handicapped*, 431 Mich at 183 (“A rule that does not comply with the procedural requirements of the APA is invalid under Michigan Law.”)

157. Because ERRC did not comply with the requirements in MCL 24.266(4)(e), this Court should declare the Final Rule invalid and enjoin EGLE from implementing and enforcing the Final Rule.

COUNT SEVEN: DECLARATORY JUDGMENT THAT THE RULE IS INVALID BECAUSE ERRC FAILED TO MAKE AN APPROPRIATE DETERMINATION REGARDING THE APPROVAL OF THE RULE AS REQUIRED BY MCL 24.266

158. Plaintiffs repeat and incorporate by reference every allegation in the preceding paragraphs.



159. This rulemaking was subject to the ERRC review and approval procedures in MCL 24.266.

160. As required by MCL 24.266(8) and (9), ERRC must determine whether to approve the proposed rule with modifications, approve the proposed rule, or reject the proposed rule after receiving “an agency report containing a synopsis of the comments made at and received in connection with the public hearing and a description of any changes that are suggested by [EGLE] to the draft proposed rule[.]” and “discuss[ing] the report and comments made and testimony given at the public hearing.”

161. ERRC’s approval of the Revised Proposed Rule was improper and did not comply with MCL 24.266(9) for several reasons:

- a. As set forth above, at least one ERRC member had concerns that the EGLE report was inadequate because it did not fully reflect the substance of the comments submitted to EGLE. *See* February 7, 2020 ERC Meeting Video, available at <https://www.youtube.com/watch?v=dQKuu9yyPMs> (accessed March 31, 2021).
- b. In addition, ERRC members acknowledged that they had not sufficiently reviewed EGLE’s report and the public comments prior to approving the Revised Proposed Rule. *See id.*
- c. At the time the ERRC voted to approve the Revised Proposed Rule, ERRC members remained concerned that EGLE had not adequately addressed the comments that critiqued the scientific basis for the Revised Proposed Rule and whether EGLE had adequately accounted for the full costs and impacts of the rule. *See id.*



d. Even after ERRC voted to approve the Revised Proposed Rule, ERRC continued to raise questions and concerns about the Revised Proposed Rule, acknowledging that the Rule’s impact remained unclear and that the written response to the public comments critiquing the scientific basis for the rule was inadequate. *See id.*

162. Under MCL 24.243, “a rule is not valid unless it is processed in compliance with section 66,” MCL 24.266.

163. In addition, it is well settled under Michigan law that a rule is invalid if it is promulgated in violation of the APA. *Detroit Base Coalition for Human Rights of the Handicapped*, 431 Mich at 183 (“A rule that does not comply with the procedural requirements of the APA is invalid under Michigan Law.”)

164. Because ERRC did not comply with the requirements in MCL 24.266(9), this Court should declare the Final Rule invalid and enjoin EGLE from implementing and enforcing the Final Rule.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff respectfully requests that the Court enter a judgment in its favor and against Defendant, and provide to Plaintiff the following relief:

- a. A declaratory judgment and decree that the Final Rule is invalid because:
 - i. The rule exceeds EGLE’s authority under MCL 325.1005;
 - ii. The rule is arbitrary and capricious;
 - iii. EGLE failed to adequately assess the impact of the rule in its RIS as required by MCL 24.245;



- iv. ERRC failed to consider and determine whether the rule exceeds EGLE’s rulemaking authority as required by MCL 24.266(4)(a);
 - v. ERRC failed to consider and determine that the proposed rule was “necessary and suitable to achieve [its] purposes in proportion to the burden” it places “on individual and businesses” as required by MCL 24.266(4)(c);
 - vi. ERRC failed to consider and determine that the proposed rule was “based on sound and objective scientific reasoning as required by MCL 24.266(4)(e); and
 - vii. ERRC failed to make an appropriate determination regarding the approval of the rule as required by MCL 24.266(9).
- b. Enjoin EGLE from implementing and enforcing the Final Rule; and
 - c. Such other legal or equitable relief as this Court deems just and proper.

Dated: April 15, 2021

Respectfully submitted,

By: /s/Amy M. Johnston
Amy M. Johnston (P51272)
Joseph M. Infante (P68719)
Miller Canfield Paddock & Stone, P.L.C.
150 W. Jefferson Ave., Suite 2500
Detroit, MI 48226
Phone: 313-963-8420
Email: johnston@millercanfield.com

And



By: /s/Nessa Horewitch Coppinger

Nessa Horewitch Coppinger
(pro hac vice application to be submitted)
Beveridge & Diamond P.C.
1900 N St. NW, Suite 100
Washington, DC 20036
Telephone: (202) 789-6053
Facsimile: (202) 789-6190
Email: ncoppinger@bdlaw.com

Jayni Lanham
(pro hac vice application to be submitted)
Beveridge & Diamond P.C.
201 North Charles Street, Suite 2210
Baltimore, Maryland 21201
Telephone: (410) 230-1333
Facsimile: (410) 230-1389
Email: ylanham@bdlaw.com

Attorneys for Plaintiff 3M Company

VERIFICATION

I declare under the penalties of perjury that this Verified Complaint has been examined by me and that its contents are true to the best of my information, knowledge, and belief.

I hereby certify that I am physically located in Minnesota, outside of the State of Michigan and am signing this document intended for a filing in a matter before a court in the State of Michigan.

3M COMPANY

BY: 
ITS: Michael Irwin

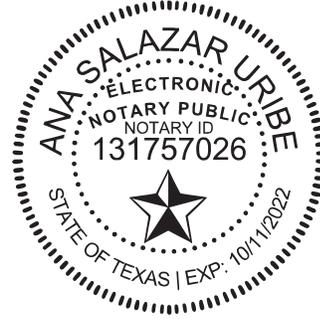
This record was signed and sworn to before me by use of communication technology on this 21 day of April, 2021 by Michael Irwin who declared that he is located in Ramsey, Minnesota and that this record is to be filed with or relates to a matter



before a court located in the territorial jurisdiction of the United States, or involves property located in the territorial jurisdiction of, or a transaction substantially connected with, the United States.

Ana Lina Salazar Uribe

Notary Public State of Texas | County of Harris



37535992.1/151741.00009

Document Notarized using a Live Audio-Video Connection



Exhibit Index

| Exhibit | Description |
|----------------|---|
| A | Brimmer Opinion |
| B | Regulatory Impact Statement 10-11-2019 |
| C | Regulatory Impact Statement 11-25-2019 |
| D | Rulemaking Public Comment Summary 2-21-2020 |

Complaint Exhibit A

REC'D & FILED

JAN 25 2021

JUDGE QUIST
17TH CIRCUIT COURT

STATE OF MICHIGAN
17th CIRCUIT COURT - KENT COUNTY

RONALD BRIMMER and
MARY BRIMMER,

HON. GEORGE JAY QUIST
Case No. 18-01136-CZ

Plaintiffs,

vs

WOLVERINE WORLD WIDE, INC., and
3M COMPANY (f/k/a MINNESOTA
MINING AND MANUFACTURING CO.),

OPINION/ORDER RE: DEFENDANTS'
MOTION FOR SUMMARY DISPOSITION
UNDER MCR 2.116(C)(10)

Defendants.

The Court has reviewed the briefs submitted on the above-captioned motion. The Court heard oral argument on January 22, 2021. The Court finds and orders as follows:

1. Plaintiffs have filed this case alleging that they are entitled to damages due to the PFAS contamination of the water on their property attributable to the acts or omissions of Defendants.
2. To prevail, Plaintiffs must prove that (a) their property is contaminated, and/or (b) the type of damages they seek to recover are permissible under Michigan law.
3. Plaintiffs cannot establish that their property is contaminated. All of the testing indicates that any PFAS in their water is below toxic levels established by the state of Michigan and the United States Environmental Protection Agency. Plaintiffs point out that their expert has opined that even 1 part per trillion of PFAS is harmful. However, the relevant case law looks to the levels established by governmental agencies to determine toxicity or contamination. Because Plaintiffs cannot establish that their property is contaminated, summary disposition is appropriate.

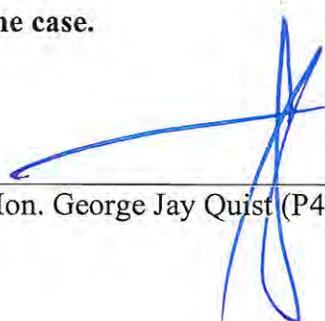
4. Plaintiffs argue that they are not required to establish that their property is contaminated to prevail under a nuisance theory. While there is support for this position, Plaintiffs must also seek damages which are properly recoverable under Michigan law to survive summary disposition. During oral argument, Plaintiffs' counsel claimed that Plaintiffs are seeking damages for "all economic loss." This claim, however, clearly contradicts Plaintiffs' deposition testimony. The only damages Plaintiffs are seeking are attributable to diminution in the value of their property because their property is located in an area where other properties are contaminated with PFAS.¹ Although there may be some restrictions on the use and enjoyment of their property, diminution of property value damages are not recoverable under these facts because they are impermissible "stigma" damages.
5. Moreover, the Court finds that the facts of this case are not materially distinguishable from *Debski v Wolverine World Wide and 3M Company* (18-00055-CZ), where the Court granted Defendants' motion for summary disposition.
6. Finally, Defendants made other arguments in support of their motion not specifically addressed in this opinion. The Court finds Defendants' arguments persuasive and adopts them as the analysis of the Court. No further analysis is necessary. MCR 2.517(A)(4). Lud v Howard, 161 Mich App 603 (1987).

Based on the above analysis, Defendants' motion for summary disposition is **GRANTED**.

Plaintiffs' case is dismissed with prejudice.

This is a final order and does close the case.

1-25-21
Date



Hon. George Jay Quist (P43884)

¹ See Ronald Brimmer deposition, p. 22-23
See Mary Brimmer deposition, p. 29

PROOF OF SERVICE

Service of a copy of this document was made by ordinary mail this date upon the parties who have appeared, or their attorneys of record.

1-25-2021
DATE

Marcedes Langlois
Marcedes Langlois, Judicial Clerk

RECEIVED by MSC 3/29/2024 10:10:36 AM

RECEIVED by MCCOC 4/21/2021 5:46:05 PM

Complaint Exhibit B

**Michigan Office of Administrative Hearings and Rules
Administrative Rules Division (ARD)**

611 W. Ottawa Street
Lansing, MI 48909

Phone: 517-335-8658 Fax: 517-335-9512

**REGULATORY IMPACT STATEMENT
and COST-BENEFIT ANALYSIS (RIS)**

Agency Information:

Department name:

Environment, Great Lakes and Energy

Bureau name:

Drinking Water & Municipal Assistance Division

Name of person filling out RIS:

Candra Wilcox

Phone number of person filling out RIS:

517-284-5004

E-mail of person filling out RIS:

WilcoxC2@michigan.gov

Rule Set Information:

ARD assigned rule set number:

2019-35 EG

Title of proposed rule set:

Supplying Water to the Public

Comparison of Rule(s) to Federal/State/Association Standard:

1. Compare the proposed rules to parallel federal rules or standards set by a state or national licensing agency or accreditation association, if any exist.

The Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), currently contains numerous drinking water standards that are consistent with federal requirements. This requested rulemaking will add additional drinking water standards and related sampling and response requirements. These additional standards would be in addition to the regulations under the federal Safe Drinking Water Act (SDWA), which was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The SDWA authorizes the U.S. Environmental Protection Agency to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. Title 40 of the Code of Federal Regulations (CFR), Part 141, National Primary Drinking Water Regulations, currently does not contain standards for per and poly-fluorinated substances (PFAS).

A. Are these rules required by state law or federal mandate?

These rules are not required by state law or federal mandate.

B. If these rules exceed a federal standard, please identify the federal standard or citation, describe why it is necessary that the proposed rules exceed the federal standard or law, and specify the costs and benefits arising out of the deviation.

There are no applicable federal standards for these chemicals.

2. Compare the proposed rules to standards in similarly situated states, based on geographic location, topography, natural resources, commonalities, or economic similarities.

Four other states have established maximum contaminant levels (MCLs) for several PFAS compounds. New Hampshire, New Jersey, New York, and Vermont are establishing regulations for the chemicals. Michigan's proposed levels similar to standards being proposed by other states.

A. If the rules exceed standards in those states, please explain why and specify the costs and benefits arising out of the deviation.

The standards in these rules are similar to standards being proposed by other states.

3. Identify any laws, rules, and other legal requirements that may duplicate, overlap, or conflict with the proposed rules.

No other rules or legal requirements pertain.

A. Explain how the rules have been coordinated, to the extent practicable, with other federal, state, and local laws applicable to the same activity or subject matter. This section should include a discussion of the efforts undertaken by the agency to avoid or minimize duplication.

There are surface water standards and groundwater cleanup standards. The groundwater cleanup standards for PFOA and PFOS will be changed as a result of the rule. Surface water standards will remain the same. There are no other laws concerning PFAS standards in drinking water.

4. If MCL 24.232(8) applies and the proposed rules are more stringent than the applicable federally mandated standard, a statement of specific facts that establish the clear and convincing need to adopt the more stringent rules and an explanation of the exceptional circumstances that necessitate the more stringent standards is required.

Because there are no existing applicable federal standards, MCL 24.232(8) does not apply. Further, in any event, there is a “clear and convincing need” for these rules given the prevalence of PFAS contamination within the state and its potential impact on drinking water. The state has conducted extensive sampling for 14 PFAS compounds at all community water systems and many non-transient non-community water systems to determine the extent of contamination. Through these efforts, a significant exposure was discovered in the city of Parchment which posed a significant on-going risk to the public. Through a voluntary effort with the City of Parchment and the City of Kalamazoo, the public was protected from further exposure. This sampling also identified a number of drinking water systems with levels of PFAS contaminants that could cause adverse health effects if not addressed. The new rules require on-going sampling and response to selected PFAS chemicals and represent a balanced approach to protecting public health and managing impact to water supplies.

5. If MCL 24.232(9) applies and the proposed rules are more stringent than the applicable federal standard, either the statute that specifically authorizes the more stringent rules or a statement of the specific facts that establish the clear and convincing need to adopt the more stringent rules and an explanation of the exceptional circumstances that necessitate the more stringent standards is required.

Because there are no existing federal standards, MCL 24.232(9) does not apply. Nonetheless, the Michigan Safe Drinking Water Act allows EGLE to promulgate rules setting standards for public water supplies, see MCL 325.1003.

6. Identify the behavior and frequency of behavior that the proposed rules are designed to alter.

The proposed rules are designed to alter the current practices of public water supplies (PWSs) in the state of Michigan in order to be more protective of public health by requiring certain water supplies to sample for seven PFAS chemicals. Supplies would be required to initially sample for seven regulated PFAS chemicals on a quarterly basis. Based on sampling results, sampling could be reduced. Supplies currently do not routinely sample for any PFAS chemicals.

A. Estimate the change in the frequency of the targeted behavior expected from the proposed rules.

The change is from no sampling to quarterly or annual sampling.

B. Describe the difference between current behavior/practice and desired behavior/practice.

The current practice is no testing for PFAS chemicals. The rules will require quarterly or annual testing and reporting for seven PFAS chemicals.

C. What is the desired outcome?

Improved public health by limiting exposure to PFAS chemicals. The rules will also broaden the understanding of where these chemicals are occurring in our drinking water systems.

7. Identify the harm resulting from the behavior that the proposed rules are designed to alter and the likelihood that the harm will occur in the absence of the rule.

Exposure to PFAS chemicals has been shown to cause numerous adverse health impacts. The Science Advisory Workgroup (SAW) assigned by the Michigan PFAS Action Response Team (MPART) identified seven PFAS contaminants of concern for which, in their professional judgement, there was enough scientific evidence to establish Health-Based Values (HBVs). HBVs establish a level of contamination below which there is not expected to be adverse health impacts. The DWEHD took these HBVs and used them to create MCLs. Supplies will sample for these chemicals, and when a running annual average exceeds the MCL for any PFAS contaminant, they will be required to take action to reduce that level of contamination to below the appropriate MCL.

A. What is the rationale for changing the rules instead of leaving them as currently written?

The current rules provide no protection or monitoring for PFAS chemicals.

8. Describe how the proposed rules protect the health, safety, and welfare of Michigan citizens while promoting a regulatory environment in Michigan that is the least burdensome alternative for those required to comply.

The proposed rules protect public health by requiring the monitoring of selected PFAS chemicals, and in the event they exceed the established limit, a response to lower exposure below that limit. The rules require quarterly samples that are averaged over a year in order to address seasonal and source variations. The rules require a violation for exceedances of the MCL but does not stipulate a required strategy or timeline to return to compliance. Instead, the supply will likely enter into an Administrative Consent Order (ACO) with EGLE to establish timelines and other details for the response. This process ensures an approach that balances the need to protect public health with the fiscal and technical realities the supply is facing.

9. Describe any rules in the affected rule set that are obsolete or unnecessary and can be rescinded.

There are no components that are obsolete.

10. Please provide the fiscal impact on the agency (an estimate of the cost of rule imposition or potential savings for the agency promulgating the rule).

These rules will impose an increased fiscal impact on EGLE due to increased oversight and data handling. Although the proposed MCLs will be added to an existing monitoring program, the initial sampling requirement and training burden will be significant. Approximately 2,700 public water supplies will be subject to the new monitoring requirements. Quarterly sampling will generate almost 11,000 sample results and calculations that will need to be reviewed. We also anticipate approximately 22 supplies will be out of compliance based on prior testing. This will result in the need for increased oversight and review of ACOs and corrective action plans.

11. Describe whether or not an agency appropriation has been made or a funding source provided for any expenditures associated with the proposed rules.

The fiscal year 2020 budget includes funding for new FTEs for the drinking water program. It is anticipated that some of these additional FTEs will be utilized to administer the new rules.

12. Describe how the proposed rules are necessary and suitable to accomplish their purpose, in relationship to the burden(s) the rules place on individuals. Burdens may include fiscal or administrative burdens, or duplicative acts.

The new rules are necessary to protect human health from PFAS contamination that has been identified in PWSs. The burden of the new rules is lessened due to the fact that the MCLs have been added to an existing sampling requirement, meaning supplies will simply have to take more samples. Sampling for PFAS contamination, it should be noted, is more difficult due to the potential for cross-contamination and training will be required. The new rules will most likely result in some systems requiring modification/addition of their treatment process that will result in increased costs.

A. Despite the identified burden(s), identify how the requirements in the rules are still needed and reasonable compared to the burdens.

The rules are still needed to identify PFAS contamination in drinking water and to limit the exposure, through treatment or alternate sources, to the public.

13. Estimate any increase or decrease in revenues to other state or local governmental units (i.e. cities, counties, school districts) as a result of the rule. Estimate the cost increases or reductions for other state or local governmental units (i.e. cities, counties, school districts) as a result of the rule. Include the cost of equipment, supplies, labor, and increased administrative costs in both the initial imposition of the rule and any ongoing monitoring.

These rules will impose costs on local government units that own or operate a PWS, including most municipalities (community water supplies) along with some schools and other public entities that are on their own wells (non-transient noncommunity water supplies). There are approximately 1,400 community water supplies (CWSs) in the

state, and 733 of them are owned by a local unit of government. There are approximately 1,300 non-transient noncommunity water supplies in the state, and 291 of them are owned publicly. These two categories make up the water supplies that will be impacted by this rule. The cost estimates below apply to all impacted water supplies, both private and public.

There are two significant drivers of cost to PWSs. The first is the cost of sampling and monitoring PFAS in the drinking water supplies. The second is the cost of installation and operation of treatment where supplies exceed the MCL.

The initial costs to all water supplies regulated by these rules will be the requirement to sample for PFAS on a quarterly basis. If all supplies sample quarterly for the first year, a total of 10,800 samples will be required. The average sample analysis has been approximately \$300 per sample for a total sampling cost of \$3.2 million. The cost to take samples, by contract, has also averaged \$300 per sample. Therefore, the additional cost to physically take the samples is approximately \$3.2 million. Supplies may reduce this cost if they elect to take their own samples. The total conservative estimate for the sampling effort is \$6.4 million for the first year the rules are in effect. Because some supplies will only be required to sample annually, and there are provisions for reduction in sampling if a track record for detections under a certain level can be established, this estimate is likely higher than the actual anticipated cost of sampling and analysis. Annual sampling and analysis costs after the first year should run lower than this estimate.

The other significant cost will be the installation of treatment. There are two options a water system can pursue to reduce the level of contamination in their finished water. The first is to switch to an alternate water source. Because this option is extremely variable from supply to supply, and indeed may not even be an option for some supplies, EGLE cannot reliably develop a cost estimate for that option. The second option is treatment. Recommended treatment is based on a study by the New Jersey Drinking Water Quality Institute that identified Granular Activated Carbon (GAC) as the preferred treatment option. The major costs of GAC include design, installation, and operation/maintenance. While a specific cost of design and installation vary by site, we can make a rough estimated based on a general cost per million gallons treated.

After several rounds of testing affected water supplies, we have identified 22 water systems that may likely be impacted by a requirement to install treatment due to an exceedance of the proposed MCLs. These supplies are treating a total of 0.93 million gallons per day (MGD). Cost estimates are based on a January 2019 report from the State of New Hampshire. New Hampshire identified a one-time treatment installation cost based on gallons treated per day. Their lowest cost estimate was \$2.90 per gallon, and their highest cost estimate was \$8.10 per gallon. Based on a conservative estimated cost of \$8 per gallon treated per day, the estimated one-time installation cost of the new rules will be \$7.4 million (\$8 x 930,000) for affected supplies to install treatment. There will also be a cost associated with operating and maintaining the treatment systems. Those costs are more difficult to estimate based on the unique water chemistry and existing treatment design associated with each water supply. Those variables will affect how a GAC solution is implemented and how often the GAC system media will need to be replaced. The New Hampshire study used a high annual estimate of \$0.35 per gallon, or \$0.000959 per gallon per day.

$$0.000959 \text{ dollars/gallon/day} \times 930,000 \text{ gal/1} \times 365 \text{ day/1} = \$325,500$$

Based on that, the estimated annual operation and maintenance cost for the new rules is \$325,500 per year.

It is noted that several water systems have proactively responded to PFAS contamination which has resulted in costs that could have been incurred if those actions were taken after this rule went into effect. The City of Plainfield is installing GAC treatment in response to contamination which is not currently in excess of the proposed MCLs. The treatment installation is estimated to be approximately \$15 million. Additionally, the City of Ann Arbor has been conducting a treatment study and has been sampling for PFAS in a manner that exceeds the requirements of the new rule. The City of Parchment abandoned their public water system and connected to the City of Kalamazoo resulting in costs to both systems.

14. Discuss any program, service, duty, or responsibility imposed upon any city, county, town, village, or school district by the rules.

Water supplies owned by governmental units will need to comply with all of the requirements of the new PFAS MCLs, including increased sampling and reporting. There are also expanded public notification requirements and follow up based on sampling results.

A. Describe any actions that governmental units must take to be in compliance with the rules. This section should include items such as record keeping and reporting requirements or changing operational practices.

Municipalities that own/operate a PWS will be required to comply with the new rules and to sample, report, and respond to exceedance of the new MCLs.

15. Describe whether or not an appropriation to state or local governmental units has been made or a funding source provided for any additional expenditures associated with the proposed rules.

No identification of funding source or appropriation has taken place.

16. In general, what impact will the rules have on rural areas?

In general, rural areas will be less impacted by these rules than urban areas, since most contamination found to date occurs in larger systems. EGLE staff will be gearing up to provide additional direct assistance to small rural supplies if these rules are promulgated.

A. Describe the types of public or private interests in rural areas that will be affected by the rules.

Water supplies located in rural areas will be affected by the new rules.

17. Do the proposed rules have any impact on the environment? If yes, please explain.

A secondary goal of the selected preferred treatment method is the possibility that regeneration of the GAC media may physically destroy the PFAS contamination. Most other treatment options simply move the contamination from one media to another. If the spent GAC media is regenerated through incineration, it will physically destroy the PFAS contamination, breaking the cycle of media transfer and thereby improving the environment by ending the cycle and destroying the contamination. This benefit depends on the ultimate fate of spent GAC media. Some supplies may choose to dispose of the media in an appropriate landfill, therefore, this benefit may not apply.

18. Describe whether and how the agency considered exempting small businesses from the proposed rules.

No – EGLE did not consider exempting small businesses from the proposed rules.

19. If small businesses are not exempt, describe (a) the manner in which the agency reduced the economic impact of the proposed rules on small businesses, including a detailed recitation of the efforts of the agency to comply with the mandate to reduce the disproportionate impact of the rules upon small businesses as described below (in accordance with MCL 24.240(1)(a-d)), or (b) the reasons such a reduction was not lawful or feasible.

While small private water supplies will be required to comply, the impact should be minimized due to the low amount of water treated at these supplies. The state will offer technical support to these supplies as required.

A. Identify and estimate the number of small businesses affected by the proposed rules and the probable effect on small businesses.

There are approximately 650 privately-owned CWSs with populations under 10,000 and approximately 1,000 privately-owned non-transient noncommunity water supplies in Michigan. These two categories constitute the PWSs that are impacted by the proposed MCLs. These PWSs will be required to comply with the requirements of the rules, creating a financial and administrative burden.

B. Describe how the agency established differing compliance or reporting requirements or timetables for small businesses under the rules after projecting the required reporting, record-keeping, and other administrative costs.

While small private PWSs do have to comply with the proposed rules requirements, any exceedance of an MCL will be ultimately resolved through an ACO. The ACO will take into account economic factors in the supply's return to compliance while maintaining a balance to protect human health.

C. Describe how the agency consolidated or simplified the compliance and reporting requirements for small businesses and identify the skills necessary to comply with the reporting requirements.

EGLE incorporated the new requirements into an existing regulatory framework that PWSs are already familiar with, thereby simplifying compliance. EGLE is also working on a new database system that will allow laboratories to report monitoring results electronically, as well as accept electronic submittal of reports. This will significantly reduce the effort involved for all regulated supplies.

D. Describe how the agency established performance standards to replace design or operation standards required by the proposed rules.

MCLs are by their nature already performance-based. Although GAC is identified as a preferred treatment method, supplies are free to use any available treatment method that is proven to remove PFAS contamination to below the MCLs.

20. Identify any disproportionate impact the proposed rules may have on small businesses because of their size or geographic location.

Small businesses should be impacted less by this regulation since they treat a lower volume of water than municipalities due to their size and less urban location.

21. Identify the nature of any report and the estimated cost of its preparation by small businesses required to comply with the proposed rules.

There are no reports required by the new rules.

22. Analyze the costs of compliance for all small businesses affected by the proposed rules, including costs of equipment, supplies, labor, and increased administrative costs.

The compliance costs for all PWSs are analyzed above in #13; however, these costs will impact the medium and large municipal systems far more than the smaller private supplies.

23. Identify the nature and estimated cost of any legal, consulting, or accounting services that small businesses would incur in complying with the proposed rules.

It is possible that a small private PWS will hire an engineering firm to help them with compliance with these rules, but the majority of these systems will be able to comply without third party assistance. EGLE will be placing considerable emphasis on providing compliance assistance to PWSs.

24. Estimate the ability of small businesses to absorb the costs without suffering economic harm and without adversely affecting competition in the marketplace.

Since the rules apply equally to all small private PWSs, there will not be an uneven distribution of burden between them. It is likely that some costs will be passed along to ratepayers who are using the drinking water supply.

25. Estimate the cost, if any, to the agency of administering or enforcing a rule that exempts or sets lesser standards for compliance by small businesses.

None – there will be equal oversight for all impacted by the rules.

26. Identify the impact on the public interest of exempting or setting lesser standards of compliance for small businesses.

The rules still require small businesses to comply with the new sampling requirements and MCLs, thereby protecting public health interests.

27. Describe whether and how the agency has involved small businesses in the development of the proposed rules.

Several small businesses and/or those serving small private water supplies were involved in the stakeholder process. These include the Michigan Manufactured Housing Association and the Michigan Rural Water Association.

A. If small businesses were involved in the development of the rules, please identify the business(es).

No specific small businesses were involved in development of the rules.

28. Estimate the actual statewide compliance costs of the rule amendments on businesses or groups.

The businesses that will be most affected by these rules will be those with their own water supply. This includes approximately 650 CWSs. More than half of these are manufactured housing communities, and many of the rest are condominiums, apartment buildings, and other residential units. It also includes approximately 1,000 non-transient noncommunity water supplies – industries, small businesses, etc. – that are not hooked up to municipal water.

The compliance costs for all PWSs are analyzed above in #13; however, these costs will impact medium and large municipal systems far more than smaller private supplies. Specific costs are directly related to the contaminant level in source water and the amount of water the system delivers to its customers. Many of the other ancillary costs associated with these rules have been minimized for small supplies.

A. Identify the businesses or groups who will be directly affected by, bear the cost of, or directly benefit from the proposed rules.

Those directly affected include owners of private water systems, laboratories, engineering firms, companies that supply and install treatment, and companies that provide water system operations services.

B. What additional costs will be imposed on businesses and other groups as a result of these proposed rules (i.e. new equipment, supplies, labor, accounting, or recordkeeping)? Please identify the types and number of businesses and groups. Be sure to quantify how each entity will be affected.

Businesses that operate their own water supplies will be required to comply with the new rules. They will be required to sample their finished drinking water for PFAS (\$300 per sample if the business collects themselves or \$600 per sample if they hire a contractor to take the sample) and find alternate water or install treatment if their water exceeds the proposed MCLs. Costs are outlined in #13.

29. Estimate the actual statewide compliance costs of the proposed rules on individuals (regulated individuals or the public). Include the costs of education, training, application fees, examination fees, license fees, new equipment, supplies, labor, accounting, or recordkeeping.

There are no direct compliance costs to the public for this rule. There is a likelihood that PWSs will pass along to their customers at least some of the costs associated with compliance with these rules. Municipalities and other governmental bodies, in particular, will likely need to increase their utility rates to pay for their infrastructure upgrades and additional compliance costs. This will result in higher costs to homeowners, but it is very difficult to estimate this impact. It is important to note that drinking water has historically been the most affordable utility and will likely remain this way even with increases.

A. How many and what category of individuals will be affected by the rules?

Approximately 75% of Michigan residents get their drinking water from a PWS. Assuming 10 million people in the state, this equates to 7.5 million people that will be served drinking water that is regularly tested for PFAS chemicals.

B. What qualitative and quantitative impact do the proposed changes in rules have on these individuals?

The impact will be a general improvement in public health achieved through limiting PFAS exposure. The individuals will also have access to testing records so they will be aware of the level of PFAS in their drinking water regardless of the level.

30. Quantify any cost reductions to businesses, individuals, groups of individuals, or governmental units as a result of the proposed rules.

There are no known cost reductions associated directly with these rules.

31. Estimate the primary and direct benefits and any secondary or indirect benefits of the proposed rules. Please provide both quantitative and qualitative information, as well as your assumptions.

The primary benefits of this rules package are reducing the exposure to the PFAS chemicals regulated under the rules. Implementation of treatment will also remove other contaminants (other PFAS compounds, etc.) that will result in less exposure to contamination, thereby improving public health.

While estimating the cost to implement the new rules is relatively easy, the estimate of the benefits is not. It is generally difficult to monetize the benefits of drinking water standards, and this is especially true for PFAS chemicals. In particular, indirect costs such as reduced quality of life are particularly hard to capture. More study on the health benefits and impacts of PFAS exposure reduction and the economic benefit is required before a serious estimate can be made. There is likely a significant benefit to the reduction in exposure to PFAS chemicals given recent findings of the health effects. Health effects that have been identified include: lowering a woman's chance of getting pregnant, an increase in the chance of high blood pressure in pregnant women, an increase in the chance of thyroid disease, an increase in cholesterol levels, changes in immune response, and an increase in the chance of cancer, especially kidney and testicular cancers. In a general, qualitative measure, given the potential for direct health care treatment costs, loss of income, and associated indirect costs, limiting exposure to the seven PFAS chemicals for which these rules establish MCLs will likely result in significant avoided costs.

An additional consideration, and environmental benefit, of the rules is the preference given to GAC treatment of PFAS compounds. This treatment technology has the advantage of not only capturing the contamination but the potential for permanent destruction of PFAS compounds in the regeneration process. More study is needed to quantify the temperature at which PFAS chemicals are destroyed.

Additional benefits will be general improvement to water systems and quality, creation of jobs, and increased community goodwill through better service to customers.

32. Explain how the proposed rules will impact business growth and job creation (or elimination) in Michigan.

The proposed rules have the potential to increase demand on engineering firms and laboratories in the state. If water treatment plant modifications are required, the rules will also create some business growth in that sector. Ongoing treatment operation and maintenance may also increase job opportunities at PWSs around the state.

33. Identify any individuals or businesses who will be disproportionately affected by the rules as a result of their industrial sector, segment of the public, business size, or geographic location.

PFAS contamination tends to be found in more industrialized, urban areas leading to a higher compliance burden in those geographic locations.

34. Identify the sources the agency relied upon in compiling the regulatory impact statement, including the methodology utilized in determining the existence and extent of the impact of the proposed rules and a cost-benefit analysis of the proposed rules.

- Summary Report on the New Hampshire Department of Environmental Services Development of Maximum Contaminant Levels and Ambient Groundwater Quality Standards for Perfluorooctanesulfonic Acid (PFOS), Perfluorooctanoic Acid (PFOA), Perfluorononanoic Acid (PFNA), and Perfluorohexanesulfonic Acid (PFHxS). New Hampshire Department of Environmental Services, January 2019.
- Recommendation on Perfluorinated Compound Treatment Options for Drinking Water. New Jersey Drinking Water Quality Institute Treatment Subcommittee, June 2015.
- Health-Based Drinking Water Value Recommendations for PFAS in Michigan. Michigan Science Advisory Workgroup, Michigan PFAS Action Response Team, June 2019.

A. How were estimates made, and what were your assumptions? Include internal and external sources, published reports, information provided by associations or organizations, etc., which demonstrate a need for the proposed rules.

Estimates of sampling costs were made based on the statewide sampling effort under MPART. Treatment costs were made based on the number of supplies over the proposed MCLs at the time the estimate was made and the average cost of treatment based on a study by the State of New Hampshire.

35. Identify any reasonable alternatives to the proposed rules that would achieve the same or similar goals.

There are no reasonable alternatives. Possible alternatives include no establishment of any MCL or testing requirement that provides no public health protection, the requirement to install basic treatment for PFAS chemicals at all water supplies that is cost prohibitive, or a change in the MCLs that were based on the best data available.

A. Please include any statutory amendments that may be necessary to achieve such alternatives.

Changes in the MCLs would be required if additional science shows that is prudent.

36. Discuss the feasibility of establishing a regulatory program similar to that proposed in the rules that would operate through private market-based mechanisms. Please include a discussion of private market-based systems utilized by other states.

This is a federal law (SDWA) that must be implemented in Michigan. The state is choosing to add PFAS to its regulated contaminants; no other states have implemented a market-based system of regulation, and this does not seem feasible.

36. Discuss the feasibility of establishing a regulatory program similar to that proposed in the rules that would operate through private market-based mechanisms. Please include a discussion of private market-based systems utilized by other states.

Stakeholders had concerns about the levels at which the MCLs were set. The MCLs were set based on an expert panel that considered the latest scientific data available.

Many alternatives discussed dealt with changes to the timing and logistics of the new requirements, levels of the MCLs, testing protocols, sampling frequency to capture seasonal variations, applicability of the new rules, laboratory capacity concerns, reporting limit concerns, and public notification requirements. We wrote and modified the rules where these concerns and suggestions provided less ambiguity in the rules and provided better, more reasonable public health protection.

38. As required by MCL 24.245b(1)(c), please describe any instructions regarding the method of complying with the rules, if applicable.

Significant guidance material will be available to provide compliance assistance.

Complaint Exhibit C

**Michigan Office of Administrative Hearings and Rules
Administrative Rules Division (ARD)**

611 W. Ottawa Street
Lansing, MI 48909

Phone: 517-335-8658 Fax: 517-335-9512

**REGULATORY IMPACT STATEMENT
and COST-BENEFIT ANALYSIS (RIS)**

Agency Information:

Department name:

Environment, Great Lakes and Energy

Bureau name:

Drinking Water and Environmental Health Division

Name of person filling out RIS:

Candra Wilcox

Phone number of person filling out RIS:

517-284-5004

E-mail of person filling out RIS:

WilcoxC2@michigan.gov

Rule Set Information:

ARD assigned rule set number:

2019-35 EG

Title of proposed rule set:

Supplying Water to the Public

Comparison of Rule(s) to Federal/State/Association Standard:

1. Compare the proposed rules to parallel federal rules or standards set by a state or national licensing agency or accreditation association, if any exist.

The Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), currently contains numerous drinking water standards that are consistent with federal requirements. This requested rulemaking will add additional drinking water standards and related sampling and response requirements. These additional standards would be in addition to the regulations under the federal Safe Drinking Water Act (SDWA), which was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The SDWA authorizes the U.S. Environmental Protection Agency to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. Title 40 of the Code of Federal Regulations (CFR), Part 141, National Primary Drinking Water Regulations, currently does not contain standards for per and poly-fluorinated substances (PFAS).

A. Are these rules required by state law or federal mandate?

These rules are not required by state law or federal mandate.

B. If these rules exceed a federal standard, please identify the federal standard or citation, describe why it is necessary that the proposed rules exceed the federal standard or law, and specify the costs and benefits arising out of the deviation.

There are no applicable federal standards for these chemicals.

2. Compare the proposed rules to standards in similarly situated states, based on geographic location, topography, natural resources, commonalities, or economic similarities.

Four other states have established maximum contaminant levels (MCLs) for several PFAS compounds. New Hampshire, New Jersey, New York, and Vermont are establishing regulations for the chemicals. Michigan's proposed levels are similar to standards being proposed by other states.

A. If the rules exceed standards in those states, please explain why and specify the costs and benefits arising out of the deviation.

The standards in these rules are similar to standards being proposed by other states.

3. Identify any laws, rules, and other legal requirements that may duplicate, overlap, or conflict with the proposed rules.

No other rules or legal requirements pertain to establishing drinking water standards for public water supplies.

A. Explain how the rules have been coordinated, to the extent practicable, with other federal, state, and local laws applicable to the same activity or subject matter. This section should include a discussion of the efforts undertaken by the agency to avoid or minimize duplication.

Since there are not generic groundwater cleanup standards for PFNA, PFHxS, PFBS, PFHxA and HFPO-DA, the department may establish them following the process set forth in Natural Resource and Environmental Protection Act, 1994 PA 451, MCL 324.20120a(23).

4. If MCL 24.232(8) applies and the proposed rules are more stringent than the applicable federally mandated standard, a statement of specific facts that establish the clear and convincing need to adopt the more stringent rules and an explanation of the exceptional circumstances that necessitate the more stringent standards is required.

Because there are no existing applicable federal standards, MCL 24.232(8) does not apply. Further, in any event, there is a “clear and convincing need” for these rules given the prevalence of PFAS contamination within the state and its potential impact on drinking water. The state has conducted extensive sampling for 14 PFAS compounds at all community water systems and many non-transient non-community water systems to determine the extent of contamination. Through these efforts, a significant exposure was discovered in the city of Parchment which posed a significant on-going risk to the public. Through a voluntary effort with the City of Parchment and the City of Kalamazoo, the public was protected from further exposure. This sampling also identified a number of drinking water systems with levels of PFAS contaminants that could cause adverse health effects if not addressed. The new rules require on-going sampling and response to selected PFAS chemicals and represent a balanced approach to protecting public health and managing impact to water supplies.

5. If MCL 24.232(9) applies and the proposed rules are more stringent than the applicable federal standard, either the statute that specifically authorizes the more stringent rules or a statement of the specific facts that establish the clear and convincing need to adopt the more stringent rules and an explanation of the exceptional circumstances that necessitate the more stringent standards is required.

Because there are no existing federal standards, MCL 24.232(9) does not apply. Nonetheless, the Michigan Safe Drinking Water Act allows EGLE to promulgate rules setting standards for public water supplies, see MCL 325.1003.

6. Identify the behavior and frequency of behavior that the proposed rules are designed to alter.

The proposed rules are designed to alter the current practices of public water supplies (PWSs) in the state of Michigan in order to be more protective of public health by requiring certain water supplies to sample for seven PFAS chemicals. Supplies would be required to initially sample for seven regulated PFAS chemicals on a quarterly basis. Based on sampling results, sampling could be reduced. Supplies currently do not routinely sample for any PFAS chemicals.

A. Estimate the change in the frequency of the targeted behavior expected from the proposed rules.

The change is from no sampling to quarterly or annual sampling.

B. Describe the difference between current behavior/practice and desired behavior/practice.

The current practice is no testing for PFAS chemicals. The rules will require quarterly or annual testing and reporting for seven PFAS chemicals.

C. What is the desired outcome?

Improved public health by limiting exposure to PFAS chemicals. The rules will also broaden the understanding of where these chemicals are occurring in our drinking water systems.

7. Identify the harm resulting from the behavior that the proposed rules are designed to alter and the likelihood that the harm will occur in the absence of the rule.

Exposure to PFAS chemicals has been shown to cause numerous adverse health impacts. The Science Advisory Workgroup (SAW) assigned by the Michigan PFAS Action Response Team (MPART) identified seven PFAS contaminants of concern for which, in their professional judgement, there was enough scientific evidence to establish Health-Based Values (HBVs). HBVs establish a level of contamination below which there is not expected to be adverse health impacts. The Drinking Water and Environmental Health Division (DWEHD) took these HBVs and used them to create MCLs. Supplies will sample for these chemicals, and when a running annual average exceeds the MCL for any PFAS contaminant, they will be required to take action to reduce that level of contamination to below the appropriate MCL.

A. What is the rationale for changing the rules instead of leaving them as currently written?

The current rules provide no protection or monitoring for PFAS chemicals.

8. Describe how the proposed rules protect the health, safety, and welfare of Michigan citizens while promoting a regulatory environment in Michigan that is the least burdensome alternative for those required to comply.

The proposed rules protect public health by requiring the monitoring of selected PFAS chemicals, and in the event they exceed the established limit, a response to lower exposure below that limit. The rules require quarterly samples that are averaged over a year in order to address seasonal and source variations. The rules require a violation for exceedances of the MCL but does not stipulate a required strategy or timeline to return to compliance. Instead, the supply will likely enter into an Administrative Consent Order (ACO) with EGLE to establish timelines and other details for the response. This process ensures an approach that balances the need to protect public health with the fiscal and technical realities the supply is facing.

9. Describe any rules in the affected rule set that are obsolete or unnecessary and can be rescinded.

There are no components that are obsolete.

10. Please provide the fiscal impact on the agency (an estimate of the cost of rule imposition or potential savings for the agency promulgating the rule).

These rules will impose an increased fiscal impact on EGLE due to increased oversight and data handling. Although the proposed MCLs will be added to an existing monitoring program, the initial sampling requirement and training burden will be significant. Approximately 2,700 public water supplies will be subject to the new monitoring requirements. Quarterly sampling will generate almost 11,000 sample results and calculations that will need to be reviewed. We also anticipate approximately 22 supplies will be out of compliance based on prior testing. This will result in the need for increased oversight and review of ACOs and corrective action plans. Local health departments directly oversee approximately half of these supplies which will result in increased oversight responsibilities and costs primarily in processing sampling results and issuing enforcement communications. The bulk of the cost of the response, approving and overseeing corrective action, will be borne by EGLE as EGLE approves construction permits for treatment systems. It is important to note that the increase in oversight is mitigated by the fact that the new rules require sampling, analysis and compliance calculation in exactly the same way as existing rules resulting in a lower "learning curve" for local health departments in administering the new rules.

11. Describe whether or not an agency appropriation has been made or a funding source provided for any expenditures associated with the proposed rules.

The fiscal year 2020 budget includes funding for new FTEs for the drinking water program. It is anticipated that some of these additional FTEs will be utilized to administer the new rules.

12. Describe how the proposed rules are necessary and suitable to accomplish their purpose, in relationship to the burden(s) the rules place on individuals. Burdens may include fiscal or administrative burdens, or duplicative acts.

The new rules are necessary to protect human health from PFAS contamination that has been identified in PWSs. The burden of the new rules is lessened due to the fact that the MCLs have been added to an existing sampling requirement, meaning supplies will simply have to take more samples. Sampling for PFAS contamination, it should be noted, is more difficult due to the potential for cross-contamination and training will be required. The new rules will most likely result in some systems requiring modification/addition of their treatment process that will result in increased costs.

A. Despite the identified burden(s), identify how the requirements in the rules are still needed and reasonable compared to the burdens.

The rules are still needed to identify PFAS contamination in drinking water and to limit the exposure, through treatment or alternate sources, to the public.

13. Estimate any increase or decrease in revenues to other state or local governmental units (i.e. cities, counties, school districts) as a result of the rule. Estimate the cost increases or reductions for other state or local governmental units (i.e. cities, counties, school districts) as a result of the rule. Include the cost of equipment, supplies, labor, and increased administrative costs in both the initial imposition of the rule and any ongoing monitoring.

These rules will impose costs on local government units that own or operate a PWS, including most municipalities (community water supplies) along with some schools and other public entities that are on their own wells (non-transient noncommunity water supplies). There are approximately 1,400 community water supplies (CWSs) in the state, and 733 of them are owned by a local unit of government. There are approximately 1,300 non-transient noncommunity water supplies in the state, and 291 of them are owned publicly. These two categories make up the water supplies that will be impacted by this rule. The cost estimates below apply to all impacted water supplies, both private and public. In general, non-transient noncommunity water systems tend to be smaller while community water systems tend to be larger.

There are two significant drivers of cost to PWSs. The first is the cost of sampling and monitoring PFAS in the drinking water supplies. The second is the cost of installation and operation of treatment where supplies exceed the MCL.

The initial costs to all water supplies regulated by these rules will be the requirement to sample for PFAS on a quarterly basis. If all supplies sample quarterly for the first year, a total of 10,800 samples will be required. The average sample analysis has been approximately \$300 per sample for a total sampling cost of \$3.2 million. The cost to take samples, by contract, has also averaged \$300 per sample. Therefore, the additional cost to physically take the samples is approximately \$3.2 million. Supplies may reduce this cost if they elect to take their own samples. The total conservative estimate for the sampling effort is \$6.4 million for the first year the rules are in effect. Because some supplies will only be required to sample annually, and there are provisions for reduction in sampling if a track record for detections under a certain level can be established, this estimate is likely higher than the actual anticipated cost of sampling and analysis. Annual sampling and analysis costs after the first year should run lower than this estimate.

The other significant cost will be the installation of treatment. There are two options a water system can pursue to reduce the level of contamination in their finished water. The first is to switch to an alternate water source. Because this option is extremely variable from supply to supply, and indeed may not even be an option for some supplies, EGLE cannot reliably develop a cost estimate for that option. The second option is treatment. Recommended treatment is based on a study by the New Jersey Drinking Water Quality Institute that identified Granular Activated Carbon (GAC) as the preferred treatment option. The major costs of GAC include design, installation, and operation/maintenance. While a specific cost of design and installation vary by site, we can make a rough estimated based on a general cost per million gallons treated.

After several rounds of testing affected water supplies, we have identified 22 water systems that may likely be impacted by a requirement to install treatment due to an exceedance of the proposed MCLs. These 22 systems consist of both small systems and larger systems. Because smaller systems often pay a higher cost per gallon due to their size, we have estimated the cost separately for the larger community waster systems and the smaller non-community systems.

The larger, community systems are treating a total of 0.928 million gallons per day (MGD). To estimate the costs for these systems we were able to use a January 2019 report from the State of New Hampshire. New Hampshire identified a one-time treatment installation cost based on gallons treated per day. Their lowest cost estimate was \$2.90 per gallon, and their highest cost estimate was \$8.10 per gallon. To be conservative in our estimate, we have used the higher end of this range at \$8 per gallon treated per day. Based on this value, the estimated one-time installation cost of the new rules for the larger, community systems will be \$7.4 million (\$8 x 928,000).

The smaller, non-community systems treat a total of 79,000 gallons per day. A recent cost estimate for Robinson Elementary school was \$206,000 to treat a designed load of 4,500 gallons of water per day (\$46 per gallon treated per day). Projecting this value forward, to install treatment for 79,000 gallons of water it is estimated that it will cost \$3.6 million.

Combining the estimated cost for treatment installation at the larger, community systems with the estimated cost for the smaller, non-community systems, the total estimated cost for all water systems where we currently know PFAS needs to be addressed is an estimated total of \$11 million.

14. Discuss any program, service, duty, or responsibility imposed upon any city, county, town, village, or school district by the rules.

Water supplies owned by governmental units will need to comply with all of the requirements of the new PFAS MCLs, including increased sampling and reporting. There are also expanded public notification requirements and follow up based on sampling results.

The following is a continuation of the response to Question 13 above:

There will also be a cost associated with operating and maintaining the treatment systems. Those costs are more difficult to estimate based on the unique water chemistry and existing treatment design associated with each water supply. Those variables will affect how a GAC solution is implemented and how often the GAC system media will need to be replaced. The New Hampshire study used a high annual estimate of \$0.35 per gallon, or \$0.000959 per gallon per day.

Based on that, the estimated annual operation and maintenance cost for the new rules is \$352,500 per year. There is no anticipated difference in operations and maintenance costs between large and small systems.

It is noted that several water systems have proactively responded to PFAS contamination which has resulted in costs that could have been incurred if those actions were taken after this rule went into effect. The City of Plainfield is installing GAC treatment in response to contamination which is not currently in excess of the proposed MCLs. The treatment installation is estimated to be approximately \$15 million. Additionally, the City of Ann Arbor has been conducting a treatment study and has been sampling for PFAS in a manner that exceeds the requirements of the new rule. The City of Parchment abandoned their public water system and connected to the City of Kalamazoo resulting in costs to both systems. While these costs are not directly related to the new rule it is important to acknowledge that some systems have already implemented actions to protect their communities that are not included in this cost estimate.

In conclusion, there are many costs to regulated supplies, including ancillary administrative costs. Again, this is the cost for all impacted water supplies in the state, both public and private, with the largest impact to medium and large municipalities.

A. Describe any actions that governmental units must take to be in compliance with the rules. This section should include items such as record keeping and reporting requirements or changing operational practices.

Municipalities that own/operate a PWS will be required to comply with the new rules and to sample, report, and respond to exceedance of the new MCLs.

15. Describe whether or not an appropriation to state or local governmental units has been made or a funding source provided for any additional expenditures associated with the proposed rules.

No identification of funding source or appropriation has taken place.

16. In general, what impact will the rules have on rural areas?

In general, rural areas will be less impacted by these rules than urban areas, since most contamination found to date occurs in larger systems. EGLE staff will be gearing up to provide additional direct assistance to small rural supplies if these rules are promulgated.

A. Describe the types of public or private interests in rural areas that will be affected by the rules.

Water supplies located in rural areas will be affected by the new rules.

17. Do the proposed rules have any impact on the environment? If yes, please explain.

A secondary goal of the selected preferred treatment method is the possibility that regeneration of the GAC media may physically destroy the PFAS contamination. Most other treatment options simply move the contamination from one media to another. If the spent GAC media is regenerated through incineration, it will physically destroy the PFAS contamination, breaking the cycle of media transfer and thereby improving the environment by ending the cycle and destroying the contamination. This benefit depends on the ultimate fate of spent GAC media. Some supplies may choose to dispose of the media in an appropriate landfill, therefore, this benefit may not apply.

18. Describe whether and how the agency considered exempting small businesses from the proposed rules.

No – EGLE did not consider exempting small businesses from the proposed rules.

19. If small businesses are not exempt, describe (a) the manner in which the agency reduced the economic impact of the proposed rules on small businesses, including a detailed recitation of the efforts of the agency to comply with the mandate to reduce the disproportionate impact of the rules upon small businesses as described below (in accordance with MCL 24.240(1)(a-d)), or (b) the reasons such a reduction was not lawful or feasible.

While small private water supplies will be required to comply, the impact should be minimized due to the low amount of water treated at these supplies. The state will offer technical support to these supplies as required.

A. Identify and estimate the number of small businesses affected by the proposed rules and the probable effect on small businesses.

There are approximately 650 privately-owned CWSs with populations under 10,000 and approximately 1,000 privately-owned non-transient noncommunity water supplies in Michigan. These two categories constitute the PWSs that are impacted by the proposed MCLs. These PWSs will be required to comply with the requirements of the rules, creating a financial and administrative burden.

B. Describe how the agency established differing compliance or reporting requirements or timetables for small businesses under the rules after projecting the required reporting, record-keeping, and other administrative costs.

While small private PWSs do have to comply with the proposed rules requirements, any exceedance of an MCL will be ultimately resolved through an ACO. The ACO will take into account economic factors in the supply's return to compliance while maintaining a balance to protect human health.

C. Describe how the agency consolidated or simplified the compliance and reporting requirements for small businesses and identify the skills necessary to comply with the reporting requirements.

EGLE incorporated the new requirements into an existing regulatory framework that PWSs are already familiar with, thereby simplifying compliance. EGLE is also working on a new database system that will allow laboratories to report monitoring results electronically, as well as accept electronic submittal of reports. This will significantly reduce the effort involved for all regulated supplies.

D. Describe how the agency established performance standards to replace design or operation standards required by the proposed rules.

MCLs are by their nature already performance-based. Although GAC is identified as a preferred treatment method, supplies are free to use any available treatment method that is proven to remove PFAS contamination to below the MCLs.

20. Identify any disproportionate impact the proposed rules may have on small businesses because of their size or geographic location.

Small businesses should be impacted less by this regulation since they treat a lower volume of water than municipalities due to their size and less urban location.

21. Identify the nature of any report and the estimated cost of its preparation by small businesses required to comply with the proposed rules.

There are no reports required by the new rules. Test results will be reported directly to regulators through standard means already in place for similar contaminants.

22. Analyze the costs of compliance for all small businesses affected by the proposed rules, including costs of equipment, supplies, labor, and increased administrative costs.

There are approximately 1,300 non-transient noncommunity water supplies in the state that EGLE will define as "small businesses." The sampling requirement for these supplies is estimated to be \$3.1 million annually (1,300 supplies sampling 4 times per year at a cost of \$600 per sample). The cost for smaller water supplies that will exceed the proposed MCLs to install treatment is estimated to be \$3.6 million with an annual maintenance cost of \$76 thousand.

23. Identify the nature and estimated cost of any legal, consulting, or accounting services that small businesses would incur in complying with the proposed rules.

It is possible that a small private PWS will hire an engineering firm to help them with compliance with these rules, but the majority of these systems will be able to comply without third party assistance. EGLE will be placing considerable emphasis on providing compliance assistance to PWSs.

24. Estimate the ability of small businesses to absorb the costs without suffering economic harm and without adversely affecting competition in the marketplace.

Since the rules apply equally to all small private PWSs, there will not be an uneven distribution of burden between them. It is likely that some costs will be passed along to ratepayers who are using the drinking water supply.

25. Estimate the cost, if any, to the agency of administering or enforcing a rule that exempts or sets lesser standards for compliance by small businesses.

None – there will be equal oversight for all impacted by the rules.

26. Identify the impact on the public interest of exempting or setting lesser standards of compliance for small businesses.

Exempting small business or setting lesser standards would ignore the public health risk created by these chemicals and create two classes of drinking water customers in the state, those protected from PFAS exposure at a level determined to be protective by science, and second class customers exposed at a higher level. This would be unacceptable from a public health and environmental justice perspective.

27. Describe whether and how the agency has involved small businesses in the development of the proposed rules.

Several small businesses and/or those serving small private water supplies were involved in the stakeholder process. These include the Michigan Manufactured Housing Association and the Michigan Rural Water Association.

A. If small businesses were involved in the development of the rules, please identify the business(es).

No specific small businesses were involved in development of the rules.

28. Estimate the actual statewide compliance costs of the rule amendments on businesses or groups.

The businesses that will be most affected by these rules will be those with their own water supply. This includes approximately 650 CWSs. More than half of these are manufactured housing communities, and many of the rest are condominiums, apartment buildings, and other residential units. It also includes approximately 1,000 non-transient noncommunity water supplies – industries, small businesses, etc. – that are not hooked up to municipal water.

The compliance costs for all PWSs as presented in item #13 would apply to this group as follows. For annual monitoring this group of 1,650 water supplies would spend approximately \$4 million (1,650 supplies taking 4 samples per year at a cost of \$600 per sample. Of the 22 water systems identified in statewide testing to be exceeding the proposed MCLs, 9 can be classified as businesses (not a school or a church). Using the methodology in item 13, these supplies pump an average of 20,000 gallons per day. With an estimated cost of treatment of \$46 per gallon it is estimated that these supplies will spend \$920,000 to install treatment with an anticipated annual maintenance cost of \$7,000.

A. Identify the businesses or groups who will be directly affected by, bear the cost of, or directly benefit from the proposed rules.

Those directly affected include owners of private water systems, laboratories, engineering firms, companies that supply and install treatment, and companies that provide water system operations services.

B. What additional costs will be imposed on businesses and other groups as a result of these proposed rules (i.e. new equipment, supplies, labor, accounting, or recordkeeping)? Please identify the types and number of businesses and groups. Be sure to quantify how each entity will be affected.

Businesses that operate their own water supplies will be required to comply with the new rules. They will be required to sample their finished drinking water for PFAS (\$300 per sample if the business collects themselves or \$600 per sample if they hire a contractor to take the sample) and find alternate water or install treatment if their water exceeds the proposed MCLs. Sampling costs are estimated at \$4 million annually. Installation of treatment is estimated to be a one-time cost of \$920,000 with annual maintenance costs of \$7,000. Reporting cost increases are negligible as these supplies are already required to report monthly operations and testing – this rule would add one more item 4 times a year.

29. Estimate the actual statewide compliance costs of the proposed rules on individuals (regulated individuals or the public). Include the costs of education, training, application fees, examination fees, license fees, new equipment, supplies, labor, accounting, or recordkeeping.

There are no direct compliance costs to the public for this rule. There is a likelihood that PWSs will pass along to their customers at least some of the costs associated with compliance with these rules. Municipalities and other governmental bodies, in particular, will likely need to increase their utility rates to pay for their infrastructure upgrades and additional compliance costs. This will result in higher costs to homeowners, but it is very difficult to estimate this impact. It is important to note that drinking water has historically been the most affordable utility and will likely remain this way even with increases.

A. How many and what category of individuals will be affected by the rules?

Approximately 75% of Michigan residents get their drinking water from a PWS. Assuming 10 million people in the state, this equates to 7.5 million people that will be served drinking water that is regularly tested for PFAS chemicals.

B. What qualitative and quantitative impact do the proposed changes in rules have on these individuals?

The impact will be a general improvement in public health achieved through limiting PFAS exposure. The individuals will also have access to testing records so they will be aware of the level of PFAS in their drinking water regardless of the level.

30. Quantify any cost reductions to businesses, individuals, groups of individuals, or governmental units as a result of the proposed rules.

There are no known cost reductions associated directly with these rules.

31. Estimate the primary and direct benefits and any secondary or indirect benefits of the proposed rules. Please provide both quantitative and qualitative information, as well as your assumptions.

The primary benefits of this rules package are reducing the exposure to the PFAS chemicals regulated under the rules. Implementation of treatment will also remove other contaminants (other PFAS compounds, etc.) that will result in less exposure to contamination, thereby improving public health.

While estimating the cost to implement the new rules is relatively easy, the estimate of the benefits is not. It is generally difficult to monetize the benefits of drinking water standards, and this is especially true for PFAS chemicals. In particular, indirect costs such as reduced quality of life are particularly hard to capture. More study on the health benefits and impacts of PFAS exposure reduction and the economic benefit is required before a serious estimate can be made. There is likely a significant benefit to the reduction in exposure to PFAS chemicals given recent findings of the health effects. Health effects that have been identified include: lowering a woman's chance of getting pregnant, an increase in the chance of high blood pressure in pregnant women, an increase in the chance of thyroid disease, an increase in cholesterol levels, changes in immune response, and an increase in the chance of cancer, especially kidney and testicular cancers. In a general, qualitative measure, given the potential for direct health care treatment costs, loss of income, and associated indirect costs, limiting exposure to the seven PFAS chemicals for which these rules establish MCLs will likely result in significant avoided costs.

An additional consideration, and environmental benefit, of the rules is the preference given to GAC treatment of PFAS compounds. This treatment technology has the advantage of not only capturing the contamination but the potential for permanent destruction of PFAS compounds in the regeneration process. More study is needed to quantify the temperature at which PFAS chemicals are destroyed.

Additional benefits will be general improvement to water systems and quality, creation of jobs, and increased community goodwill through better service to customers.

32. Explain how the proposed rules will impact business growth and job creation (or elimination) in Michigan.

The proposed rules have the potential to increase demand on engineering firms and laboratories in the state. If water treatment plant modifications are required, the rules will also create some business growth in that sector. Ongoing treatment operation and maintenance may also increase job opportunities at PWSs around the state.

33. Identify any individuals or businesses who will be disproportionately affected by the rules as a result of their industrial sector, segment of the public, business size, or geographic location.

PFAS contamination tends to be found in more industrialized, urban areas leading to a higher compliance burden in those geographic locations.

34. Identify the sources the agency relied upon in compiling the regulatory impact statement, including the methodology utilized in determining the existence and extent of the impact of the proposed rules and a cost-benefit analysis of the proposed rules.

- Summary Report on the New Hampshire Department of Environmental Services Development of Maximum Contaminant Levels and Ambient Groundwater Quality Standards for Perfluorooctanesulfonic Acid (PFOS), Perfluorooctanoic Acid (PFOA), Perfluorononanoic Acid (PFNA), and Perfluorohexanesulfonic Acid (PFHxS). New Hampshire Department of Environmental Services, January 2019.
- Recommendation on Perfluorinated Compound Treatment Options for Drinking Water. New Jersey Drinking Water Quality Institute Treatment Subcommittee, June 2015.
- Health-Based Drinking Water Value Recommendations for PFAS in Michigan. Michigan Science Advisory Workgroup, Michigan PFAS Action Response Team, June 2019.

A. How were estimates made, and what were your assumptions? Include internal and external sources, published reports, information provided by associations or organizations, etc., which demonstrate a need for the proposed rules.

Estimates of sampling costs were made based on the statewide sampling effort under MPART. Treatment costs were made based on the number of supplies over the proposed MCLs at the time the estimate was made and the average cost of treatment based on a study by the State of New Hampshire.

35. Identify any reasonable alternatives to the proposed rules that would achieve the same or similar goals.

There are no reasonable alternatives. Possible alternatives include no establishment of any MCL or testing requirement that provides no public health protection, the requirement to install basic treatment for PFAS chemicals at all water supplies that is cost prohibitive, or a change in the MCLs that were based on the best data available.

A. Please include any statutory amendments that may be necessary to achieve such alternatives.

Changes in the MCLs would be required if additional science shows that is prudent.

36. Discuss the feasibility of establishing a regulatory program similar to that proposed in the rules that would operate through private market-based mechanisms. Please include a discussion of private market-based systems utilized by other states.

This is a federal law (SDWA) that must be implemented in Michigan. The state is choosing to add PFAS to its regulated contaminants; no other states have implemented a market-based system of regulation, and this does not seem feasible.

36. Discuss the feasibility of establishing a regulatory program similar to that proposed in the rules that would operate through private market-based mechanisms. Please include a discussion of private market-based systems utilized by other states.

Stakeholders had concerns about the levels at which the MCLs were set. The MCLs were set based on an expert panel that considered the latest scientific data available.

Many alternatives discussed dealt with changes to the timing and logistics of the new requirements, levels of the MCLs, testing protocols, sampling frequency to capture seasonal variations, applicability of the new rules, laboratory capacity concerns, reporting limit concerns, and public notification requirements. We wrote and modified the rules where these concerns and suggestions provided less ambiguity in the rules and provided better, more reasonable public health protection.

38. As required by MCL 24.245b(1)(c), please describe any instructions regarding the method of complying with the rules, if applicable.

Significant guidance material will be available to provide compliance assistance.

Complaint Exhibit D

Summary of Public Comments for Rule Set # 2019-35 EG: Supplying Water to the Public

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) per- and polyfluoroalkyl substances (PFAS) rulemaking public comment period ran from December 19, 2019, through January 31, 2020, during which time **3,334 written public comments** were received via the designated email inbox (EGLE-PFAS-RuleMaking@Michigan.gov) and by mail via the Drinking Water and Environmental Health Division (DWEHD) mailbox:

Drinking Water and Environmental Health Division
 Michigan Department of Environment, Great Lakes, and Energy
 Attention: Suzann Ruch
 P.O. Box 30817
 Lansing, Michigan 48909-8311

An additional **82 oral public comments** were presented to EGLE representatives during three public hearings:

| Public Hearing Dates and Locations | | |
|---|---|--|
| Wednesday, January 8, 2020 | Tuesday, January 14, 2020 | Thursday, January 16, 2020 |
| Grand Valley State University LV Eberhard Center 301 Fulton Street West Grand Rapids, Michigan 49504 | Washtenaw Community College Towsley Auditorium 4800 East Huron River Drive Ann Arbor, Michigan 48105 | Ralph A. MacMullan Conference Center 104 Conservation Drive Roscommon, Michigan 48653 |

The template utilized in drafting the Joint Committee on Administrative Rules (JCAR) Agency Report Package dictates a breakdown by two categories: *persons submitting comments of support* and *persons submitting comments of opposition*. This model does not easily fit the reality and range of public comments in this case as the majority of these (whether *in favor*, *neutral*, or *in opposition*) included some number of recommendations for improvement. In order to meet the requirements of the JCAR Agency Report Package, only the two required categories are included in the form – however, the neutral comment group is included in EGLE’s considerations as summarized in this report.

Additionally, at the request of the Michigan Office of Administrative Hearings and Rules, Administrative Rules Division, the list of commenters included in the report form comprises example commenters for each of six form letter-style comments. This is due to a limited amount of space within the online form which cannot accommodate the names of over 3,300 authors of written comments.

These comments were individually read and reviewed by EGLE-DWEHD Emerging Contaminants Unit staff, assigned categories of concern based on the content of each comment, and classified as *in favor*, *neutral*, or *in opposition* regarding the proposed PFAS maximum contaminant level (MCL) rule set 2019-35 EG.

In addition, if any comment did not apply to the proposed rule set, it was classified as “not pertaining to proposed rules,” and was not counted as *in favor*, *neutral*, or *in opposition*.

Criteria for the three comment categories are summarized below.

I. Comments in Favor: 2,584 (75.6%)

Comments were classified as *in favor* in cases where language directly indicated overall support for the rulemaking effort. Examples include:

- “...strongly supports the Michigan Department of Environment, Great Lakes, and Energy’s (EGLE) efforts to establish a rule to create a maximum contaminant level (MCL) for PFAS;”
- “As a Michigan resident, I’m encouraged to hear that the Department of Environment, Great Lakes, and Energy (EGLE) has proposed new drinking water rules that would help reduce exposure to toxic PFAS chemicals in a big way;”
- “...the proposed MCLs are an improvement over those contained in EPA guidance...;” and
- “The PFAS limits proposed by the state are a step in the right direction, but key changes need to be made to ensure they protect the health of Michigan communities.”

Often, comments *in favor* included feedback regarding proposed adjustments to the draft rule language. These are reflected in **IV. Categories of Concern**, below.

II. Neutral Comments: 816 (23.9%)

Comments were classified as *neutral* in cases where language did not directly indicate positive or negative leaning. These comments often included feedback about categories of concern similar to that presented in the comments *in favor* described above.

III. Comments in Opposition: 16 (0.5%)

Comments were classified as *in opposition* in cases where language directly indicated opposition, such as:

- “...to articulate its strong opposition to the proposed changes and additions set out at R 325.10107, R 325.10116, R 325.10308b, R 325.10313, R 325.10401a, R 325.10405, R 325.12701, R 325.10604g, R 325.10717d, R 325.12708, and R 325.12710 (collectively, the “Proposed PFAS Rules”);”

- “The rushed regulatory process has resulted in a Proposed Rule that is scientifically flawed and relies on speculative and unquantified benefits in an attempt to demonstrate it is necessary to protect human health;” and
- “The rush to develop the MCL proposal is reflected in the inadequacy of the Regulatory Impact Statement (RIS) that EGLE has filed for the rulemaking;” and
- “...the public’s confidence is achieved by ensuring the integrity and soundness of the process and information used as the solid foundation for setting safety standards. Anything less subjects regulators, drinking water systems, and others to potential skepticism and lack of confidence in drinking water safety.”

AND/OR cases where a different path forward for developing a standard was proposed. Examples of this include:

- “...continues to urge the development of uniform federal standards;”
- “...EGLE does not appear to have considered it to establish MCLs for PFOA and PFOS equal to EPA’s LHA of 70 ppt and to continue monitoring levels of the other five PFAS while EPA develops guidance on these substances;” and
- “While we recognize that not all states and stakeholders can agree on specific priorities or approaches to PFAS regulations, these congressional actions combined with USEPA’s efforts, are important national developments that should be supported by the states through their contribution of expertise, resources, and efforts as the Nation works to respond to the PFAS exposure risks.”

IV. Categories of Concern

Across *in favor*, *neutral*, and *in opposition* classifications, comments were also assigned into *categories of concern*, identified by EGLE-DWEHD Emerging Contaminants Unit staff during review. Of these categories, the seven listed in this section were the most common (an additional 19 categories were identified in less than 2 percent of comments – see Table 1, Appendix A).

Many of these *categories of concern* directly address the health-based values (HBVs) developed by the Michigan PFAS Action Response Team (MPART) Science Advisory Work Group (SAWG), a group of experts in the fields of epidemiology, toxicology, and risk assessment. In order to address these categories, EGLE requested that MPART perform a review of the arguments presented and provide a response. The MPART Human Health Workgroup was handed this task and concluded that none of the comments submitted raise concerns which would meaningfully alter the SAWG’s conclusions.

With MPART's comments in mind, EGLE reviewed the *categories of concern* and offer the following responses:

1. EGLE must take into account all new data/science in determining the appropriate levels used in developing PFAS MCLs.

A methodical approach was undertaken by MPART leading to the identification of seven PFAS compounds for which exist published PFAS drinking water criteria and/or reference doses. This determination was made by the MPART SAWG.

MPART and EGLE recognize that this class of emerging contaminants will require ongoing assessment of available science as new information may come to light which requires a re-assessment of the proposed MCLs. The existing rulemaking process allows this as needed.

2. EGLE should consider utilizing a class-based approach in developing a PFAS MCL.

A class-based approach is not presently feasible, as PFAS analytical techniques are currently only useful in quantifying a set of known PFAS compounds (18 for the United States Environmental Protection Agency (USEPA) Method 537.1). Semi-quantitative and qualitative analysis for non-targeted PFAS analytes are available but must be paired with well-established quantitative analyses to accurately assess PFAS analyte levels in drinking water.

Additionally, the orders-of-magnitude variations in HBVs for PFAS do not lend themselves to a single combined level. This number would necessarily be lower than all but the lowest individual proposed values.

3. Michigan must be/is a leader in developing PFAS MCLs.

Michigan is one of several states which have chosen to develop regulatory standards for PFAS compounds in drinking water. This approach is proactive and is not contingent on the development of a federal MCL by the USEPA, which will likely be a multi-year process.

Michigan's statewide public water PFAS survey presently provides a unique tool to assess the scope of PFAS contamination and has been a driver for the development of the PFAS MCLs. Other states have since begun similar initiatives, but Michigan has been a leader in this regard.

4. EGLE should include a combined PFAS MCL, including some or all of the seven compounds proposed.

As stated by the MPART SAWG, there is not currently scientific consensus regarding which PFAS compounds should be grouped, or whether there is a basis for that grouping, when developing HBVs.

Also, as discussed in Response 2, above, the orders-of-magnitude variations in HBVs for PFAS do not lend themselves to a combined level.

Again, it is recognized that the science of PFAS is evolving, and an ongoing assessment will be undertaken by the EGLE-DWEHD Emerging Contaminants Unit, with any new information being considered in potential re-assessment of the rule. The rulemaking process allows this as needed.

5. Michigan's MCLs must be at a level which is protective of its most vulnerable populations.

For the approach taken by the MPART SAWG in deriving the HBVs, the bioaccumulative nature and developmental toxicity of PFAS compounds were taken into account while addressing their effect on Michigan's vulnerable populations.

6. Michigan's MCLs must be protective of public health.

The charge with which the MPART SAWG was presented was to develop toxicity values for certain PFAS compounds for the purpose of protecting public health. This was accomplished and the MPART SAWG HBVs were published, which were then utilized as the starting point for the MCL process.

During the rulemaking process, the proposed MCLs were not adjusted from the initially proposed values (HBVs). The result is a set of proposed MCLs protective of public health.

7. EGLE must complete rule promulgation more quickly.

The rule promulgation process for Michigan's PFAS MCLs has moved as quickly as feasible, with EGLE meeting the benchmarks of the rulemaking process in as expedient a manner as possible. The process for the proposed MCLs began in April 2019 and is slated to be complete in early May 2020. A one-year promulgation of an MCL represents an accelerated timetable, with these rules normally taking multiple years to complete.

Some commenters also submitted that the risk of moving too rapidly through rulemaking should also be considered. Care must be taken to assure that the process, while accelerated, remains thorough and

establishes appropriate and enforceable drinking water standards. EGLE's approach to Michigan's PFAS MCLs has been both expedient and thorough.

V. Regulatory Impact Statement/Cost Benefit Analysis

A common theme among comments in opposition was to question the appropriateness of the Regulatory Impact Statement (RIS) prepared by EGLE-DWEHD. Having reviewed these comments, EGLE-DWEHD has deemed that nothing was presented that would change the existing RIS.

VI. Proposed Rule Changes

Having reviewed the public comments, EGLE identified an item within the rule for which a change is necessary. The Chemical Abstracts Service numbers listed for two of the seven PFAS compounds were incorrect in the draft rule document. These were identified by EGLE staff as well as two participants in the public comment process:

- PFBS 375-73-5
- PFHxS 355-46-4

These will be corrected in the final document.

APPENDIX A

Table 1 – Categories of Concern

| Rank | Category of Concern | Percent Incidence |
|------|---|-------------------|
| 1 | Take into account all new data | 93.76% |
| 2 | Class based MCL | 80.15% |
| 3 | Michigan is a leader | 68.33% |
| 4 | Combined MCL | 59.87% |
| 5 | Protect vulnerable populations | 55.94% |
| 6 | Protect public health | 25.09% |
| 7 | Further expedite process | 18.00% |
| 8 | 100% clean water | 1.67% |
| 9 | Include tough penalties for polluters | 1.23% |
| 10 | Lower standards/Add more compounds | 1.46% |
| 11 | Require regular rule review | 0.88% |
| 12 | Costs to communities not addressed | 0.67% |
| 13 | Shift regulation to the sources | 0.67% |
| 14 | Include private wells | 0.59% |
| 15 | Focus on public health, not profits | 0.53% |
| 16 | Require manufacturers to assess toxicity prior to use | 0.41% |
| 17 | Unduly burden small public water supplies | 0.41% |
| 18 | Concern about State MCL vs. USEPA #s (Primacy) | 0.26% |
| 19 | Adjustable monitoring schedule based on results | 0.23% |
| 20 | Consider additional PFAS methods in appropriate cases | 0.23% |
| 21 | Outpacing PFAS science | 0.18% |
| 22 | Make testing widely available, and affordable/free | 0.15% |
| 23 | Public posting/rapid results sharing | 0.15% |
| 24 | Harms Michigan's economy | 0.12% |
| 25 | Premature/Misplaced | 0.12% |
| 26 | Require disclosure in real estate transactions | 0.03% |

STATE OF MICHIGAN
COURT OF CLAIMS

3 M COMPANY,

Plaintiff,

v

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND
ENERGY,

Defendant.
_____ /

OPINION AND ORDER

Case No. 21-000078-MZ

Hon. Colleen A. O'Brien

Pending before the Court in this matter involving the validity of administrative rules is defendant's motion for summary disposition filed pursuant to MCR 2.116(C)(8). For the reasons that follow, the motion is GRANTED in part and DENIED in part.

I. BACKGROUND

At issue in this case are drinking water rules promulgated by defendant. In particular, the rules concern maximum contaminant levels for certain perfluoroalkyl and polyfluoroalkyl substances (PFAS). The rules apply to public drinking water supplies. Plaintiff, which is not a public drinking water supply,¹ has lodged a number of substantive and procedural challenges to

¹ On August 3, 2021, the Court ordered the parties to address the issue of whether plaintiff had standing to maintain this action. The parties responded, and defendant has offered the concession that, at least for some of the counts pled in the complaint, plaintiff has standing. In light of that concession, the Court will not address the standing issue in any additional detail.

the validity of the rules. The only issue presently before the Court is whether plaintiff has stated a claim on which relief can be granted. After reviewing the allegations contained in the complaint and applying the manner of review that this Court must apply under MCR 2.116(C)(8), the Court concludes that plaintiff has, at least on some of the counts alleged in the complaint, stated claims on which relief can in theory be granted.

II. ANALYSIS

A. MCR 2.116(C)(8)

Defendant filed the instant motion under MCR 2.116(C)(8). This type of motion tests the legal sufficiency of the complaint. *State ex rel Gurganus v CVS Caremark Corp*, 496 Mich 45, 62; 852 NW2d 103 (2014). Under this subrule, the Court may grant summary disposition when “[t]he opposing party has failed to state a claim on which relief can be granted.” MCR 2.116(C)(8). Summary disposition should only issue under subrule (C)(8) when a plaintiff’s claim “is so clearly unenforceable as a matter of law that no factual development could possibly justify a right of recovery.” *Dalley v Dykema Gossett*, 287 Mich App 296, 305; 788 NW2d 679 (2010) (citation and quotation marks omitted). When it reviews the motion, the Court must view the allegations in a light most favorable to the nonmoving party. *Johnson v Pastoriza*, 491 Mich 417, 435; 818 NW2d 279 (2012). In addition, the Court must “accept all factual allegations in the complaint as true, along with all reasonable inferences or conclusions that can be drawn from them.” *Gurganus*, 496 Mich at 63.

The moving party under subrule (C)(8) may not support the motion with documentary evidence such as affidavits or deposition transcripts. *Dalley*, 287 Mich App at 305.² However, when a party attaches documents to its pleadings, the attachments are considered part of the pleadings, including for review under subrule (C)(8). MCR 2.113(C)(2); *El-Khalil v Oakwood Healthcare, Inc*, 504 Mich 152, 163; 934 NW2d 665 (2019). Thus, documents attached to the pleadings can be considered, but a reviewing court should not consider the content of such materials as substantive evidence that will suffice to defeat a plaintiff’s claim if plaintiff has not adopted all of the materials as true. *El-Khalil*, 504 Mich at 163.

B. REVIEW OF ADMINISTRATIVE RULES

“To be enforceable, administrative rules must be constitutionally valid, procedurally valid, and substantively valid.” *Mich Farm Bureau v Dep’t of Environmental Quality*, 292 Mich App 106, 129; 807 NW2d 866 (2011). “Administrative rules are valid so long as they are not unreasonable; and, if doubt exists as to their invalidity, they must be upheld.” *Id.* (citation and quotation marks omitted). Furthermore, the Court must give “respectful consideration” to defendant’s interpretation of statutes it is charged with administering, and must not overrule

² The proper scope of review under subrule (C)(8) requires the Court to disregard the nearly 2,000 pages of documents defendant attached in support of its motion. In addition, the Court will not, as defendant has casually suggested, “convert” the motion made under subrule (C)(8) into a motion under MCR 2.116(C)(10). While the Court is not constrained by the subrule cited in a party’s motion, see *Computer Network, Inc v AM Gen Corp*, 265 Mich App 309, 312; 696 NW2d 49 (2005), it will not make a motion on behalf of a party. That is particularly the case where plaintiff in this matter has responded to the motion made by defendant only as if it were made under subrule (C)(8) and where, on page 6 of its response brief, plaintiff expressly objected to defendant’s attempts to rely on documentary evidence. See *id.* (stating a trial court can proceed under a more appropriate court rule, but only if “neither party is misled.”). If defendant wishes to have the Court review the matter under subrule (C)(10) and wishes to have the Court review the documents it has attached to the instant motion, defendant is free to do so by way of a filing a separate motion under the appropriate subrule.

defendant’s interpretation “without cogent reasons” for doing so. *Id.* at 129-130 (citation and quotation marks omitted).

Plaintiff’s complaint alleges that the PFAS rules at issue in this case were procedurally and substantively flawed. The substantive validity of a rule is dependent on a three-part test: “(1) whether the rule is within the subject matter of the enabling statute; (2) whether it complies with the legislative intent underlying the enabling statute; and (3) whether it is arbitrary or capricious.” *Lake Isabella Dev, Inc v Village of Lake Isabella*, 259 Mich App 393, 398; 675 NW2d 40 (2003). See also *Brightmore Gardens, LLC v Marijuana Regulatory Agency*, __ Mich App __, __; __ NW2d __ (Docket Nos. 353698; 353739), slip op at p. 7 (“An agency’s legislative rule may be determined to be invalid when the rule goes beyond the parameters of the enabling statute, when the rule does not comply with the legislative intent underlying the enabling statute, or when the rule is arbitrary or capricious.”).

C. WHETHER PLAINTIFF HAS STATED A CLAIM

1. COUNT I

Turning to the counts alleged in the complaint, Count I asserts that the rules are invalid because defendant lacked authority under the Safe Drinking Water Act (SDWA) to enact them. The SDWA grants defendant the authority to promulgate rules pursuant to the Administrative Procedures Act (APA) “to carry out this act” MCL 325.1005(1). Any rule that establishes state drinking water standards must be “necessary to protect the public health” MCL 325.1005(1)(b). The parties have not identified any caselaw interpreting what it means for an agency rule to be “necessary” to the protection of public health. Nevertheless, “[i]t is well settled that an administrative agency may make such rules and regulations as are necessary for the efficient exercise of its powers expressly granted.” *Mich Farm Bureau*, 292 Mich App at 134

(citation and quotation marks omitted). Additionally, “[i]t is well established that an agency may exercise some discretion concerning the rules that it promulgates, as long as the ultimate rules are consistent with the legislative scheme.” *Id.* at 135, citing *Bunce v Sec’y of State*, 239 Mich App 204, 217; 607 NW2d 372 (1999).

The complaint alleges that defendant exceeded its rulemaking authority under the SDWA because the rules setting Maximum Contaminant Levels for PFAS were not “necessary” to protect the public health. According to the complaint, the drinking water standards promulgated in the rule are not necessary to protect the public health because they are speculative. Paragraph 111 of the complaint alleges that defendant merely speculated that the rules would provide a “general improvement in public health” and they would “likely” provide a benefit to the public. In ¶ 113, plaintiff alleges that defendant’s failure to evaluate whether a benefit to the public could have been achieved by setting Maximum Contaminant Levels slightly higher or slightly lower demonstrates that the chosen levels were not “necessary,” and thus are not authorized by the SDWA. And, according to ¶ 114 of the complaint, defendant admitted that additional study on the health benefits of PFAS exposure reduction was required. In making these allegations, plaintiff’s complaint references select portions of defendant’s November 25, 2019 Regulatory Impact Statement (RIS).

When accepting the facts alleged in the complaint as true and construing them in a light most favorable to plaintiff, plaintiff has pled a claim for relief on Count I of the complaint. Plaintiff has alleged that defendant speculated about the possible health benefits of the new rules. Plaintiff has alleged that defendant promulgated the rules without regard to whether the standards established were actually necessary for, or even related to, the protection of public health. While an agency’s interpretation of a statute is entitled to deference, any rules produced by the agency must still comply with the underlying intent of the enabling statute. See *Ins Institute of Mich v*

Comm'r Fin & Ins Servs, 486 Mich 370, 385; 785 NW2d 67 (2010). Allegations that defendant acted with speculation and with admissions that additional study with respect to health benefits was necessary do not show compliance with the intent of a statute that authorizes rules that are necessary to protect the public health.

In arguing for a contrary result, defendant relies heavily on the RIS and, in particular, portions of the document that were not referenced or adopted in plaintiff's complaint. While the RIS was attached to the complaint, the Court will not parse through the document for statements that contradict the substance of plaintiff's allegations. See *El-Khalil*, 504 Mich at 163. In particular, it is not apparent that the complaint cites and adopts as true those sections of the RIS that defendant contends should be viewed as being capable of defeating the substance of plaintiff's claims. Rather, plaintiff has only generally cited the RIS as support for its allegations that defendant acted in a speculative manner. Under MCR 2.116(C)(8) review, the Court will not comb through the RIS for language that will defeat the substance of plaintiff's allegations. See *El-Khalil*, 504 Mich at 163.

2. COUNT II

The next issue is whether plaintiff stated a claim on which relief can be granted under Count II of the complaint. Count II alleges that the rule was arbitrary and capricious. The arbitrary and capricious standard is deferential and “[i]f a rule is rationally related to the purpose of the statute, it is neither arbitrary nor capricious.” *Dykstra v Dir, Dep't of Natural Resources*, 198 Mich App 482, 491; 499 NW2d 367 (1993). “Arbitrary means fixed or arrived at through an exercise of will or by caprice, without consideration or adjustment with reference to principles, circumstances, or significance, and capricious means apt to change suddenly, freakish or whimsical[.]” *Mich Farm Bureau*, 292 Mich App at 141 (citation and quotation marks omitted).

“In general, an agency’s rules will be found to be arbitrary only if the agency had no reasonable ground for the exercise of judgment.” *Id.* at 141-142 (citation and quotation marks omitted). The narrow scope of the Court’s review under the arbitrary and capricious standard “reflects the judiciary’s awareness that” it is not the Court’s role to comment on the wisdom and utility of a rule. *Johnson v Dep’t of Natural Resources*, 310 Mich App 635, 650; 873 NW2d 842 (2015).

According to the allegations in Count II of plaintiff’s complaint, plaintiff asserts in ¶ 119 that the rule was arbitrary and capricious because defendant “relied on assumptions and uncertainty values in place of available data.” In addition, plaintiff alleges in ¶ 119 that the rule is arbitrary and capricious because defendant relied on studies that lacked “fundamental scientific rigor” and failed to consider other studies that would have provided better data. Further, the complaint alleges in ¶ 120 that, while defendant considered standards imposed by other states, it arbitrarily deviated from those standards with no explanation. Finally, the complaint again alleges that defendant’s rule was promulgated without a “serious estimate” of the economic benefits of the standards and despite knowing that there was “significant scientific uncertainty” about the standards.

Reviewing these allegations as the Court must under subrule (C)(8), plaintiff has stated a claim on which relief can be granted. According to the complaint, defendant eschewed available data and studies and instead made assumptions. Furthermore, plaintiff alleges that defendant deviated from other identifiable standards without explanation. A rule fails the arbitrary-and-capricious standard if it is promulgated without consideration or reference to principles. See *Mich Farm Bureau*, 292 Mich App at 141. Here, plaintiff has alleged that defendant ignored principles and standards and that it failed to justify the reason why it ignored the same. In addition, plaintiff has alleged in ¶¶ 29-34 that defendant ignored standard practice when it established the Maximum Contaminant Levels at issue. At this stage, plaintiff has stated a claim for relief. While proving a

claim of an arbitrary and capricious rule can be a difficult task, the Court's concern at this stage, given the deferential standard of review under subrule (C)(8), is whether the allegations in the complaint have stated a claim, and not whether defendant's documentary evidence or portions of documents not accepted as true by plaintiff can defeat the substance of plaintiff's allegations.

3. COUNT III

Count III of the complaint alleges that defendant failed to adequately assess various impacts of the rule in its RIS, as required by MCL 24.245. Subsection (3) of MCL 24.245 requires that an agency prepare an RIS that contains specific pieces of information, as well as a catch-all category of "[a]ny other information." MCL 24.245(3)(a)-(dd). Accepting the allegations made in Count III as true, plaintiff has once again stated a claim on which relief can be granted. Paragraph 130 of the complaint contains specific, non-conclusory allegations about how the RIS in this case fell short of complying with the statute's demands. Notably, ¶ 130(a)(i-ii) of the complaint allege ways in which the RIS was purportedly inadequate in regard to estimated "actual statewide compliance costs of the proposed rule on individuals," see MCL 24.245(l), by failing to consider and estimate a number of costs. Furthermore, ¶ 130(b)-(d) of the complaint alleges specific ways in which plaintiff believes the RIS fell short of including the information required by MCL 24.245(3)(x), which demands an "estimate of the primary and direct benefits of the rule." In particular, the complaint alleges that defendant relied on speculation and conjecture with respect to the proposed benefits of the rule. And, citing the same alleged speculation, the complaint alleges that the RIS did not satisfy MCL 24.245(3)(m), which requires an agency to demonstrate that the rule "is necessary and suitable to achieve its purpose in proportion to the burdens it places on individuals." As alleged by plaintiff, the speculation engaged in by defendant dispels the notion that the rule is "necessary and suitable" to achieve its purpose. In short, plaintiff has alleged

specific ways in which defendant’s RIS did not comply with the particular statutory provisions set forth in the complaint.

4. COUNTS IV-VI

The parties’ briefs discuss the next batch of claims alleged in the complaint—Counts IV-VI—together. These counts allege that the Environmental Rules Review Committee (ERRC) failed to comply with various provisions in the APA when it reviewed a draft version of the rules. Under MCL 24.266, the APA charges the ERRC with ensuring that rules promulgated by defendant satisfy certain statutory criteria. In pertinent part, the ERRC must consider whether a proposed rule meets all of the following criteria:

- (a) The office has certified that the draft proposed rules do not exceed the rule-making delegation contained in the statute authorizing the rule-making.
- (b) The draft proposed rules reasonably implement and apply the statute authorizing the rule-making and are consistent with all other applicable law.
- (c) The draft proposed rules are necessary and suitable to achieve their purposes in proportion to the burdens they place on individuals and businesses.
- (d) The draft proposed rules are as clear and unambiguous as reasonably appropriate considering the subject matter of the proposed rules and the individuals and businesses that will be required to comply with the proposed rules.
- (e) The draft proposed rules are based on sound and objective scientific reasoning. [MCL 24.266(4)(a)-(e).]

In MCL 24.243(1), the APA declares that a rule is “not valid unless it is processed in compliance with section 66,” of the APA, meaning the ERRC provisions set forth in MCL 24.266.

Returning to Counts IV-VI, the Court agrees with defendant that plaintiff has failed to state a claim. The section of the APA at issue requires that the ERRC “shall meet 1 or more times to consider whether the draft proposed rules meet all of the following criteria” MCL 24.266(4). Here, the complaint expressly alleges that the ERRC did just that. Indeed, the complaint is rife

with allegations about the ERRC’s meeting, including at ¶¶ 68-69, in which the complaint alleges that the ERRC raised certain questions but then “voted that the Proposed Rule met all of the criteria set forth in MCL 25.266(4) and could proceed to the public hearing process.” Furthermore, while the complaint notes that there was dissent among the ERRC members about whether certain criteria had been met, the statute only requires approval by a majority vote of voting members. See MCL 24.266(5)(b). Here, the complaint merely notes that some members of the ERRC objected, but does not state that a majority objected or that the vote taken was not in fact a majority vote. At most, the complaint has alleged that there was disagreement among the ERRC members about whether certain statutory criteria had been fulfilled. This necessarily implies that the ERRC met and considered the proposed rules, as it is expressly required to do so by statute. These allegations, which in essence allege that MCL 24.266 was satisfied, are insufficient to state a claim on which relief can be granted.

5. COUNT VII

Lastly, the Court agrees with defendant that Count VII should be dismissed under subrule (C)(8) as well. Count VII alleges that the ERRC failed to make an “appropriate determination” regarding whether to approve the rule, contrary to MCL 24.266(9). Pertinent to the allegations raised in this count, MCL 24.266(9) requires that, after a receipt of an “agency report”—there is no allegation in this case that the report was not received—the ERRC “shall meet 1 or more times to discuss the report and comments made and testimony given at the public hearing and approve the draft proposed rules with modifications, approve the draft proposed rules, or reject the draft proposed rules.” MCL 24.266(9).

The complaint does not state a claim for relief under MCL 24.266(9). The complaint expressly alleges in ¶ 92 that the ERRC held the requisite meeting and that “a majority of the

ERRC ultimately voted to approve the Revised Proposed Rule despite the outstanding questions and concerns that had been raised” Stated otherwise, the complaint alleges that the ERRC undertook the obligation called for by the statute, i.e., to meet and approve the rule. MCL 24.266 generally does not require unanimity, see MCL 24.266(5), and plaintiff has not even argued as much. While plaintiff seeks to invalidate the approval by noting that some ERRC members raised questions raised about the rules, such allegations fail to take account of what is required by statute.

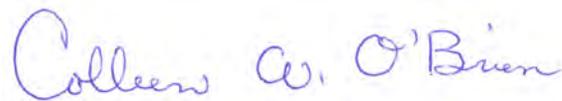
III. CONCLUSION

IT IS HEREBY ORDERED that defendant’s motion for summary disposition is DENIED in part as it concerns Counts I-III of the complaint.

IT IS HEREBY FURTHER ORDERED that defendant’s motion for summary disposition is GRANTED in part under MCR 2.116(C)(8) as it concerns Counts IV-VII of the complaint. These claims will be dismissed with prejudice.

This is not a final order and it does not resolve the last pending claim or close the case.

September 2, 2021



Colleen A. O'Brien
Judge, Court of Claims

STATE OF MICHIGAN
COURT OF CLAIMS

3M COMPANY,

Plaintiff,

v

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND
ENERGY,

Defendant.
_____ /

OPINION AND ORDER

Case No. 21-000078-MZ

Hon. Brock A. Swartzle

Defendant Department of Environment, Great Lakes, and Energy promulgated rules establishing the allowable maximum-contaminant levels in drinking water for seven chemical substances, all of which fall within the general family of waterproofing chemicals called perfluoroalkyl and polyfluoroalkyl substances (PFAS). Throughout the process, the Department recognized that the rules it set for drinking water regarding Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) would, by operation of law, automatically set the rules for those substances with respect to groundwater. In other words, once the rules for PFOA and PFOS were set for drinking water, the rules were set for groundwater too. Plaintiff 3M was not directly impacted by the rules with respect to drinking water because it did not operate any drinking-water systems, but the company was impacted by the drinking-water rules because they became the de jure rules for groundwater.

3M challenged the drinking-water rules on several grounds, three of which survived this Court's earlier ruling under MCR 2.116(C)(8): necessity (Count I); arbitrariness or capriciousness

(Count II); and deficiencies in the regulatory-impact statement (Count III). As explained below, the first two claims are without merit. On the third claim, however, the Department did issue a deficient regulatory-impact statement.

Specifically with respect to the regulatory-impact statement: Under the Administrative Procedures Act of 1969, MCL 24.201 *et seq.* (APA), our Legislature requires Executive branch departments to consider the benefits and costs of regulating a particular substance or activity when it promulgates a rule. To ensure that a department actually considers all of the relevant benefits and costs, our Legislature further requires that a department “show its work” in a regulatory-impact statement. MCL 24.245(3). But here, with respect to the anticipated costs imposed on 3M and others like it by the proposed rule, the Department told 3M, lawmakers, and the public that the Department would consider certain costs in a subsequent rulemaking; but then in that subsequent rulemaking, the Department declined to consider those costs, citing the prior promulgated rules as, in effect, a “done deal.” A deficient regulatory-impact statement invalidates the promulgated rules.

With that said and as explained more fully below, the Court will, on its own motion, stay the effect of this opinion and order until final judgment, which will allow the parties to seek appellate review under the regulatory status quo. The interests of public health weigh in favor of this stay, so that the parties can pursue appellate relief and the Department can consider, if it wishes, whether additional regulatory actions should be taken in the meantime.

I. BACKGROUND

PFAS are chemicals that have been used in waterproofing products for years without concern, until recently when they have been recognized as hazardous to human health. This realization has prompted several states to regulate the maximum levels of PFAS permitted in

drinking water. For its part, the federal government recently issued proposed rulemaking to designate PFOA and PFOS as hazardous materials under 42 USC 9602, the federal statute governing the designation of hazardous substances and establishment of reportable released quantities. See Environmental Protection Agency, *Proposed Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances*, (Sept. 8, 2022), <<https://www.epa.gov/superfund/proposed-designation-perfluorooctanoic-acid-pfoa-and-perfluorooctanesulfonic-acid-pfos>> (accessed November 15, 2022).

Michigan was one of the first states to address the problem and, given the emergent nature of the threat, Governor Gretchen Whitmer called for an accelerated timetable for the Department to promulgate rules under the Safe Drinking Water Act, MCL 325.1001 *et seq.* (SDWA) and Part 201 of the Natural Resources and Environmental Protection Act, MCL 324.101 *et seq.* (Part 201). The Department acted quickly to address the problem, at one point telling the public, “WE ARE MOVING AT REGULATORY LIGHT SPEED. AWARE OF COMMENTS ON THE OTHER SIDE THAT WE ARE MOVING TOO QUICKLY.” Even given the call for prompt action and the acknowledged uncertainties about various benefits and costs, the decision was made at the outset to use the regular, more extensive APA rulemaking process, rather than the APA’s more streamlined process for emergent, uncertain environmental risks. See MCL 24.248.

Governor Whitmer directed the Michigan PFAS Action Response Team to establish a science-advisory workgroup “to review both existing and proposed health-based drinking water standards from around the nation to inform the rulemaking process for appropriate” maximum-contaminant levels of PFAS in drinking water. The Response Team created a three-person Workgroup, which in turn developed health-based values for the seven PFAS substances addressed in the drinking-water rules. (In addition to PFOA and PFOS, the group looked at

Perfluorononanoic acid (PFNA), Perfluorohexanoic acid (PFHxA), Perfluorohexanesulfonic acid (PFHxS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA).)

The Workgroup identified health-based values for each substance, and each value reflected the group's conclusion of the appropriate maximum levels of contamination, below which "adverse health effects" were not anticipated. The Workgroup acknowledged that "other equally qualified experts" could reach "somewhat different conclusions," but the group concluded that its health-based values were "based on sound science and current practices in risk assessment." The Workgroup also "recognize[d] that the science of PFAS is constantly evolving and new information may come to light that requires a re-evaluation of the drinking water [health-based values] established herein." The Workgroup's health-based values were ultimately adopted by the Department as the PFAS maximum-contaminant levels.

The Department proposed drinking-water rules after the Workgroup submitted its report. As part of its proposal, the Department drafted a regulatory-impact statement titled, "Supplying Water to the Public," 2019-35 EG ("SDWA RIS"). In the statement, the Department explained that the maximum-contaminant levels for the seven PFAS substances were "similar" to those proposed by other states and that there was a " 'clear and convincing need' " for the rules "given the prevalence of PFAS contamination" in Michigan. SDWA RIS ¶¶ 2, 4.

The Department explained that the drinking-water rules would require quarterly sampling and regular monitoring for public-water supplies to track their PFAS levels. *Id.* ¶ 6. The Department estimated that 2,700 public-water supplies would be subject to the monitoring requirements, and that "approximately 22 supplies will be out of compliance based on prior

testing.” *Id.* ¶ 10. Sampling for PFAS was estimated to cost \$300 to take each sample and another \$300 to test each sample, for an estimated total of \$600 per sample and \$6.4 million per year in sampling costs alone. *Id.* ¶ 13. Other costs associated with the drinking-water rules included installation and maintenance of treatment equipment, although switching to a different water source would also be available for some public-water supplies. *Id.* The Department separated installation costs into large and small systems. The cost for large systems was based on an estimate from a New Hampshire report that had less-stringent PFAS standards. *Id.* The Department used the high end of New Hampshire’s estimates. *Id.* The estimate for small systems was based on “[a] recent cost estimate for Robinson Elementary school.” *Id.* The Department noted that some public-water supplies were already proactively addressing PFAS contamination and that, for example, the City of Plainfield’s efforts were expected to cost \$15 million. *Id.* ¶ 14.

As for the benefits of the drinking-water rules, the Department noted that the maximum-contaminant levels would lead to a general increase in public health, but no quantitative estimates were included in the regulatory-impact statement. *Id.* ¶ 31. The Department believed that “[t]here is likely a significant benefit to the reduction [in] exposure to PFAS chemicals given recent findings.” *Id.* The Department identified a list of expected health benefits, including improved outcomes along various dimensions with respect to women’s pregnancies, decreases in the risks of certain diseases (e.g., thyroid disease, kidney and testicular cancers), and overall better cardiovascular and immune responses. *Id.* The Department estimated that the approximately 75% of Michiganders who receive their drinking water from public-water supplies would realize these health benefits. *Id.* ¶ 29(A). With that said, the Department recognized that more work was needed: “More study on the health benefits and impacts of PFAS exposure reduction and the economic benefit is required before a serious estimate can be made.” *Id.*

With respect to groundwater, the Department did not address the costs or benefits that the drinking-water rules would have on groundwater cleanup or the approximately 25% of Michiganders who would benefit from reduced PFAS in groundwater. The Department did note, however, that “[s]ince there are not generic groundwater cleanup standards for [the five PFAS compounds other than PFOA and PFOS], the department may establish them” under Part 201. *Id.* ¶ 3(A). The SDWA RIS did not include any other discussion about groundwater.

As directed by MCL 24.266, the Department then sent its request for rulemaking to the Environmental Rules Review Committee. The Environmental Committee received public comments for a month and a half; the comments were overwhelmingly in favor of the proposed rules, although several “categories of concern” were noted following the public-comment period. 3M participated in this process and raised concerns with the proposed drinking-water rules, including how these rules would necessarily set the groundwater criteria for PFOA and PFOS to which 3M would be subject.

The Department summarized the comments it received and addressed the categories of concern during an Environmental Committee meeting but noted that it would defer to the Response Team and the Workgroup regarding setting the appropriate maximum-contaminant levels. Critical here, the Department explained that it “did not include costs [to businesses or groups] due to changes in [Part] 201 clean-up standards” in the SDWA RIS. The Department informed the Environmental Committee that issues raised by 3M and others involving groundwater (including costs of compliance) would be addressed in a separate groundwater-rulemaking process under Part 201. In other words, the Department recognized that the standards it set in the drinking-water rulemaking process for PFOA and PFOS would, by operation of MCL 324.20120a(5), set the standards for those two substances with respect to groundwater, but the Department explained that

it would consider the costs to business and groups in a separate groundwater (i.e., Part 201) rulemaking process.

The Environmental Committee approved the proposed drinking-water rules despite concerns expressed by some of its members, and the proposed rules were sent to our Legislature's Joint Committee on Administrative Rules (JCAR). In response to an inquiry from JCAR, the Department explained that, by operation of law, the drinking-water rules would automatically change the maximum-contaminant levels for PFOA and PFOS in groundwater, but the rules would not similarly set the levels for the other five PFAS substances in groundwater because, at that time, there were no such existing maximum-contaminant levels. JCAR did not object to the proposed drinking-water rules, and the rules became final on August 3, 2020. See Mich Admin Code, R 325.10107 *et seq.*

3M then sued the Department on seven counts alleging that the drinking-water rules were invalid. The Department moved for summary disposition under MCR 2.116(C)(8). Judge Colleen A. O'Brien, sitting as a Court of Claims judge, granted in part and denied in part the Department's motion, dismissing counts IV-VII.

The present action concerns the three remaining counts. 3M argues that the drinking-water rules are invalid because they exceed the Department's rulemaking authority (Count I); are arbitrary or capricious (Count II); and are embodied in a deficient regulatory-impact statement (Count III). 3M asks this Court to declare the rules procedurally and substantively invalid and enjoin the Department from any efforts to implement or enforce the rules. Both parties have now moved for summary disposition under MCR 2.116 (C)(10).

In its motion, the Department argues that it acted within its authority under the SDWA because the drinking-water rules are necessary to protect the public health. When determining the maximum-contaminant levels, according to the Department, it was not required to consider incremental changes, so its failure to do so does not make the drinking-water rules invalid. Additionally, the rules were not arbitrary or capricious because the Department engaged in a deliberative process.

Finally, with respect to the SDWA RIS, the Department maintains that it considered all the factors for which it was required and the statement itself was not deficient simply because there was nothing included about groundwater cleanup or compliance costs. The drinking-water rules addressed drinking water, not groundwater, so the regulatory-impact statement properly focused on drinking water because groundwater could be addressed in a separate rulemaking process. As the Department explains in one of its briefs, “Moreover, [the Department] intended to issue new rules specifically setting criteria for PFAS in groundwater and would address the costs of complying with the groundwater standards in the RIS relating to those new rules.” DEFENDANT MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY’S 04/14/2022 BRIEF IN RESPONSE TO PLAINTIFF’S 03/15/2022 MOTION FOR SUMMARY DISPOSITION, pp 10-11. This point was emphasized by the Attorney General’s office during the Court’s hearing on the parties’ cross motions for summary disposition. In response to the Court’s question about whether the Department had considered 3M’s concerns about cleanup and compliance costs in the Part 201 rulemaking process, counsel answered: “I don’t know the answer to that [] question, but they would have had to prepare a regulatory impact statement, and that would be one of the topics that they *would have to address*.” Hr Tr, p 52 (emphasis added).

In response and in support of its own motion, 3M argues that the maximum-contaminant levels were not “necessary” because they were not absolutely required to protect public health. Additionally, the rules were arbitrary or capricious because they resulted from a rushed process that deviated from the PFAS levels established by other states without offering a satisfactory explanation for doing so. Finally, the regulatory-impact statement failed to consider adequately the costs and potential benefits of the rules or how the rules would affect groundwater cleanup.

As just mentioned, this Court held a hearing to address the parties’ competing motions for summary disposition, and this Court asked the parties to provide supplemental briefing on 3M’s standing. In its supplemental brief, the Department argues that 3M lacks standing because it is not a public-water supply and the drinking-water rules addressed only public-water supplies. 3M responds that it has standing because the drinking-water rules necessarily affected groundwater PFOA and PFOS maximum-contaminant levels by operation of law, and the groundwater standards unquestionably affect 3M’s business.

Finally, before analyzing the merits of the parties’ arguments, the Court takes judicial notice of the Department’s Part 201 groundwater-cleanup rules, Mich Admin Code, R 299.1 *et seq.*, which adopted the same maximum-contaminant levels for PFAS in groundwater that the drinking-water rules established for drinking water. MRE 201; see also *Edwards v Detroit News, Inc*, 322 Mich App 1, 4 n 2; 910 NW2d 394 (2017). The Department issued a regulatory-impact statement as part of the groundwater process entitled, “Cleanup Criteria Requirements for Response Activity,” 2020-130 EQ (“Part 201 RIS”).

A review of the Part 201 RIS confirms that the Department viewed this latter rulemaking as a continuation of the drinking-water rulemaking process. For example, the Department

explicitly recognized, “This rule builds on the rules promulgated by the Department . . . that established PFAS standards for safe water at public water supplies.” Part 201 RIS ¶ 1(A). Further, as the Department pointed out, “This [Part 201] rule ensures that all drinking water in the state is protected, regardless of whether the drinking water comes from a public water supply or a private well.” *Id.* ¶ 7. With respect to health benefits, the Department did not identify any new benefits beyond those identified in the SDWA RIS:

As required by and in accordance with the statutory provisions of MCL 324.20120a(4), EGLE calculated and considered the health-based values for establishing the generic cleanup criteria for groundwater used for drinking water for the various PFAS. However, in accordance with the statutory provisions of MCL 324.20120a(5), the SDWS [i.e., drinking-water standards] become the generic cleanup criteria for groundwater used for drinking water for the various PFAS, regardless of the calculated health-based values. [*Id.* ¶ 37.]

Pertinent to 3M’s third claim here, the Department recognized in the Part 201 RIS that the groundwater rules for PFOA and PFOS under Part 201 were already set as a result of the earlier SDWA rulemaking. This is because, under Part 201, if there were already existing-cleanup criteria for groundwater (which there were for PFOA and PFOS) and more stringent criteria are subsequently set for drinking water under the SDWA, then that more stringent drinking-water criteria would automatically become the new criteria for groundwater. See MCL 324.20120a(5). Given the SDWA rulemaking, the Department “replaced the existing generic cleanup criteria for [PFOA] and [PFOS] with the State Drinking Water Standards (SDWS), otherwise known as maximum contaminant levels, that were promulgated on August 3, 2020.” *Id.* ¶ 1(A). In the words of the Department, “These criteria are effective and legally enforceable by operation of law.” *Id.* Because there were not any then-existing groundwater criteria for the other five substances when the drinking-water rules were promulgated, the Department needed a separate rulemaking process under Part 201 to set the groundwater criteria for those other substances. *Id.*

With respect to compliance costs on businesses or groups, the Department did not identify any that were specific to the Part 201 criteria. Instead, the Department identified 154 locations where groundwater cleanup was needed for PFOA and PFOS. *Id.* ¶ 28. But, because the criteria for PFOA and PFOS had already been set as part of the drinking-water rulemaking process, the Department did not consider any costs associated with the cleanup of those substances as part of the subsequent Part 201 rulemaking process. Similarly, the Department did not consider any costs associated with the cleanup of the other five substances, because those five substances could be treated at the same time as PFOA and PFOS: “Since the same treatment technology can be used to address all seven PFAS, the department does not anticipate that additional actions would be required above and beyond those already required by the presence of PFOA and PFOS contamination.” *Id.*

Thus, during the Part 201 rulemaking process, the Department did not address the benefits or costs of the drinking-water maximum-contaminant levels for PFOA and PFOS as those applied to groundwater. In fact, the Department used the PFOA and PFOS standards from the drinking-water rules to reduce the projected costs associated with the groundwater rules’ regulation of the other five PFAS substances.

With this background set, the Court now turns to whether the drinking-water rules were properly promulgated.

II. ANALYSIS

This Court reviews a motion brought under MCR 2.116(C)(10) “by considering the pleadings, admissions, and other evidence submitted by the parties in the light most favorable to the nonmoving party.” *Patrick v Turkelson*, 322 Mich App 595, 605; 913 NW2d 369 (2018).

“Summary disposition is appropriate if there is no genuine issue regarding any material fact and the moving party is entitled to judgment as a matter of law.” *Sherman v City of St Joseph*, 332 Mich App 626, 632; 957 NW2d 838 (2020).

This lawsuit centers on the Department’s promulgated rules regulating PFAS. “To be enforceable, administrative rules must be constitutionally valid, procedurally valid, and substantively valid.” *Mich Farm Bureau v Dep’t of Environmental Quality*, 292 Mich App 106, 129; 807 NW2d 866 (2011). “It is well settled that an administrative agency may make such rules and regulations as are necessary for the efficient exercise of its powers expressly granted.” *Id.* at 134 (cleaned up). “Administrative rules are valid so long as they are not unreasonable; and, if doubt exists as to their invalidity, they must be upheld.” *Id.* at 129 (quotation marks and citation omitted). “[J]udicial review of an administrative rule . . . is limited to the administrative record” *Mich Ass’n of Home Builders v Dir of Dep’t of Labor & Economic Growth*, 481 Mich 496, 498; 750 NW2d 593 (2008).

A. 3M HAS STANDING

Before addressing the validity of the rules, 3M must first establish that it has standing to challenge the rules. “A litigant may have standing . . . if the litigant has a special injury or right, or substantial interest, that will be detrimentally affected in a manner different from the citizenry at large or if the statutory scheme implies that the Legislature intended to confer standing on the litigant.” *Lansing Sch Ed Ass’n v Lansing Bd of Ed*, 487 Mich 349, 372; 792 NW2d 686 (2010).

3M is not a public-water supply so, on their face, the drinking-water rules do not directly govern the company’s groundwater activities. But the drinking-water rules did set—automatically by operation of law—the maximum-contaminant levels for PFOA and PFOS in groundwater. See

MCL 324.20120a(5). Given this, if the drinking-water rules were improperly promulgated, the rules would injure 3M because they also established the maximum-contaminant levels for PFOA and PFOS in groundwater, which in turn unquestionably affected 3M's business. Thus, 3M has established an injury different from the citizenry at large sufficient to establish standing to challenge the drinking-water rules.

B. THE DEPARTMENT DID NOT EXCEED ITS RULEMAKING AUTHORITY

The SDWA requires that the Department promulgate rules under the APA "to carry out this act." MCL 325.1005(1). The rules must include, among other things, "State drinking water standards and associated monitoring requirements, the attainment and maintenance of which are necessary to protect the public health." MCL 325.1005(1)(b). 3M challenges the "substantive validity" of the Department's PFAS rules in two essential respects. *Michigan Farm Bureau*, 292 Mich App at 129. First, 3M argues that the rules do not satisfy our Legislature's requirement that the rules be "necessary" for public health. Second, the company argues that the rules are arbitrary or capricious. The Court takes up each of these in turn.

With regard to its first challenge, 3M argues that the Department's PFAS rules do not meet the proper understanding of "necessary" in MCL 325.1005(1)(b). In support of its reading, 3M points this Court to our Supreme Court's decision in *In re Certified Questions from the United States District Court*, 506 Mich 332, 368; 958 NW2d 1 (2020) for the proposition that the term "necessary" means "absolutely needed: REQUIRED." 3M argues that other regulatory options existed from which the Department could have selected, including different levels of maximum exposure or methods of treatment.

3M posits a standard of regulatory fine-tuning that is divorced from the APA. The company draws its preferred standard from a case where our Supreme Court considered whether our Legislature could constitutionally delegate certain authority to Governor Whitmer under the Emergency Powers of the Governor Act of 1945, MCL 10.31 *et seq.*, in response to the Covid pandemic. A lengthy recitation of our Supreme Court’s opinion is unnecessary, as it is hard to fathom a more divergent set of facts or legal questions than the ones presented in that case and the instant one. It is bad enough to compare apples to oranges; this would be like comparing apples to car batteries.

Relying instead on well-trodden administrative law, unlike a state department’s interpretation of statute, to which no deference is given by a court, *In re Complaint of Rovas Against SBC Mich*, 482 Mich 90, 117-118; 754 NW2d 259 (2008), this Court must give deference to a department’s properly promulgated rules, so long as those rules “are consistent with the legislative scheme,” *Mich Farm Bureau*, 292 Mich App at 135. Even when there is some doubt as to the validity of a rule, the department gets the benefit of that doubt. *Id.* at 129.

On the question of what “necessary” means, our Court of Appeals explained in *Twp of Hopkins v State Boundary Comm*, __ Mich App __, __; __ NW2d __ (2022), slip op, p 10, that “the term ‘necessary’ can have different meanings, depending on the specific context.” By using the term, our Legislature could mean “ ‘requisite’ or ‘indispensable’ ” as 3M suggests, or, as the Department argues, “merely ‘appropriate’ or ‘suitable.’ ” *Id.*

There is nothing in the SDWA to support 3M’s strict reading. The term “public health” is a broad concept, one that can be influenced by a virtually infinite number of factors. Given the realities of bounded knowledge, scientific uncertainty, and ever-changing conditions, it would be

an impossible task for the Department to identify and select the single, perfectly optimized regulatory scheme. Instead, the Department must promulgate a rule that is suitable and consistent with the act's objectives, specifically the protection of public health, based on a thoughtful and thorough analysis of the evidence and science.

A review of the record confirms that the Department met this standard here (setting aside, for the moment, the adequacy of the regulatory-impact statement discussed *infra*). The Department found that there was a clear and convincing need for establishing maximum-contaminant levels given the prevalence of PFAS contamination in this state. The scientific and health data confirm that exposure to PFAS above certain levels has been shown to cause various adverse health impacts, as noted earlier. The Department and Workgroup identified research that strongly suggested that there would be improvements in public health, potentially avoided costs, and other positive effects if maximum-contaminant levels were set for the seven PFAS substances. While the Department did add the caveat that more research was needed, when read in context, this and similar statements were not a sign of scientific speculation but rather appropriate caution.

In sum, the Court concludes, based on a thorough review of the administrative record and the arguments made by the parties, that the Department's drinking-water rules do not merely contain speculative assertions about benefits to the public health or costs to be borne by various entities. 3M's allegations regarding the Department's admitted uncertainty as to the precise extent of the health and financial benefits/costs expected from the rules do not convince this Court that the Department's findings are wholly speculative or that the maximum-contaminant levels established by the Department are not necessary to protect the public health.

3M posits that a different level of maximum PFAS concentrations as well as less stringent treatment requirements could be equally beneficial to the public health. 3M might very well be correct, but this type of regulatory fine-tuning is not required by the APA, and this Court must defer to the Department's better vantage point and expertise in setting the precise exposure levels and treatment requirements. See *Mich Farm Bureau* at 129, 135.

C. THE DRINKING-WATER RULES ARE NOT ARBITRARY OR CAPRICIOUS

3M next takes aim at whether the rules are arbitrary or capricious under the APA. Setting aside again the adequacy of the regulatory-impact statement (which is taken up in the next section), the arbitrary-or-capricious analysis essentially “equates with rational-basis analysis.” *Johnson v Dep't of Natural Resources*, 310 Mich App 635, 650 n 8; 873 NW2d 842 (2015). A rule that is rationally related to the purpose of the enabling statute is neither arbitrary nor capricious. *Dykstra v Dir, Dept of Nat Res*, 198 Mich App 482, 491; 499 NW2d 367 (1993).

The Department established the rules with assistance of the Workgroup, and that group considered standards from other states as well as scientific and other data from a variety of sources. Despite 3M's contention, the Department's standards were similar to standards imposed in those other states. Moreover, as even 3M acknowledges, the Department followed the advice of the Workgroup that was comprised of subject-matter experts. While 3M may disagree with the composition and methodologies of the Workgroup or the timeframe in which it operated, a difference of opinion does not mean that the rule was “motivated by caprice, prejudice, or animus,” promulgated without regard to principles, or otherwise arbitrary or capricious. See *Mich Farm Bureau*, 292 Mich App at 145. Moreover, while 3M faults the Department for failing to incorporate other views into its promulgated rules, a department need not address “every conceivable issue” related to a particular subject. *Dykstra*, 198 Mich App at 493.

Similarly, 3M's allegations regarding the Department's "uncertainty" over the benefits offered by the rules do not demonstrate that the rules themselves are arbitrary or capricious. As already explained, the Department clearly found, based on reams of evidence, that a reduction in exposure to PFOA, PFOS, and the other PFAS substances would benefit public health. The Department sought and received input from the public and submitted the proposed rules to the Environmental Committee and JCAR for their respective reviews. The Department offered reasoned justification for its rules, and the rules are rationally related to improving public health, which is the purpose of the SDWA. Therefore, the promulgated rules themselves are not arbitrary or capricious.

D. THE REGULATORY IMPACT STATEMENT WAS DEFICIENT

Moving to 3M's final claim, the company takes issue with the procedural validity of the SDWA RIS. Generally speaking, a regulatory-impact statement is required whenever an agency seeks to promulgate a new rule, and the statement must include specific information to comply with the APA. MCL 24.245(3). Among other things, a regulatory-impact statement must include "[a]n estimate of the actual statewide compliance costs of the proposed rule on businesses and other groups." MCL 24.245(3)(n). Failure to comply with the requirements invalidates the entire rule. See *Mich Charitable Gaming Ass'n v Michigan*, 310 Mich App 584, 594; 873 NW2d 827 (2015).

Most of 3M's challenges to the sufficiency of the SDWA RIS are without merit. With that said, the Court concludes that the Department issued a deficient regulatory-impact statement in one material respect.

To start, the Court does not view the Department's SDWA-rulemaking process with blinders on. Ordinarily, a court reviewing an administrative department's action is limited to the administrative record specific to that action. See *Mich Ass'n of Home Builders*, 481 Mich at 501. In this circumstance, however, the Department repeatedly made clear that it viewed the Part 201-rulemaking process for groundwater as related to, and a continuation of, its earlier SDWA-rulemaking process for drinking water. This made sense, as everyone knew that the criteria that the Department set for PFOA and PFOS in the SDWA-rulemaking process would apply by operation of law to businesses and groups like 3M because of MCL 324.20120a(5). Consistent with this, during the SDWA-rulemaking process, the Department repeatedly justified its decision not to consider groundwater cleanup and compliance costs incurred by businesses and groups because it would consider those costs during the Part 201 rulemaking process.

But this did not happen.

Specifically, nowhere in the Part 201 RIS did the Department address any cleanup or compliance costs that a business or group would incur as a result of the PFAS rules. In fact, it was the exact opposite—the Department actually relied on the criteria set for PFOA and PFOS as a result of the SDWA-rulemaking process to justify its decision to ignore any cleanup and compliance costs faced by businesses and groups with respect to the other five PFAS substances under Part 201. Thus, the costs to businesses and groups of complying with the PFOA and PFOS groundwater criteria were never considered in either rulemaking proceeding, and the Department asserted in the Part 201 RIS that regulating the other five PFAS would not lead to additional costs because those costs would already be incurred due to the PFOA and PFOS rules.

A court must give a certain amount of deference to an administrative department's rulemaking process. *Brang, Inc v Liquor Control Comm*, 320 Mich App 652, 661; 910 NW2d 309 (2017). But judicial deference is not infinitely elastic—our Legislature has made clear that, when promulgating a rule, administrative departments must comply with certain standards, and one of those is estimating “the actual statewide compliance costs of the proposed rule on businesses and other groups” and including that information in the regulatory-impact statement. MCL 24.245(3)(n). A department cannot skirt this statutory requirement during Rulemaking A by promising to address the costs later in Rulemaking B, but then when later comes, ignoring the costs in Rulemaking B because the criteria were already set in Rulemaking A, and then, on top of this, characterizing all of the ignored costs as actually zero because they are sunk costs. To do this would be to play a shell game with the public.

The deficient regulatory-impact statement invalidates the PFAS rulemaking. MCL 24.243(1); *Clonlara, Inc v State Bd of Ed*, 442 Mich 230, 239; 501 NW2d 88 (1993); *Mich Charitable Gaming Ass'n*, 310 Mich App at 594. 3M has only challenged the SDWA rules in this lawsuit, so the Court will confine its holding to the rules developed under the SDWA-rulemaking process.

Finally, on its own motion and for good cause shown on the record, the Court will stay the effect of this holding under MCR 2.614. There is ample record evidence that, for the benefit of public health, the seven PFAS chemical substances need to be subject to maximum-contaminant levels. While the Department violated the APA by failing to account for certain costs to businesses and groups, the other side of the ledger is sound—there are significant benefits to public health from stringent maximum-contaminant levels for PFAS substances. Moreover, the federal government has recently moved forward with respect to regulating PFOA and PFOS, and

depending on where the maximum-contaminant levels are set by that government, 3M's challenge might become effectively moot under MCL 324.20120a(5). Accordingly, this Court will stay the effect of today's opinion and order as to Count III of 3M's complaint until the parties have exhausted their appellate rights and a judgment becomes final.

III. CONCLUSION

Based on foregoing, the Court orders as follows:

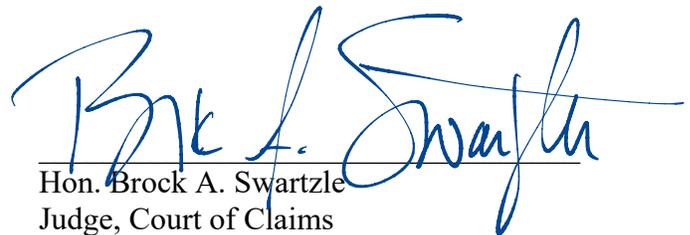
IT IS ORDERED that 3M's motion for summary disposition under MCR 2.116(C)(10) is DENIED on Counts I and II of its complaint and GRANTED on Count III of that complaint.

IT IS FURTHER ORDERED that the Department's motion for summary disposition under MCR 2.116(C)(10) is GRANTED on Counts I and II and DENIED on Count III.

IT IS FURTHER ORDERED that, on this Court's own motion, the holding and effect of this Opinion and Order, specifically with respect to the declaratory and injunctive relief granted on Count III of 3M's complaint, is stayed under MCR 2.614 until the parties have exhausted their appellate rights and a judgment becomes final.

IT IS SO ORDERED. This is a final order and closes the case.

Date: November 15, 2022


Hon. Brock A. Swartzle
Judge, Court of Claims

STATE OF MICHIGAN
COURT OF APPEALS

3M COMPANY,

Plaintiff-Appellee,

v

DEPARTMENT OF ENVIRONMENT GREAT
LAKES AND ENERGY,

Defendant-Appellant.

FOR PUBLICATION

August 22, 2023

9:05 a.m.

No. 364067

Court of Claims

LC No. 21-000078-MZ

Before: GADOLA, P.J., and MURRAY and MALDONADO, JJ.

MURRAY, J.

The sole issue in this appeal is whether the trial court erred in holding that the Department of Environment, Great Lakes, and Energy (EGLE), violated Section 45 of the Administrative Procedures Act of 1969 (APA), MCL 24.201 *et seq.*, which requires agencies to prepare a regulatory impact statement (RIS) that includes an estimate of how much compliance with the proposed rules will cost “businesses and other groups.” MCL 24.245(3)(n). For the reasons explained below, we conclude that the trial court did not err, and we therefore affirm its order granting summary disposition in favor of plaintiff.

I. BACKGROUND

At issue is a new set of rules promulgated by EGLE that regulate the permissible levels of per- and polyfluoroalkyl substances (PFAS) in drinking water pursuant to Section 5 of the Safe Drinking Water Act (SDWA), MCL 325.1001 *et seq.*¹ It is undisputed that implementation of these rules causes changes to groundwater-cleanup standards pursuant to Part 201 of the Natural Resources and Environmental Protection Act (NREPA), MCL 324.101 *et seq.*² This is because

¹ See MCL 325.1005(1)(b).

² See MCL 324.20120a(5).

groundwater-cleanup standards are tied to drinking water rules; therefore, any changes to the drinking water rules also cause a change to the groundwater-cleanup rules.

A lengthy administrative process took place prior to the implementation of these rules. In March 2019, a Science Advisory Workgroup was established to review existing and proposed drinking-water standards for PFAS. A month later, the Workgroup indicated that more than 70 sites were being investigated for contamination for two specific PFASs: perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). Soon after, EGLE proposed to create rules to establish enforceable drinking-water standards for PFAS. In doing so, EGLE indicated that the United States Department of Environmental Quality had designated health-advisory levels for PFOS and PFOA, but EGLE determined that the lack of enforceable standards for those chemicals and other PFAS impaired its ability to act to protect human health and the environment. Thus, a new ruleset was proposed, designated as 2019-35 EG, or “Supplying Water to the Public,” which was to add additional drinking water standards and related sampling and response requirements.

In October 2019, EGLE’s Drinking Water and Environmental Health Division submitted an RIS for proposed ruleset 2019-35 EG. In the RIS, the primary costs to state and local governmental units were identified as arising from sampling and monitoring requirements and the installation and operation of treatment systems where PFAS exceeded the maximum contaminant levels. Regarding costs imposed on businesses and groups, EGLE addressed only businesses that operated their own water supplies and estimated the following:

| | Government | | Businesses | |
|----------------------------------|------------------|-----------|---------------------------|---------|
| | Unit Cost | Annual | Unit Cost | Annual |
| Sampling cost | \$300 per sample | \$3.2 mil | \$300 to \$600 per sample | \$4 mil |
| Treatment cost | \$8 per gal | \$7.4 mil | | |
| Maintenance cost | \$0.35 per gal | \$325,000 | | \$7,000 |
| Installation of treatment | | | one time \$920,000 | |

The costs were to be the same for businesses and other groups except that sampling would cost \$600 per sample if the business or group hired an outside contractor rather than doing the sampling itself.

After an October 2019 meeting of the Environmental Rules Review Committee, EGLE’s Regulatory Affairs Officer, David Fiedler, responded to a question regarding the estimated impact on small businesses and other stakeholders “when the PFOA and PFOSs criteria are changed under Part 201” by stating:

If an entity is responsible for either causing a PFAS release or being responsible for the due diligence associated with a PFOS or PFOA release under Part 201, then they would be obligated to meet these standards. This impact will vary depending on the PFOS or PFOA concentration, media effected [sic], and extent of contamination. Because of this variability, it is not practical to determine the impact of this change. Even if it was, this impact is a result of current statutory applicability not a regulatory requirement.

The next month, a second RIS was prepared. The revised RIS recognized that the new surface water standards would alter the standards for groundwater cleanup: “There are surface water

standards and groundwater-cleanup standards. The groundwater-cleanup standards for PFOA and PFOS will be changed as a result of the rule.”

Public hearings were held on 2019-35 EG in January 2020, and the Review Committee approved a final draft of the rules in February. The Office of Regulatory Reinvention, an office within the Department of Licensing and Regulatory Affairs, MCL 445.2031(I)(A), approved the proposed drinking-water rules after determining that they were within the scope of EGLE’s authority, did not violate constitutional requirements, and conformed to APA requirements. The Joint Rules Committee did not act on the proposed rules during the 15 session days following their receipt, making the rules effective on August 3, 2020. See MCL 24.245a(1), (3).

3M Company subsequently filed suit seeking declaratory and injunctive relief regarding the drinking-water standard’s rules for PFAS. According to 3M Company, EGLE had not fully accounted for all costs associated with the rules, as it had not estimated costs for businesses to comply with the related groundwater-cleanup standards that automatically result from the new drinking water rules. Because every RIS was required to contain an estimate of the compliance costs for businesses and other groups, EGLE’s RIS was deficient as it had not accounted for costs resulting from changes to the separate, but related, groundwater-cleanup standards. Accordingly, 3M Company asserted that EGLE had not complied with the APA-based RIS requirements, and the drinking water rules were invalid.

The parties filed competing motions for summary disposition pursuant to MCR 2.116(C)(10). After a hearing, the Court of Claims issued a thorough opinion and order granting summary disposition in 3M Company’s favor and declaring the new drinking water rules invalid. Although the court determined that most of 3M’s arguments did not carry the day, the court held that the RIS was deficient for lack of a cost estimate for groundwater cleanup, reasoning:

Specifically, nowhere in the Part 201 RIS did the Department address any cleanup or compliance costs that a business or group would incur as a result of the PFAS rules. In fact, it was the exact opposite—the Department actually relied on the criteria set for PFOA and PFOS as a result of the SDWA-rulemaking process to justify its decision to ignore any cleanup and compliance costs faced by businesses and groups with respect to the other five PFAS substances under Part 201. Thus, the costs to businesses and groups of complying with the PFOA and PFOS groundwater criteria were never considered in either rulemaking proceeding, and the Department asserted in the Part 201 RIS that regulating the other five PFAS would not lead to additional costs because those costs would already be incurred due to the PFOA and PFOS rules.

A court must give a certain amount of deference to an administrative department’s rulemaking process. *Brang, Inc v Liquor Control Comm*, 320 Mich App 652, 661; 910 NW2d 309 (2017). But judicial deference is not infinitely elastic—our Legislature has made clear that, when promulgating a rule, administrative departments must comply with certain standards, and one of those is estimating “the actual statewide compliance costs of the proposed rule on businesses and other groups” and including that information in the regulatory-impact statement. MCL 24.245(3)(n). A department cannot skirt this statutory

requirement during Rulemaking A by promising to address the costs later in Rulemaking B, but then when later comes, ignoring the costs in Rulemaking B because the criteria were already set in Rulemaking A, and then, on top of this, characterizing all of the ignored costs as actually zero because they are sunk costs. To do this would be to play a shell game with the public.

The court, on its own motion, stayed the effect of its holding to grant time for appellate review of its decision.

II. STANDARDS OF REVIEW

Const 1963, art 6 § 28, provides the scope of review for an administrative agency's decision:

All final decisions, findings, rulings and orders of any administrative officer or agency existing under the constitution or by law, which are judicial or quasi-judicial and affect private rights or licenses, shall be subject to direct review by the courts as provided by law. This review shall include, as a minimum, the determination whether such final decisions, findings, rulings and orders are authorized by law; and, in cases in which a hearing is required, whether the same are supported by competent, material and substantial evidence on the whole record.

“[W]hen a hearing is not required, courts review an agency decision only under the ‘authorized by law’ standard” *Henderson v Civil Serv Comm*, 321 Mich App 25, 39; 913 NW2d 665 (2017).³ “An agency decision is not authorized by law if it violates constitutional or statutory provisions, lies beyond the agency’s jurisdiction, follows from unlawful procedures resulting in material prejudice, or is arbitrary and capricious.” *Dearborn Hts Pharmacy v Dep’t of Health & Human Servs*, 338 Mich App 555, 559; 980 NW2d 736 (2021) (quotation marks and citation omitted).

Courts review de novo questions of law, including whether an agency’s action complied with a statute. *In re Complaint of Rovas Against SBC Mich*, 482 Mich 90, 100-101; 754 NW2d 259 (2008). The normal rules of statutory interpretation apply when interpreting statutes concerning agency decisions. *Dearborn Hts Pharmacy*, 338 Mich App at 560. If the language is clear and unambiguous, this Court may not engage in judicial construction. *Id.* (citation omitted). And, if the statute does not define a word, this Court applies the common meaning of nontechnical words, while also considering the placement of the words and phrases in the statutory scheme. *Id.* (citation omitted). Words must be read and understood within their grammatical context. *Mich Charitable Gaming Ass’n v Michigan*, 310 Mich App 584, 592; 873 NW2d 827 (2015).

³ A contested case is “a proceeding, including rate-making, price-fixing, and licensing, in which a determination of the legal rights, duties, or privileges of a named party is required by law to be made by an agency after an opportunity for an evidentiary hearing.” MCL 24.203(3). A noncontested case is any case that falls outside this definition. *Mich Ass’n of Home Builders v Dir of Dep’t of Labor & Economic Growth*, 481 Mich 496, 498; 750 NW2d 593 (2008).

Respectful consideration is given to an agency’s interpretation of the statute that it is charged with executing, and we may not overrule that interpretation without cogent reasons. *Rovas*, 482 Mich at 103. “ ‘[R]espectful consideration’ is much like what we give to a trial court’s view of a legal issue on de novo review.” *Stirling v Leelanau Co*, 336 Mich App 575, 578 n 2; 970 NW2d 910 (2021), rev’d on other grounds *Stirling v Leelanau*, ___ Mich ___; ___ NW2d ___ (2023) (Docket No. 162961).

III. DISCUSSION

The APA governs the creation of agency rules and regulations. *Mich Charitable Gaming*, 310 Mich App at 594. “An agency’s failure to follow the process outlined in the APA renders a rule invalid.” *Id.* One of the processes that the agency must follow is the creation of an RIS. MCL 24.245(3). “The regulatory impact statement must contain . . . [a]n estimate of the actual statewide compliance costs of the proposed rule on businesses and other groups.” MCL 24.245(3)(n). Section 5 of the SDWA requires EGLE to promulgate rules setting “[s]tate drinking water standards and associated monitoring requirements, the attainment and maintenance of which are necessary to protect the public health.” MCL 325.1005(1)(b).

Pursuant to this statutory command, EGLE promulgated ruleset 2019-35 EG, establishing new standards for PFAS in drinking water. As noted, however, under Part 201 of the NREPA, once new drinking water standards are promulgated under Section 5 of the SDWA, the cleanup criterion for hazardous substances in groundwater are also changed. MCL 324.20120a(5). In other words, the impact of Part 201 is that whenever EGLE sets drinking water standards, it is also setting groundwater cleanup criterion. Despite this, EGLE refrained from providing compliance cost estimates for the new groundwater cleanup criterion in the RIS it prepared for the new drinking water standards, arguing that because MCL 24.245(3)(n) only requires it to estimate costs of *the proposed rule*, it only needed to provide a cost estimate for businesses and other groups to comply with the drinking-water rule; it did not need to provide an estimate of the costs that businesses and other groups might incur as a result of the groundwater-cleanup provisions found in Part 201 of NREPA.

It is true that MCL 24.245(3)(n) provides that the agency must include in its RIS “[a]n estimate of the actual statewide compliance costs *of the proposed rule* on businesses and other groups.” (Emphasis added.) We don’t quibble with EGLE’s position that within MCL 24.245(3)(n) the word “the” modifies the phrase “proposed rule,” and that the proposed rule is 2019-35 EG, “Supplying Water to the Public.” But the statute has to be read in its entirety, and what MCL 24.245(3)(n) requires is that EGLE provide an estimate “of the actual statewide compliance costs of” the proposed rule. And as we have described above, and as the parties agree, “the proposed rule[s]” resulted in modified groundwater criteria, which triggered the possibility of additional “statewide compliance costs.” It is that triggering effect from adoption of “the proposed [drinking water]” rules that brought into play EGLE’s statutory obligation to provide “an estimate of the actual statewide compliance costs” of any required groundwater cleanup resulting from adoption of the proposed drinking water rules.

Although EGLE identified the estimated actual statewide compliance costs of the proposed drinking-water rule on businesses and groups, it did not estimate costs that these changes automatically imposed on groundwater cleanup. Failing to do so resulted in EGLE’s

noncompliance with MCL 24.245(3)(n), which in turn means the rules were not promulgated in compliance with the APA, and are invalid. MCL 24.243; *Goins v Greenfield Jeep Eagle, Inc*, 449 Mich 1, 9-10; 534 NW2d 467 (1995).⁴

EGLE’s argument that it was not required to estimate the costs to businesses that would necessarily occur under Part 201 because it lacked the necessary information to make an estimate does not save the day as the applicable statutory provisions say otherwise.

MCL 24.245(3) provides that an agency must prepare a RIS which “shall” contain all of the listed information, meaning that providing the information is mandatory. *Walters v Nadell*, 481 Mich 377, 383; 751 NW2d 431 (2008). And as noted earlier, one piece of information that the APA requires to be included in a RIS is “[a]n estimate of the actual statewide compliance costs of the proposed rule on businesses and other groups.” MCL 24.245(3)(n).

According to EGLE, it was permitted to determine that it was factually incapable of making an estimate and that the Court of Claims should have deferred to its administrative expertise when making that determination. However, MCL 24.245(3)(n) does not contain any such exception, and to adopt EGLE’s position would require this Court to read an exception into MCL 24.245(3)(n) that would allow EGLE, as well as any other departments of state government, to avoid estimating costs to businesses in a RIS if the department concludes an estimate is not possible. But MCL 24.245(3)(n) requires an estimation, and if EGLE cannot provide one, then it cannot propose the rule in a way that complies with the APA.

Affirmed. No costs, a matter of public concern being at issue. MCR 7.219(A).

/s/ Christopher M. Murray
/s/ Michael F. Gadola

⁴ EGLE challenges the trial court’s review of the RIS subsequently adopted for groundwater cleanup, which likewise contained no numerical cost estimate. According to EGLE, the trial court had no authority to consider that RIS because it was not part of the administrative record. As Judge SMOLENSKI previously wrote for this Court, a court is expressly permitted to take judicial notice on its own of those laws set out in MRE 202(a), which includes a state administrative regulation. *Rudolph Steiner Sch of Ann Arbor v Ann Arbor Charter Twp*, 237 Mich App 721, 723 n1; 605 NW2d 18 (1999). However, a RIS is not an administrative regulation, nor does that document fall within one of the other laws that a court can judicially notice. But this error was harmless, as the statutory language supports the trial court’s ultimate holding.

STATE OF MICHIGAN
COURT OF APPEALS

3M COMPANY,

Plaintiff-Appellee,

v

DEPARTMENT OF ENVIRONMENT, GREAT
LAKES, AND ENERGY,

Defendant-Appellant.

FOR PUBLICATION
August 22, 2023

No. 364067
Court of Claims
LC No. 21-000078-MZ

Before: GADOLA, P.J., and MURRAY and MALDONADO, JJ.

MALDONADO, J. (*dissenting*).

I would reverse the trial court’s order granting summary disposition in favor of 3M Company because I do not believe that MCL 24.245(3)(n) requires EGLE to provide estimated costs of compliance with the changes in the groundwater standards that were a ripple effect of the new rules governing drinking water. Accordingly, I dissent.

I. DISCUSSION

In my opinion, the Court of Claims erred by holding that the Department was obligated to estimate compliance costs other than those flowing directly from the actual proposed rule.

I agree that a ripple effect of Part 201 of the NREPA is that whenever EGLE sets drinking water standards it is also setting groundwater cleanup criterion. I also agree that EGLE, nevertheless, did not provide estimates of compliance costs with the new groundwater cleanup criterion in the RIS it prepared for the new drinking water standards. However, because MCL 24.245(3)(n) only requires EGLE to estimate costs of *the proposed rule*, and the proposed rule was the drinking-water rule, I believe EGLE only needed to provide an estimate of the costs for businesses and other groups to comply with the drinking-water rule; it did not need to provide an estimate of the costs that businesses and other groups might incur as a result of the groundwater-cleanup provisions found in Part 201 of NREPA.

MCL 24.245(3)(n) provides that the agency must include in its regulatory-impact statement “[a]n estimate of the actual statewide compliance costs of *the proposed rule* on businesses and

other groups.” (Emphasis added.) The words “the” and “a” have different meanings, with the word “the” being a definite article and the word “a” being an indefinite article. *Robinson v Lansing*, 486 Mich 1, 14; 782 NW2d 171 (2010). The word “a” has general application, while the word “the” refers to a specific thing. *Id.* The APA uses words like “the rule” and “the proposed rule” to refer to a rule “as it moves through the rulemaking process.” *Mich Charitable Gaming*, 310 Mich App at 599. Considering the language of MCL 24.245(3)(n) in its grammatical context, the word “the” modifies the phrase “proposed rule.” Further, when these words are considered in the fuller statutory context, this requirement is contained within a list of requirements addressing the proposed rule. See MCL 24.245(2). In this case, the proposed rule set is 2019-35 EG, “Supplying Water to the Public.” These rules “pertain[ed] to establishing drinking water standards for public water supplies” and were related to the SDWA. While it is not disputed that adopting the proposed drinking-water rules under the SDWA inevitably has a ripple effect on the groundwater-cleanup rules under Part 201 of the NREPA, the groundwater-cleanup rules were not the rules that were part of this specific regulatory process. Therefore, EGLE’s regulatory-impact statement for the proposed rule under the SDWA is sufficient.

EGLE did identify the estimated actual statewide compliance costs of the proposed drinking-water rule on businesses and groups. It identified those businesses and groups as those with their own water supplies, such as condominiums, apartment buildings, residential units, industries, and small businesses that were not connected to municipal water. EGLE did estimate the costs to businesses and groups regarding the drinking-water rules. It did not estimate ancillary costs that would result from changes to other standards as a result of the proposed rule, but the APA does not require it to do so.

I agree with 3M Company, the Court of Claims, and the majority that, by creating rules regulating PFAS in drinking water, the Department was able to entirely avoid calculating groundwater-cleanup costs to Michigan businesses. This appears to be a loophole in the rulemaking process, but this Court defers to the Legislature regarding matters with complex social and policy ramifications. *Gavrilides Mgt Co, LLC v Mich Ins Co*, 340 Mich App 306, 317; 985 NW2d 919 (2022). That a statute appears to be inconvenient, unnecessary, or unwise is not a reason for this Court to avoid the application of plain statutory language. *Johnson v Recca*, 492 Mich 169, 187; 821 NW2d 520 (2012). Pursuant to Part 201, if drinking-water standards have been established pursuant to the SDWA, groundwater-cleanup criteria are derived from those standards. MCL 324.20120a(5). The Legislature decided to tie groundwater-cleanup standards directly to drinking-water standards. The APA does not require a regulatory-impact statement for one proposed rule to account for ripple effects in other rules, which is what has occurred in this case.

II. CONCLUSION

Because I believe the Court of Claims applied incorrect legal principles when it interpreted MCL 24.245(3)(n) to require the Department to estimate costs for other proposed rules ancillary to *the* proposed rule addressed by a regulatory-impact statement, I would reverse. Therefore, respectfully, I dissent.

/s/ Allie Greenleaf Maldonado

2019

HEALTH-BASED DRINKING WATER VALUE RECOMMENDATIONS FOR PFAS IN MICHIGAN

Michigan Science Advisory Workgroup

DR. JAMIE DEWITT

MR. KEVIN COX

DR. DAVID SAVITZ

Executive Director's Foreword

This report accomplishes a key milestone in Michigan's effort to identify and reduce exposures to per- and polyfluoroalkyl substances (PFAS) contamination. With it, we are now one step closer to developing state drinking water standards for PFAS.

Michigan is a national leader at addressing PFAS contamination. Through our unique, multi-agency approach, Michigan's PFAS Action Response Team (MPART) is systematically identifying sources of PFAS contamination and getting a better understanding of their occurrence throughout our environment.

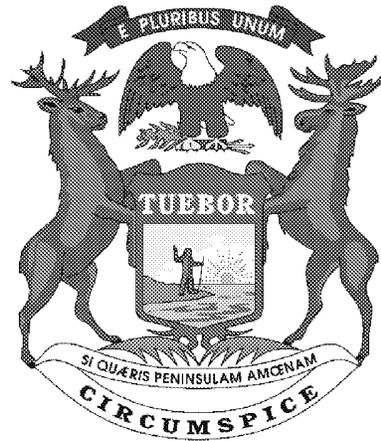
By using analytical techniques capable of finding PFAS as low as 2 parts per trillion, we have found the presence of PFAS in the drinking water from thousands of private residential wells near contaminated sites. We have also found PFAS in public water supplies across the state. We tested over 1,700 supplies covering all community water supplies plus schools and larger day cares with their own wells. We found PFAS in ten percent of the supplies. While most of the PFAS levels were very low, three percent of the supplies have required follow-up actions, and a few have required an alternate water source.

Unfortunately, we do not have federal drinking water standards, despite knowing they are in our drinking water and that some PFAS have been associated with adverse health effects. Recognizing that the USEPA is still likely several years away from providing any leadership on PFAS drinking water standards, Michigan, like other states, was left to develop our own.

With Governor Gretchen Whitmer's leadership, MPART formed a Science Advisory Workgroup to navigate the science and standards from across the country to advise Michigan on drinking water health-based values for PFAS. These health-based values will be used to inform the next step of the drinking water rule-making process, which includes stakeholder involvement where other factors will be considered.

I could not be more impressed with the thoughtful deliberation of our workgroup and the tireless technical support from our staff. As the information in this report is given to EGLE for consideration during the development of drinking water standards, we all owe them our sincere appreciation for giving us a firm foundation on which to move forward with protecting Michiganders from unacceptable levels of PFAS in their drinking water.

Steve Sliver,
Executive Director,
Michigan PFAS Action Response Team



Michigan Science Advisory Workgroup

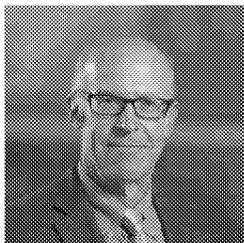
Dr. Jamie DeWitt
Mr. Kevin Cox
Dr. David Savitz

Agency Support Staff to the Panel

Mr. Steve Sliver, Michigan Department of Environment, Great Lakes, and Energy
Mr. Kory Groetsch, Michigan Department of Health and Human Services
Dr. Jennifer Gray, Michigan Department of Health and Human Services
Dr. Eric Wildfang, Michigan Department of Environment, Great Lakes, and Energy
Ms. Chelsea Dickerson, Michigan Department of Environment, Great Lakes, and Energy

Report developed for the Michigan PFAS Action Response Team,
Lansing, Michigan
June 27, 2019

The Michigan Science Advisory Workgroup



Dr. David Savitz

Dr. David Savitz, who chairs the advisory Workgroup, is a professor of epidemiology in the School of Public Health at Brown University. He also serves as associate dean for research, and holds joint appointments in obstetrics and gynecology, and pediatrics in the Alpert Medical School. His epidemiological research has addressed a wide range of public health issues including environmental hazards in the workplace and community, reproductive health outcomes, and environmental influences on cancer. He has done extensive work on health effects of nonionizing radiation, pesticides, drinking water treatment by-products, and perfluorinated compounds. He is the author of nearly 350 papers in professional journals and editor or author of three books. He was president of the Society for Epidemiologic Research and the Society for Pediatric and Perinatal Epidemiologic Research, and North American regional councilor for the International Epidemiological Association. Dr. Savitz is a member of the National Academy of Sciences Institute of Medicine. From 2013-2017 he served as vice president for research at Brown University. He was a member of the C8 Science Panel that conducted some of the first epidemiologic research on PFAS in the mid-Ohio Valley and has published a number of reports related to potential health effects of PFAS. He recently chaired the Science Panel to advise MPART on the current research related to toxicology, epidemiology, exposure pathways, and remediation of PFAS.



Mr. Kevin Cox

Kevin Cox is a Managing Toxicologist at NSF International. Prior to his current role, Mr. Cox was a Supervising Toxicologist supporting NSF's drinking water additives and dietary supplement certification programs. As an expert in human health risk assessment, Mr. Cox has authored numerous chemical risk assessments evaluating exposure from unregulated drinking water contaminants, dietary supplement ingredients, toy product materials, and pool and spa treatment chemicals. Specific to PFAS, Mr. Cox has conducted a state-of-the-science analysis of published PFAS risk assessments in support of NSF International drinking water programs. This analysis was recently presented to Michigan water management professionals. Mr. Cox received his B.S. in biochemistry and history from the University of Michigan and his MPH in Environmental Health Sciences - Toxicology from the University of Michigan School of Public Health. He is currently an Associate Member of the Society of Toxicology. Mr. Cox also holds a J.D. from the University of Michigan Law School and is a member of the Michigan Bar Association.



Dr. Jamie DeWitt

Dr. Jamie DeWitt is an associate professor in the Department of Pharmacology and Toxicology of the Brody School of Medicine at East Carolina University. Her laboratory's research program explores relationships between biological organisms and their responses after exposure to environmental contaminants, with a specific focus on the immune system and its interactions with the nervous system during development and adulthood. The research program particularly focuses on emerging aquatic contaminants, especially PFAS. With respect to PFAS, DeWitt has published 13 primary research articles, six review articles, two book chapters, and edited a book on PFAS toxicity. She has served as an external reviewer for the United States Environmental Protection Agency (USEPA) health effects assessment of perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), the United States National Toxicology Program's immune effects assessment of PFOA and

PFOS, the United States Agency for Toxic Substances and Disease Registry toxicological profile for PFASs, and was a member of the International Agency for Research on Cancer working group for the assessment of the carcinogenicity of PFOA. Her laboratory currently assesses the immunotoxicity of emerging PFAS that have been designed to replace those that have been phased out of production and that are of concern in North Carolina. She double-majored in environmental science and biology for her bachelor's degree from Michigan State University and has doctoral degrees in environmental science and neural science from Indiana University-Bloomington. She completed postdoctoral training in ecotoxicology at Indiana University-Bloomington and in immunotoxicology at the USEPA in partnership with the University of North Carolina at Chapel Hill.

Table of Contents

| | |
|---|-----|
| Executive Director’s Foreword | i |
| The Michigan Science Advisory Workgroup | iii |
| Executive Summary | 2 |
| Approach | 5 |
| Workgroup Interpretation of the Charge..... | 5 |
| Challenges and Limitations..... | 6 |
| Process..... | 7 |
| Selection of Toxicity Values | 7 |
| Uncertainty Factors | 7 |
| Relative Source Contribution | 8 |
| Drinking Water Health-Based Value Derivation | 8 |
| Confidence Statement..... | 9 |
| PFAS Chemical Summary Sheets..... | 10 |
| Chemical Summary for PFNA | 10 |
| Chemical Summary for PFOA..... | 12 |
| Chemical Summary for PFHxA | 14 |
| Chemical Summary for PFOS | 16 |
| Chemical Summary for PFHxS | 18 |
| Chemical Summary for PFBS | 20 |
| Chemical Summary for GenX..... | 22 |
| Rationale for Individual HBVs..... | 25 |
| Summary of Conclusions | 26 |
| Summary Table of Drinking Water HBVs..... | 26 |
| Figure 1. | 27 |
| Concluding Remarks..... | 27 |
| References | 29 |
| Appendix A: Acronym List..... | 33 |
| Appendix B: MPART Motion for Creation of Science Advisory Workgroup, April 4, 2019..... | 34 |
| Appendix C: USEPA Method 537.1 Analyte List | 35 |
| Appendix D: Timeline for the Science Advisory Workgroup’s Development of Drinking Water HBVs..... | 36 |
| Appendix E: Timeline of the Maximum Contaminant Level Development Process..... | 37 |

Executive Summary

Background: The Michigan PFAS Action Response Team (MPART), is a unique, multi-agency proactive approach for coordinating state resources to address per- and polyfluoroalkyl substances (PFAS) contamination. Agencies responsible for environmental protection, public health, natural resources, agriculture, military installations, commercial airports, and fire departments work together to ensure the most efficient and effective response. The work done by MPART on drinking water supports the development of standards now that we have key information, including:

- PFAS have been discovered in drinking water during investigations of contaminated sites and a survey of all of Michigan's public water supplies. Public health responses, such as the provision of alternate water (e.g., point of use filters) have been necessary for thousands of Michiganders based on the strength of the source, location, and the concentrations found.
- The MPART Science Advisory Panel report issued in December 2018 indicated that observational epidemiology literature supports the need for drinking water values below the United States Environmental Protection Agency (USEPA) Lifetime Health Advisory (LHA) level of 70 ppt PFOS and PFOA, individually or in combination, and included a recommendation for establishing state drinking water standards for PFAS.
- The Michigan Department of Health and Human Services (MDHHS)-led MPART Human Health Workgroup developed public health drinking water screening levels for five individual PFAS in February 2019. Those screening levels will prompt further evaluation and public health consultations at numerous public water supplies and residences across the state including where detectable levels of PFOS and/or PFOA are below the USEPA LHA.

On March 26, 2019, Governor Gretchen Whitmer announced that Michigan was establishing enforceable state drinking water standards for PFAS. These standards, otherwise known as Maximum Contaminant Levels (MCLs), under the federal Safe Drinking Water Act have traditionally been established first by the USEPA and then adopted by the states. At this time, however, the USEPA has not initiated its process for establishing PFAS MCLs, and its process could take five or more years to complete. Michigan chose not to wait any longer for federal action.

Governor Whitmer called on MPART to form a Science Advisory Workgroup (Workgroup) to review the existing and proposed PFAS standards from across the country and develop health-based values (HBVs) to inform the initial phase of the rulemaking process for establishing state drinking water standards. The workgroup was given until July 1, 2019 to develop the HBVs. On April 4, 2019, MPART approved a motion to create the Workgroup. The Charge from MPART to the Workgroup is included in Appendix B. The members of the Workgroup were announced on April 11, 2019. The Workgroup was supported by MPART staff.

The Workgroup members are experts in the fields of epidemiology, toxicology, and risk assessment. The composition of the Workgroup matches the typical fields of evaluation for HBV developments. Dr. Jamie DeWitt provided the strong toxicological expertise and up-to-date knowledge on PFAS toxicology as HBVs typically use laboratory animal toxicity studies. Epidemiological information supports the laboratory animal data, and Dr. David Savitz provided his epidemiological expertise in selection of health endpoints and relevance to humans. Tying both toxicology and epidemiology together are risk assessment practices, and Mr. Kevin Cox provided the expertise in that field. Taken together, this Workgroup was able to knowledgeably speak on the current state of PFAS health research and provide the scientific expertise needed to efficiently develop HBVs on the requested timeline.

The evaluation and deliberations of the Workgroup occurred over a very limited timeframe (Appendix D), which required frequent interaction. Much of that interaction occurred during 7 web conferences between April 19 and May 29, 2019, culminating in an in-person meeting the weekend of June 1-2, 2019. The Workgroup's final conclusions were presented to MPART on June 27, 2019.

Conclusions: The Workgroup undertook a methodical approach to evaluate existing and proposed standards from across the country for the 18 PFAS analytes considered under USEPA Method 537.1 (Appendix C). They focused on those PFAS that they determined had enough peer reviewed studies on which to base their conclusions. What they considered, and the logic behind their approach, has been carefully documented in individual chemical summaries for each compound that has a derived HBV in the following table:

Summary Table of Drinking Water Health-Based Values

| Specific PFAS | Drinking Water Health-based Value | Chemical Abstract Services Registry Number (CASRN) |
|---------------|-----------------------------------|--|
| PFNA | 6 ng/L (ppt) | 375-95-1 |
| PFOA | 8 ng/L (ppt) | 335-67-1 |
| PFHxA | 400,000 ng/L (ppt) | 307-24-4 |
| PFOS | 16 ng/L (ppt) | 1763-23-1 |
| PFHxS | 51 ng/L (ppt) | 355-46-4 |
| PFBS | 420 ng/L (ppt) | 375-73-5 |
| GenX | 370 ng/L (ppt) | 13252-13-6 |

The Workgroup also recommended MPART and water supply operators screen analytical results for other long-chain PFAS (eight carbons and above for carboxylates and six carbons and above for sulfonates) included in USEPA Method 537.1 at the lowest concentration proposed for any of the compounds, which is 6 ppt. Based on the similarity in toxicity for the long-chain PFAS, the Workgroup recommends use of the HBV for PFNA (6 ng/L [ppt]) as a screening level for all other long-chain PFAS included on the USEPA Method 537.1 analyte list for which the Workgroup did not develop an individual HBV. Those other long-chain PFAS included in USEPA Method 537.1 are: NEtFOSAA (CASRN: 2991-50-6); NMeFOSAA (CASRN: 2355-31-9); PFDA (CASRN: 335-76-2); PFD_oA (CASRN: 307-55-1); PFTA (CASRN: 376-06-7); PFT_rDA (CASRN: 72629-94-8); and PFUnA (CASRN: 2058-94-8). While there is not enough information available at this time to support HBVs and drinking water standards for them, these compounds are expected to produce similar health effects. Additional monitoring, research for potential sources, notification of the public, and efforts to reduce exposure are warranted.

The Workgroup recognizes that their conclusions in some cases deviate modestly from those of other organizations. Evolving science and professional judgement can account for the variation. The variation is not substantial, however, and the values are trending lower nationally over time.

Approach

Workgroup Interpretation of the Charge

The Workgroup was conscience of the importance and responsibility placed upon its efforts to identify public health toxicity values for certain PFAS as described within the Charge. Prior to initiating its efforts, the Workgroup sought and received clarification on the scope of the Charge. Given the relatively short timeframe for which to accomplish the tasks set forth within Charge, the Workgroup confirmed that the focus of the effort was to utilize the existing and proposed national- and state-derived PFAS assessments to inform its decision-making process as opposed to conducting a full systematic review of the available scientific literature on PFAS.

Additionally, as one of the outputs of the Charge is to inform State of Michigan on drinking water health-based values for PFAS, it was important to understand if the State of Michigan had any paradigms in place that the Workgroup must follow when deriving drinking water health-based values. The response received from the State of Michigan indicated that the Workgroup was only limited to applying a scientifically defensible approach as described within the Charge. With these issues clarified, the Workgroup approached the tasks set forth in the charge in the following manner:

- 1) Initially, PFAS analytes were identified within USEPA Method 537.1 for which published or externally peer reviewed PFAS drinking water criteria or reference doses (RfDs) existed and the derivation of such values was done in a scientifically defensible manner. This approach resulted in the selection of PFOA, PFOS, PFHxS, PFHxA, PFBS, PFNA and GenX as PFAS analytes for which the Workgroup would then develop individual public health toxicity values. The remaining PFAS values within USEPA Method 537.1 were later considered as to whether a class-based or group-based public health toxicity value could be applied.
- 2) For each of the selected PFAS analytes, the Workgroup evaluated the identified points of departure (defined as the point on a toxicological dose-response curve corresponding to an estimated low effect level or no effect level) and rationale from published risk assessments and assessed the underlying key studies that served as the basis for the published values. From this review, the merits of each available point of departure was discussed among the Workgroup and critical studies and points of departures for each of the seven identified PFAS analytes were identified to form the basis of public health toxicity values described further herein.
- 3) With critical studies and points of departure identified for each individual PFAS, the Workgroup then identified appropriate uncertainty factors to derive public health toxicity values. From these public health toxicity values, the Workgroup recommended specific drinking water exposure paradigms, accounting for sensitive sub-populations, and applied selected relative source contribution factors to derive the drinking water health-based values described further herein.
- 4) Lastly, consideration was given to the remaining PFAS analytes from USEPA Method 537.1 that were not selected for the development of individual criteria as to whether a class-based or grouping-based evaluation approach would be appropriate. As described

below, the Workgroup concluded that a screening level approach was valid to assess longer-chain PFAS based on the lowest derived drinking water health-based values.

Based on guidance from the Director of EGLE's Drinking Water and Environmental Health Division, PFAS chemical summary sheets were used to capture the necessary information for the MCL rulemaking process. The Workgroup and MPART staff used this format to provide maximum transparency on the decisions and rationale for drinking water health-based value development for each PFAS.

The chemical summary sheets describe:

- The critical study or studies, point of departure from each study, and conversion to a human equivalent dose;
- Uncertainty factors and a calculated toxicity value;
- Exposure parameters, and methodology for calculation of a drinking water health-based value.

Challenges and Limitations

The premises for the Workgroup's efforts to provide evidence-based conclusions for informing the regulation of PFAS in drinking water are compelling. Policy needs to provide clarity on what levels of specific chemicals are believed to be protective of public health and develop a mechanism to monitor and mitigate pollutants such as PFAS where needed. The Workgroup identified and made optimal use of the scientific evidence that is available to provide guidance, drawing on its knowledge of research methods and quantitative risk assessment. Furthermore, the Workgroup approached the issue free of bias, and as a panel, has a wide range of expertise and familiarity with the research on PFAS. However, the nature of this process is inherently subject to uncertainty and other equally qualified experts presented with the same scientific data the Workgroup drew upon might well make somewhat different conclusions. A number of other organizations have been through a similar exercise in providing guidance on acceptable drinking water contaminant levels, and while there are not extreme differences, there is not complete convergence either. As described in some detail below, a series of inputs were needed to derive the Workgroup's estimates and make that sequence of decisions as transparent as possible for those who wish to compare these conclusions to those made by other agencies. Like all the others, they are based exclusively on toxicology studies given the ability to quantify exposure-response relationships with great precision, but there is a loss of certainty in applying these estimates to free-living human populations. In most cases, there is epidemiologic evidence pertaining to the same health endpoints used in toxicology, and where there is such convergent evidence (e.g., immune function, development), confidence in the applicability of the experimental studies to human populations is enhanced. Finally, it should be noted that the scientific evidence on PFAS is expanding rapidly and that with new studies, the guidelines may well need to be revised. While it would be inefficient to do so frequently, on some periodic basis of several years, it would be useful to repeat the process that generated this report to determine where changes may be needed.

Process

Selection of Toxicity Values

Adverse health effects reported following exposure to PFAS in laboratory animal models and epidemiological studies have been summarized in myriad peer-reviewed and publicly available documents, including those generated by other state agencies. Most recently, the Agency for Toxic Substances and Disease Registry (ATSDR), compiled a toxicological profile for 14 PFAS that comprehensively summarizes evidence from publicly available published studies (ATSDR, 2018). This, and other summary documents, as well as the published studies themselves, were relied on to determine points of departure, as well as the toxicity values that protect the most sensitive populations and reflect a level that is unlikely to lead to adverse health effects if those sensitive populations are exposed over a lifetime or during a sensitive period (i.e., during development). The toxicity values are therefore designed to be protective of all exposed populations. For all of the PFAS examined, points of departure were selected from studies with laboratory animal models. This approach does not negate findings associated with epidemiological studies, but reflects that humans experience uncontrolled and imperfectly documented rather than controlled, precisely measured exposures. Additionally, these points of departure reflect adverse health effects that occur at low doses and that are supported by the weight-of-evidence across endpoints and between findings in humans and laboratory animal models. Therefore, the process to select points of departure used the available scientific evidence to identify an adverse health effect that occurred at a low dose, was supported by findings in other studies, was relevant to humans, and would be protective of sensitive populations.

Uncertainty Factors

In deriving the toxicity values for PFAS, the selected points of departure are divided by uncertainty factors. Uncertainty factors are applied in order to account for:

1. Variation in susceptibility among the human population (intraspecies uncertainty);
2. Uncertainty in extrapolating animal data to humans (interspecies uncertainty);
3. Uncertainty in extrapolating from data obtained from a study with a less-than-lifetime exposure (subchronic to chronic uncertainty);
4. Uncertainty in extrapolating from a lowest observed adverse effect level (LOAEL) as opposed to a no observed adverse effect level (NOAEL); and
5. Uncertainty associated with an incomplete toxicity database. Uncertainty factors assigned for each of these five categories are typically 1x, 3x ($10^{0.5}x$), or 10x with the default value being 10x, which represents greater uncertainty.

For both interspecies and intraspecies uncertainty factors, the variability in response to a toxicant may result from differences in toxicokinetics and/or toxicodynamics. Toxicokinetics refers to the absorption, distribution, biotransformation and excretion of the toxicant following exposure. Toxicodynamics refers to the molecular, biochemical and physiological effects of the toxicant or its metabolites leading to the toxic response. Therefore, the interspecies and intraspecies uncertainty factors are divided into subparts representing the toxicokinetic factor and the toxicodynamic factor. In evaluating the interspecies uncertainty for the selected PFAS, in each

case the toxicokinetic subfactor was able to be reduced to 1x on account of adjustments based on serum half-lives or allometric scaling. Due to lack of data to depart from the default the toxicodynamic subfactor 3x ($10^{0.5x}$), the resulting interspecies uncertainty factor is 3x ($10^{0.5x}$).

When considering the subchronic to chronic uncertainty, the relevant consideration is whether the selected point of departure may differ if the duration of exposure were to be increased. For PFAS, a weight of evidence approach was used to assess the subchronic to chronic uncertainty factor, including, but not limited to, duration of the key study, potential impact of duration on the selected point of departure, as well as availability of chronic repeat-dose toxicity data.

For the NOAEL to LOAEL uncertainty factor, use of a NOAEL (or lower confidence limit on the benchmark dose [BMDL]) allows for an uncertainty factor of 1x. If the point of departure is based on a LOAEL, the uncertainty factor is either 3x ($10^{0.5x}$) or 10x depending on the severity and/or reversibility of the critical effect.

The database uncertainty factor is based on the ability of the existing data to support a scientific judgment of the likely critical effect from exposure to the compound. In assessing the database completeness, the types of toxicity data (e.g., human, animal, mode of action) as well as data gaps that may have improved the derived risk values should be emphasized. This approach should take into consideration issues such as the types of endpoints evaluated, life-stages evaluated, duration, timing, route of exposure, and the potential for latent effects and/or reversibility of effects (USEPA, 2002). For the selected PFAS, each database was unique; however, common concerns were lack of appropriate characterization of immune, endocrine or neurodevelopmental effects.

Relative Source Contribution

Relative source contribution (RSC) is the percentage of a person's exposure to a chemical that comes from drinking water. For example, an RSC of 20 percent assumes that the other 80 percent of a person's exposure to a chemical comes from non-drinking water sources. The USEPA (2000) provides guidance on the selection of an RSC value using an exposure decision tree that takes into account specific populations of concern, whether these populations are experiencing exposure from multiple sources, and whether levels of exposure or other circumstances make apportionment of the toxicity value or POD/UF desirable. The most conservative RSC is established at 20 percent, and the RSC can reach a ceiling of 80 percent as more information is available about exposure pathways and the source of exposure.

Drinking Water Health-Based Value Derivation

The traditional risk assessment approach using simple equations based on body weight, water intake rate and RSC to calculate drinking water HBVs is not adequate to address the bioaccumulative nature and known or presumed developmental toxicity of PFAS. These traditional equations do not consider the PFAS body-burden at birth or any transfer of maternal PFAS through breastmilk. To better address these concerns, and to also account for higher early-life intake rates, the Goeden et al. (2019) simple one-compartment toxicokinetic model was used where the data were available for the individual PFAS. The resulting drinking water HBVs are considered protective for an infant exclusively breast-fed for 12 months, followed by drinking contaminated water through life. Additionally, these drinking water HBVs also protective for formula-fed infants. Where data were not available to derive drinking water HBVs using the model, traditional equations were used.

Confidence Statement

Following USEPA guidance (2002), risk assessments may contain a narrative description of the overall confidence in the derived health-effects based values. Confidence in the risk assessment would be low if there is a high degree of scientific uncertainty and would be high if there is a low degree of scientific uncertainty. Major elements of scientific uncertainty may be considered to include, but not limited to, the following; database completeness, quality of key study(ies), severity and relevance of the critical effect, quality of the dose-response analysis and consideration of sensitive subpopulations. (NRC, 2009; Beck et al., 2016).

For the selected PFAS for which quantitative values were derived there remains significant scientific uncertainty. Health outcomes due to PFAS exposure that warrant additional study include, but are not limited to, endocrine disruption, immunological and neurodevelopmental effects as well as cancer. Further information is needed on the mode of action as well as the cumulative risk of exposure to multiple PFAS. Overall, the present evaluation of the selected PFAS is based on sound science and current practices in risk assessment; however, the Workgroup recognizes that the science of PFAS is constantly evolving and new information may come to light that requires a re-evaluation of the drinking water HBVs established herein.

PFAS Chemical Summary Sheets

Chemical Summary for PFNA

9/2024 10:10:36 AM

| | Decision Point | Rationale/Justification |
|-----------------------------------|--|--|
| Critical study | Das KP, Grey BE, Rosen MB, et al. 2015. Developmental toxicity of perfluorononanoic acid in mice. <i>Reproductive Toxicology</i> 51:133-144. | The Workgroup reviewed the available evaluations and focused on the assessments by ATSDR and New Jersey. Das et al. (2015) was selected by both ATSDR (2018) and NJDEP (2015). |
| Description of the critical study | Timed-pregnant CD-1 mice were administered 0, 1, 3, 5 or 10 mg/kg PFNA by daily oral gavage from gestational day (GD) 1 to 17. Maternal toxicity and reproductive outcomes were investigated. Postnatal toxicity, liver gene expression and developmental effects were evaluated in mouse offspring. <i>Body weight endpoints</i> – Decreased body weight gain in mouse pups <i>Developmental endpoints</i> – Delayed eye opening, preputial separation, and vaginal opening in mouse pups | The Workgroup reviewed the health endpoints investigated in Das et al. (2015) and identified the developmental endpoints as more relevant than liver endpoints. |
| Point of Departure (POD) | A NOAEL of 1 mg/kg/day was identified for developmental effects. The average serum concentration for NOAEL (1 mg/kg/day) was estimated (6.8 mg/L) in dams using an empirical clearance model (Wambaugh et al., 2013). The estimated time-weighted average serum concentration corresponding to the NOAEL was 6.8 mg/L. | The Workgroup decided that serum-based points of departure were appropriate for PFAS. |
| Human equivalent dose (HED) | The time-weighted average serum concentration of 6.8 mg/L was converted to the HED using the below equation. $NOEL_{HED} = (TWA \text{ serum} \times k_e \times V_d) = 0.000665 \text{ mg/kg/day}$ $k_e = 0.000489165 (4.8 \times 10^{-4}) \text{ based on a human serum half-life of 1417 days (calculated from Zhang et al. [2013] as described above)}$ $V_d = 0.2 \text{ L/kg (ATSDR [2018]; Ohmori et al. [2003])}$ | The Workgroup discussed the human serum half-lives available from Zhang et al. (2013), which were an arithmetic mean of 2.5 years (913 days) for 50 year old or younger females and 4.3 years (1570 days) for females older than 50 years old and all males. An average of 3.9 years (1417 days) was calculated based on those averages. The Workgroup selected the calculated average as it would better represent the entire population. |
| Uncertainty factors | A total uncertainty factor of 300: <ul style="list-style-type: none"> • 1 for LOAEL to NOAEL • 10 for human variability • 3 (10^{0.5}) for animal to human variability • 1 for subchronic to chronic • 10 for database deficiencies was used. | The Workgroup discussed the uncertainty factors selected by ATSDR (2018) and agreed that those selected were appropriate. |

| | | |
|--|---|---|
| <p>Toxicity value</p> | <p>2.2 ng/kg/day (2.2×10^{-6} mg/kg/day) which corresponds to a serum concentration of 0.023 mg/L</p> <p>Serum levels used in development of these toxicity levels are not meant to indicate a level where health effects are likely. These serum levels are calculated to be at a point where no or minimal risk exists for people drinking water with a certain PFAS.</p> | <p>Human equivalent dose or serum level divided by the total uncertainty factors = toxicity value</p> |
| <p>Exposure parameters for drinking water screening HBVs</p> | <p>Breast-fed infant, which is also protective of a formula-fed infant Placental transfer of 69% (MDHHS 2019) Breastmilk transfer of 3.2% (MDHHS 2019) Half-life = 1417 days (3.9 years) (calculated from Zhang et al. [2013] as described above) Volume of distribution = 0.2 L/kg (ATSDR [2018]; Ohmori et al. [2003])</p> <p>95th percentile drinking water intake, consumers only, from birth to more than 21 years old (Goeden et al. [2019]) Upper percentile (mean plus two standard deviations) breast milk intake rate (Goeden et al. [2019]) Time-weighted average water ingestion rate from birth to 30-35 years of age (to calculate maternal serum concentration at delivery) (Goeden et al. [2019])</p> <p>Relative Source Contribution of 50% (0.5) Based on NHANES 95th percentiles for 3-11 (2013-2014) and over 12 years old (2015-2016) participants (CDC 2019)</p> | <p>The Workgroup discussed the Goeden et al. (2019) model which considered full life stage exposure, from fetal exposure, to infant exposure through breastfeeding, and into adulthood. While the model was also developed for a formula-fed infant, the breastfed infant scenario is protective of a formula-fed infant. The Workgroup selected this model for developing drinking water HBVs when the needed inputs were available.</p> |
| <p>Drinking water HBV</p> | <p>6 ng/L (ppt)</p> | <p>Numeric HBV derived and justified using the above information</p> |

Chemical Summary for PFOA

9/2024 10:03:55AM

| | Decision point | Rationale/justification |
|-----------------------------------|--|---|
| Critical study | <p>Onishchenko N, Fischer C, Wan Ibrahim WN, Negri S, Spulber S, Cottica D, Ceccatelli S. 2011. Prenatal exposure to PFOS or PFOA alters motor function in mice in a sex-related manner. <i>Neurotox. Res.</i> 19(3):452-61.</p> <p>Koskela A, Finnilä MA, Korkalainen M, Spulber S, Koponen J, Håkansson H, Tuukkanen J, Viluksela M. 2016. Effects of developmental exposure to perfluorooctanoic acid (PFOA) on long bone morphology and bone cell differentiation. <i>Toxicol. Appl. Pharmacol.</i> 301:14-21.</p> | <p>The Workgroup reviewed the available evaluation and selected the ATSDR (2018) critical studies. The Workgroup concluded that the ATSDR position was defensible with respect to range and sensitivity of health endpoints identified and considered in ATSDR (2018).</p> |
| Description of the critical study | <p>Onishchenko et al.: Pregnant C57BL/6 mice were exposed to 0 or 0.3 mg PFOA/kg/day throughout pregnancy. The critical effects considered were Neurobehavioral effects (decreased number of inactive periods, altered novelty induced activity) at 5-8 weeks of age.</p> <p>Koskela et al.: Pregnant C57BL/6 mice were exposed to PFOA mixed with food at the dose of 0 or 0.3 mg PFOA/kg/day throughout pregnancy. Group of five offspring (female) were sacrificed at either 13 or 17 months of age. The critical effects considered were skeletal alteration such as bone morphology and bone cell differentiation in the femurs and tibias.</p> | <p>The Workgroup selected these developmental delays as most appropriate health endpoint as the mammary gland effects may represent a delay that may not be considered adverse. However, the mammary gland effects may be representative of endocrine effects at doses below the selected POD.</p> |
| Point of Departure | <p>The average serum concentration was estimated in the mice (8.29 mg/L) using a three-compartment pharmacokinetic model (Wambaugh et al. 2013) using animal species-, strain-, sex-specific parameters.</p> | <p>The Workgroup decided that serum-based points of departure were appropriate for PFAS.</p> |
| Human equivalent dose | <p>The time-weighted average serum concentration of 8.29 mg/L was converted to the HED using the below equation.</p> $LOAEL_{HED} = (TWA_{serum} \times k_e \times V_d) = 0.001163 \text{ mg/kg/day}$ <p>$k_e = 0.000825175 (8.2 \times 10^{-4})$ based on a human serum half-life of 840 days (Bartell et al. 2010)</p> <p>$V_d = 0.17 \text{ L/kg}$ (Thompson et al. 2010)</p> | <p>The Workgroup selected the PFOA serum half-life of 840 days (2.3 years) as more relevant for exposure to the general population as this half-life corresponds to data from Bartell et al. (2010) in which 200 individuals (100 men, 100 women) were exposed by drinking PFOA-contaminated water.</p> <p>The Workgroup selected the volume of distribution based on human data, when available.</p> |

| | | |
|--|--|---|
| <p>Uncertainty factors</p> | <p>A total uncertainty factor of 300:</p> <ul style="list-style-type: none"> • 3 (10^{0.5}) for LOAEL to NOAEL • 10 for human variability • 3 (10^{0.5}) for animal to human variability • 1 for subchronic to chronic • 3 (10^{0.5}) for database deficiencies (endocrine effects) | <p>The Workgroup discussed the use of an uncertainty factor of 3 for use of a LOAEL. They noted that a NOAEL for immune effects was similar to the LOAEL selected and that the selected LOAEL represented less severe effects. The Workgroup concluded that use of the 3 (10^{0.5}) would be sufficiently protective.</p> <p>The Workgroup added a database uncertainty factor of 3 (10^{0.5}) for deficiencies the database regarding endocrine effects. The Workgroup noted that the mammary gland effects may signal a concern for other low dose endocrine effects.</p> |
| <p>Toxicity value</p> | <p>3.9 ng/kg/day (3.9 x 10⁻⁶ mg/kg/day) which corresponds to a serum concentration of 0.028 mg/L</p> <p>Serum levels used in development of these toxicity levels are not meant to indicate a level where health effects are likely. These serum levels are calculated to be at a point where no or minimal risk exists for people drinking water with a certain PFAS.</p> | <p>Human equivalent dose or serum level divided by the total uncertainty factors = toxicity value</p> |
| <p>Exposure parameters for drinking water HBVs</p> | <p>Breast-fed infant, which is also protective of a formula-fed infant Placental transfer of 87% (MDH 2017) Breastmilk transfer of 5.2% (MDH 2017) Human Serum half-life of 840 days (Bartell et al. 2010) Volume of distribution of 0.17 L/kg (Thompson et al. [2010])</p> <p>95th percentile drinking water intake, consumers only, from birth to more than 21 years old (Goeden et al. [2019]) Upper percentile (mean plus two standard deviations) breast milk intake rate (Goeden et al. [2019]) Time-weighted average water ingestion rate from birth to 30-35 years of age (to calculate maternal serum concentration at delivery) (Goeden et al. [2019])</p> <p>Relative Source Contribution of 50% (0.5) Based on NHANES 95th percentiles for 3-11 (2013-2014) and over 12 years old (2015-2016) participants (CDC 2019)</p> | <p>The Workgroup discussed the Goeden et al. (2019) model which considered full life stage exposure, from fetal exposure, to infant exposure through breastfeeding, and into adulthood. While the model was also developed for a formula-fed infant, the breastfed infant scenario is protective of a formula-fed infant. The Workgroup selected this model for developing drinking water HBVs when the needed inputs were available.</p> |
| <p>Drinking water HBV</p> | <p>8 ng/L (ppt)</p> | <p>Numeric HBV derived and justified using the above information</p> |

Chemical Summary for PFHxA

9/2024 10:03 AM

| | Decision point | Rationale/justification |
|-----------------------------------|---|---|
| Critical study | Klaunig, J.E., Shinohara, M., Iwai, H., Chengelis, C.P., Kirkpatrick, J.B., Wang, Z., Bruner, R.H., 2015. Evaluation of the chronic toxicity and carcinogenicity of perfluorohexanoic acid (PFHxA) in Sprague-Dawley rats. <i>Toxicol. Pathol.</i> 43 (2), 209–220. | The Workgroup reviewed the Luz et al. (2019) compiled information and development of a toxicity value. The Workgroup was in agreement with Luz et al. (2019) on selection of the chronic study (Klaunig et al. 2015) for toxicity value development. |
| Description of the critical study | PFHxA was administered to male and female Crl:CD rats (n=60-70/sex/dose) via daily oral gavage for up to 104 weeks. Males: 0, 2.5, 15, and 100 mg/kg/day. Females: 0, 5, 30, and 200 mg/kg/day. Functional observational battery, locomotor activity, ophthalmic, hematology, serum chemistry, and tissue and organ histopathology endpoints were evaluated. | The Workgroup also considered the developmental effects observed in Loveless et al. (2009) one generation reproductive assay. Pup body weight was significantly reduced in the 500 mg/kg/day, resulting in NOAEL of 100 mg/kg/day. Data were not available for Benchmark Dose Modeling for further evaluation. |
| Point of Departure | Critical effect renal tubular degeneration and renal papillary necrosis in female rats – BMDL ₁₀ 90.4 mg/kg/day (Luz et al., 2019). | The Workgroup noted that the Benchmark Dose approach is preferred over the use of a NOAEL/LOAEL. |
| Human equivalent dose | Therefore, the BMD was adjusted by $(80\text{kg}/0.45\text{ kg})^{0.75} = 3.65$. The resulting POD _{HED} (90.4 mg/kg/day divided by 3.65) = 24.8 mg/kg/day. (Luz et al., 2019). | The Workgroup discussed the description of the Benchmark Dose modeling conducted by Luz et al. (2019) and concluded the modeling was adequate for use. The Workgroup did not conduct their own Benchmark Dose modeling. The Workgroup took into consideration the available serum half-life data presented in Russell et al. (2013) and concluded that, unlike most PFAS, allometric scaling could be supported. |
| Uncertainty factors | Total uncertainty factor of 300: <ul style="list-style-type: none"> • 1 for LOAEL to NOAEL • 10 for human variability • 3 (10^{0.5}) for animal to human variability • 1 for subchronic to chronic • 10 for database deficiencies – lack of additional chronic toxicity studies and no additional developmental data in a second species, and immune and thyroid endpoints | The Workgroup discussed the uncertainty factors and selected an uncertainty factor of 10 for database deficiencies. Several items noted were that the available studies were largely in one species, with no mouse or non-human primate data, and that there was insufficient information addressing immune or thyroid endpoints. |
| Toxicity value | 83,000 ng/kg/day (8.3 mg/kg/day) | Human equivalent dose divided by the total uncertainty factor = toxicity value |

| | | |
|--|---|--|
| <p>Exposure parameters for drinking water HBVs</p> | <p>95th percentile of water intake for consumers only (direct and indirect consumption) for adults (>21 years old) of 3.353 L/day, per Table 3-1, USEPA Exposure Factors Handbook, 2019.</p> <p>An adult body weight of 80 kilograms was used (Table 8-1, USEPA 2011b).</p> <p>A default Relative Source Contribution of 20% was included.</p> | <p>The Workgroup discussed the use of an upper percentile water intake. The 95th percentile for consumers only was selected as it would protect those drinking larger amounts of water.</p> <p>As no human serum data were available to assess the population's exposure to PFHxA from sources other than drinking water, a default Relative Source Contribution of 20% was selected consistent with USEPA (2000) guidance.</p> <p>The Workgroup evaluated the protectiveness of the renal tubular degeneration and renal papillary necrosis in relation to the reduced pup weights observed in Loveless et al. (2009). Available data did not support Benchmark Dose Modeling for further evaluation of Loveless et al. (2009) data.</p> |
| <p>Drinking water HBV</p> | <p>400,000 ng/L (ppt) (400 micrograms per Liter or parts per billion)</p> | <p>Numeric HBV derived and justified using the above information in the following equation:</p> $HBV = \frac{RSC \times Toxicity\ value \times Body\ weight}{Water\ intake}$ |

Chemical Summary for PFOS

9/2024 10:03:56 AM

| | Decision point | Rationale/justification |
|-----------------------------------|--|--|
| Critical study | Dong GH, Zhang YH, Zheng L, Liu W, Jin YH, He QC. (2009). Chronic effects of perfluorooctanesulfonate exposure on immunotoxicity in adult male C57BL/6 mice. Arch Toxicol. 83(9):805-815. | The Workgroup discussed the available evaluations, particularly MDH (2019) and New Jersey Department of Environmental Protection (NJDEP) (2018), and selected a critical study with an immune system functional assay rather than observational data. |
| Description of the critical study | Adult male C57BL/6 mice were exposed to PFOS daily via oral gavage for 60 days with 0, 0.5, 5, 25, 50 or 125 mg/kg total administered dose, equivalent to 0 or approximately 0.008, 0.08, 0.4, 0.8 or 2.1 mg/kg/day. The NOAEL for suppression of plaque forming cell response and increase in liver mass was 0.5 mg/kg total administered dose which corresponded to a serum concentration of 0.674 mg/L. | The Workgroup acknowledged that immune effects in mice were seen at lower doses in Peden-Adams et al. (2008). Serum concentrations from Peden-Adams et al. (2008) were well below both the NOAEL and LOAEL serum concentrations measured from several other studies as described by Pachkowski et al. (2019) and may be an outlier in the database. |
| Point of Departure | The NOAEL for suppression of plaque forming cell response and increase in liver mass was 0.5 mg/kg total administered dose which corresponded to a serum concentration of 0.674 mg/L. | The Workgroup decided that serum-based points of departure were appropriate for PFAS. |
| Human equivalent dose | The serum concentration of 0.674 mg/L was converted to the HED using the below equation (based on ATSDR 2018). $NOAEL_{HED} = (TWA \text{ serum} \times k_e \times V_d) = 0.0000866 \text{ mg/kg/day}$ $Ke = 0.000558539 (5.5 \times 10^{-4})$ based on a human serum half-life of 1241 days (Li et al. 2018) $Vd = 0.23 \text{ L/kg}$ (Thompson et al. 2010) | The Workgroup selected the serum half-life from a non-occupationally exposed population as it is closer to the general population's exposure. The Workgroup selected volume of distributions based on human data, when available. |
| Uncertainty factors | A total uncertainty factor of 30: <ul style="list-style-type: none"> • 1 for LOAEL to NOAEL • 10 for human variability • 3 ($10^{0.5}$) for animal to human difference (toxicodynamics) • 1 for subchronic to chronic • 1 for database deficiencies | The Workgroup reviewed the uncertainty factors selected by MDH (2019) and adjusted the database uncertainty factor to 1 based on the critical study selection. With consideration of the selected immunotoxicity endpoint, the database uncertainty factor of 1 was supported by the assessments by USEPA (2016), NJDEP (2018), ATSDR (2018) and New Hampshire (2019). |

| | | |
|---|--|---|
| <p>Toxicity value</p> | <p>2.89 ng/kg/day (2.89×10^{-6} mg/kg/day) which corresponds to a serum concentration of 0.022 µg/ml</p> <p>Serum levels used in development of these toxicity levels are not meant to indicate a level where health effects are likely. These serum levels are calculated to be at a point where no or minimal risk exists for people drinking water with a certain PFAS.</p> | <p>Human equivalent dose of serum level divided by the total uncertainty and modifying factors = toxicity value</p> |
| <p>Exposure parameters for drinking water HBV</p> | <p>Breast-fed infant, which is also protective of a formula-fed infant Placental transfer of 43% (MDHHS 2019) Breastmilk transfer of 1.3% (MDHHS 2019) Human serum half-life of 1241 days (3.2 years) (Li et al. 2018) Volume of distribution of 0.23 L/kg (Thompson et al. 2010)</p> <p>95th percentile drinking water intake, consumers only, from birth to more than 21 years old (Goeden et al. [2019]) Upper percentile (mean plus two standard deviations) breast milk intake rate (Goeden et al. [2019]) Time-weighted average water ingestion rate from birth to 30-35 years of age (to calculate maternal serum concentration at delivery) (Goeden et al. [2019])</p> <p>Relative Source Contribution of 50% Based on NHANES 95th percentiles for 3-11 (2013-2014) and over 12 years old (2015-2016) participants (CDC 2019)</p> | <p>The Workgroup discussed the Goeden et al. (2019) model which considered full life stage exposure, from fetal exposure, to infant exposure through breastfeeding, and into adulthood. While the model was also developed for a formula-fed infant, the breastfed infant scenario is protective of a formula-fed infant. The Workgroup selected this model for developing drinking water HBVs when the needed inputs were available.</p> |
| <p>Drinking water HBV</p> | <p>16 ng/L (ppt)</p> | <p>Numeric HBV derived and justified using the above information</p> |

Chemical Summary for PFHxS

9/2024 10:01:36AM

| | Decision point | Rationale/justification |
|-----------------------------------|--|--|
| Critical study | NTP 2018 TOX-96: Toxicity Report Tables and Curves for Short-term Studies: Perfluorinated Compounds: Sulfonates and personal communication between MDH and NTP project manager Dr. Chad Blystone (as cited in the HRA Toxicology Review Worksheet for PFHxS, last revised 3/8/2019) | The Workgroup reviewed available evaluations and focused on the ones from Minnesota Department of Health (2019) and ATSDR (2018). In both evaluations, thyroid endpoints were selected. The Workgroup discussed Chang et al. (2018) and concluded that the health outcome (reduction in litter size) was a marginal effect. |
| Description of the critical study | 28-day oral toxicity study in Sprague Dawley rats (NTP, 2018). PFHxS was administered via daily gavage at the following doses for 28 continuous days: Male rats: 0, 0.625, 1.25, 2.5, 5 or 10 mg/kg/day Male rats mean measured plasma levels: 0.102, 66.76, 92.08, 129.0, 161.7, and 198.3 µg/ml Female rats: 0, 3.12, 6.25, 12.5, 25, 50 mg/kg/day Female rats mean measured plasma levels: 0.1754, 37.03, 50.41, 63.82, 83.82, and 95.51 µg/ml n=10/sex/dose Critical effect: decreased serum free thyroxin (T ₄) levels was observed in adult male rats at the lowest PFHxS dose administered (0.625 mg/kg/day) Co-critical effects: decreased free and total T ₄ , triiodothyronine (T ₃), and changes in cholesterol levels and increased hepatic focal necrosis | The Workgroup selected this thyroid endpoint as it was a measure of a clinical or functional effect rather than observational. |
| Point of Departure | POD of 32.4 mg/L serum concentration for male rats based on BMDL ₂₀ . A BMR of 20% was used in the BMD modeling based on clinical and toxicological knowledge regarding adverse outcomes associated with decreases in circulating thyroid hormones. MDH stated that 20% provided a more statistically reliable and biologically significant BMR. (MDH conducted Benchmark Dose modeling and provided modeling run data in the HRA Toxicology Review Worksheet for PFHxS, last revised 3/8/2019. | The Workgroup decided that serum-based points of departure were appropriate for PFAS. Although the Workgroup concluded that the Chang et al. (2018) health outcome was marginal, they did note that the serum concentration at the NOAEL for Chang et al. (2018) was equivalent to the serum concentration at the selected POD. |
| Human equivalent dose | The POD (32.4 mg/L) was multiplied by a toxicokinetic adjustment based on the chemical's specific clearance rate of 0.000090 L/kg-d (Vd = 0.25 L/kg [Sundstrom et al. [2012], half-life = 1935 days [Li et al. 2018]) for a human equivalent dose of 0.00292 mg/kg/day. | The Workgroup selected the human serum half-life from Li et al. (2018) as it was a non-occupational population drinking water with elevated PFAS. |

| | | |
|---|---|---|
| <p>Uncertainty factors</p> | <p>Total Uncertainty Factor of 300</p> <ul style="list-style-type: none"> • 1 for LOAEL to NOAEL • 10 for human variability • 3 (10^{0.5}) for animal to human variability (toxicodynamic differences) • 1 for subchronic to chronic • 10 for database deficiencies - to address concerns for early life sensitivity and lack of 2-generation or immunotoxicity studies | <p>The Workgroup reviewed the uncertainty factors used by MDH (2019) and concluded that the database uncertainty factor of 10 was very defensible in this situation, especially for the lack of information on early-life sensitivity.</p> |
| <p>Toxicity value</p> | <p>9.7 ng/kg/day (9.7 x 10⁻⁶ mg/kg/day) which corresponds to a serum concentration of 0.11 µg/ml</p> <p>Serum levels used in development of these toxicity levels are not meant to indicate a level where health effects are likely. These serum levels are calculated to be at a point where no or minimal risk exists for people drinking water with a certain PFAS.</p> | <p>Human equivalent dose or serum level divided by the total uncertainty factors = toxicity value</p> |
| <p>Exposure parameters for drinking water HBV</p> | <p>Breast-fed infant, which is also protective of a formula-fed infant Placental transfer of 80% (MDHHS 2019) Breastmilk transfer of 1.2% (MDHHS 2019) Human serum half-life of 1935 days (Li et al. [2018]) Volume of distribution of 0.25 L/kg (MDH [2019] based on Sundstrom et al. [2012])</p> <p>95th percentile drinking water intake, consumers only, from birth to more than 21 years old (Goeden et al. [2019]) Upper percentile (mean plus two standard deviations) breast milk intake rate (Goeden et al. [2019]) Time-weighted average water ingestion rate from birth to 30-35 years of age (to calculate maternal serum concentration at delivery) (Goeden et al. [2019])</p> <p>Relative Source Contribution of 50% (0.5) Based on NHANES 95th percentiles for 3-11 (2013-2014) and over 12 years old (2015-2016) participants (CDC 2019)</p> | <p>The Workgroup discussed the Goeden et al. (2019) model which considered full life stage exposure, from fetal exposure, to infant exposure through breastfeeding, and into adulthood. While the model was also developed for a formula-fed infant, the breastfed infant scenario is protective of a formula-fed infant. The Workgroup selected this model for developing drinking water HBVs when the needed inputs were available.</p> |
| <p>Drinking water HBV</p> | <p>51 ng/L (ppt)</p> | <p>Numeric HBV derived and justified using the above information</p> |

Chemical Summary for PFBS

9/2024 10:03:35AM

| | Decision point | Rationale/justification |
|-----------------------------------|---|--|
| Critical study | Feng, X; Cao, X; Zhao, S; Wang, X; Hua, X; Chen, L; Chen, L. (2017). Exposure of pregnant mice to perfluorobutanesulfonate causes hypothyroxinemia and developmental abnormalities in female offspring. <i>Toxicol Sci</i> 155: 409-419. | The Workgroup evaluated available agency decision documents and selected the study associated with the draft USEPA (2018) PFBS toxicity value based on thyroid effects. The kidney effects identified in the draft USEPA (2018) toxicity assessment were identified as a potentially compensatory response. The thyroid effects were identified as having greater functional significance. |
| Description of the critical study | PFBS was orally administered to pregnant ICR mice (n=30/dose) at doses of 0, 50, 200, and 500 mg/kg/day from gestational day (GD) 1 to GD20. Dams (F0) and female offspring (F1) from each dose group were subsequently evaluated for 1) growth and development, 2) hormone levels, and 3) serum PFBS levels. The critical effect is decreased serum total thyroxine (T ₄) in newborn (PND 1) mice. Selection of total T ₄ as the critical effect is based on a several key considerations that account for cross-species correlations in thyroid physiology and hormone dynamics particularly within the context of a developmental life stage. | |
| Point of Departure | A POD of 28.19 mg/kg/day (BMDL ₂₀) for decreased serum total T ₄ in newborn (PND 1) mice was selected | <p>The Workgroup noted that a Benchmark Dose approach is preferable to a NOAEL/LOAEL.</p> <p>The Workgroup noted that the thyroid point of departure would be protective of the kidney effects as well.</p> <p>The draft USEPA (2018) toxicity assessment contained administered doses from the individual studies converted to HED doses using study-specific Dosimetric Adjustment Factors (DAF; not reported for each dosing group) derived using allometric scaling ($BW^{3/4}$) prior to BMD model analysis.</p> <p>An example DAF calculation was provided in Table 8 of the draft USEPA (2018) toxicity assessment: $dose \times DAF = 200 \times 0.149 = 29.9 \text{ mg/kg/day}$, where DAF equals $(BW_{\text{animal}}^{1/4}) / (BW_{\text{human}}^{1/4}) = 0.0399^{1/4} \div 80^{1/4} = 0.149$</p> <p>The $POD_{\text{HED}} = 4.2 \text{ mg/kg/day}$ for decreased serum total T₄ in newborn (PND 1) mice (USEPA 2018). The USEPA POD_{HED} of 4.2 was divided by 0.149 (USEPA example DAF) to obtain a BMDL₂₀ of 28.19 mg/kg/day.</p> |

9/2024 Final Comment

| | | |
|--|--|--|
| Human equivalent dose | <p>The BMDL₂₀-HED is 0.0892 mg/kg/day.</p> <p>The BMDL₂₀ of 28.19 mg/kg/day was divided by the Dose Adjustment Factor of 316 (human serum half-life/female mouse serum half-life = 665 hours/2.1 hours = 316) (MDH, 2017).</p> | <p>The Workgroup evaluated the half-life based Dose Adjustment Factor used by the Minnesota Department of Health (MDH) (2017). As that allowed conversion of the point of departure to a human equivalent dose using chemical-specific information, the Workgroup selected this approach over the allometric scaling used in the draft USEPA (2018) PFBS toxicity assessment.</p> |
| Uncertainty factors | <p>The total uncertainty factor is 300.</p> <ul style="list-style-type: none"> • 1 for LOAEL to NOAEL • 10 for human variability • 3 (10^{0.5}) for animal to human variability • 1 for subchronic to chronic • 10 for database deficiencies, for the lack of neurodevelopmental, immunotoxicological, and chronic studies | <p>The Workgroup discussed the uncertainty factors selected in the draft USEPA (2018) toxicity assessment and supported their use.</p> |
| Toxicity value | 300 ng/kg/day (0.0003 mg/kg/day) | Human equivalent dose or serum level divided by the total uncertainty factors = toxicity value |
| Exposure parameters for drinking water HBV | <p>95th percentile of water intake for consumers only (direct and indirect consumption) for infants (birth to <1 year old) of 1.106 L/day, per Table 3-1, USEPA Exposure Factors Handbook, 2019.</p> <p>An infant body weight of 7.8 kilograms was used and represents a time-weighted average for birth to 1 year old (Table 8-1, USEPA 2011).</p> <p>A default Relative Source Contribution of 20% was included.</p> | <p>The Workgroup discussed the use of an upper percentile water intake. The 95th percentile for consumers only was selected as it would protect those drinking larger amounts of water.</p> <p>As insufficient human serum data was available to assess the population's exposure to PFBS from sources other than drinking water, a default Relative Source Contribution of 20% was selected consistent with USEPA (2000) guidance.</p> |
| Drinking water HBV | 420 ng/L (ppt) | <p>Numeric HBV derived and justified using the above information in the following equation:</p> $HBV = \frac{RSC \times Toxicity\ value \times Body\ weight}{Water\ intake}$ |

Chemical Summary for GenX

9/2024 10:03:35 AM

| | Decision point | Rationale/justification |
|-----------------------------------|---|--|
| Critical study | Oral (Gavage) Reproduction/ Developmental Toxicity Study in Mice (OECD TG 421; modified according to the Consent Order) DuPont-18405-1037 (2010) (also contains 90-day toxicity study information and outcomes - that information is not described here) | The Workgroup evaluated the North Carolina Department of Health and Human Services (2017) and draft USEPA (2018) information. The draft USEPA (2018) evaluation was identified as providing a more in-depth and robust analysis and approach. |
| Description of the critical study | <p>In a combined oral gavage reproductive/developmental toxicity study in mice with HFPO dimer acid ammonium salt, the test compound was administered by oral gavage to CrI:CD1(ICR) mice (25/sex/group) at doses of 0, 0.1, 0.5, or 5 mg/kg/day, according to a modified OECD TG 421. Parental F0 males were dosed 70 days prior to mating and throughout mating through 1 day prior to scheduled termination. Parental F0 females were dosed for 2 weeks prior to pairing and were dosed through LD 20. F1 animals (offspring) were dosed daily beginning on PND 21 through PND 40.</p> <p>At 0.5 mg/kg/day, liver effects (increased absolute and relative weight and histopathologic findings) were reported in both males and females.</p> <p>At 5 mg/kg/day, male and female F1 pups exhibited lower mean BWs at PNDs 4, 7, 14, 21, and 28. Male F1 pups continued to exhibit lower mean BWs at PNDs 35 and 40. The USEPA (2018) identified additional developmental effects (delays in balanopreputial separation and vaginal patency) that occurred at the same dose level, but the biological significance of these effects are equivocal as described. NOAEL (F0) = 0.1; LOAEL (F0) = 0.5 for liver effects (single-cell necrosis in males, and increased relative liver weight in both sexes). NOAEL (F1) = 0.5 for developmental effects (decreased pup weights).</p> | The Workgroup noted that while primarily industry-funded studies are the only ones available, they followed recognized testing guidelines and/or were published following external peer-review. These studies appear to be sufficient for developing values. |

| | | |
|-----------------------|--|---|
| Point of Departure | BMDL ₁₀ = 0.15 mg/kg/day for liver single cell necrosis in parental males (DuPont-18405-1037, 2010). | <p>The Workgroup noted that the Benchmark Dose approach is preferred over the use of a NOAEL/LOAEL.</p> <p>USEPA (2018) evaluated the relevance of this endpoint in humans and noted that, per the Hall criteria (Hall et al., 2012) liver effects accompanied by effects such as necrosis or inflammation, among others, are indicative of liver tissue damage (USEPA 2018).</p> <p>While some liver effects in rodents are mediated through PPARα and may be less relevant to humans, available information indicates that liver single cell necrosis may be mediated by a number of processes and pathways. In PPARα-mediated rodent hepatocarcinogenesis, liver necrosis is not a key event. (DeWitt and Belcher, 2018)</p> |
| Human equivalent dose | A candidate POD _{HED} was derived from the BMDL ₁₀ for liver effects using a BW ^{3/4} allometric scaling approach. A BW _a of 0.0372 kg was identified as the mean BW of the F0 male mouse controls. A BW _h of 80 kg for humans was selected. The resulting DAF for the allometric scaling of doses from mice to humans is 0.15. Using the BMDL ₁₀ of 0.15 mg/kg/day to complete the calculation results in a POD _{HED} for single-cell necrosis of the liver from DuPont-18405-1037 (2010) of 0.023 mg/kg/day (USEPA 2018). | The Workgroup noted that a toxicokinetic adjustment from the point of departure to human equivalent dose would provide a chemical-specific conversion. However, no chemical-specific data on human serum half-life was available that would allow this conversion. Allometric scaling, per USEPA (2011a) guidance, was used. |
| Uncertainty factors | <p>Total Uncertainty Factor of 300</p> <ul style="list-style-type: none"> • 1 for use of a LOAEL to NOAEL • 10 for human variability • 3 (10^{0.5}) for animal to human variability • 3 (10^{0.5}) for subchronic-to-chronic • 3 (10^{0.5}) for database deficiencies, including lack of epidemiological, and developmental and immunotoxicological studies in laboratory animals | The Workgroup evaluated the uncertainty factors selected by USEPA (2018). Given the deficiencies in the database, including a lack of epidemiological studies and developmental and immunotoxicological in laboratory animals, a database uncertainty factor of 3 was retained. In conjunction with the deficiencies covered by the database uncertainty factor, the subchronic to chronic uncertainty factor of 3 was identified as sufficient. |
| Toxicity value | 77 ng/kg/day (7.7 x10 ⁻⁵ mg/kg/day) | Human equivalent dose or serum level divided by the total uncertainty = toxicity value |

| | | |
|---|--|---|
| <p>Exposure parameters for drinking water HBV</p> | <p>95th percentile of water intake for consumers only (direct and indirect consumption) for adults (>21 years old) of 3.353 L/day, per Table 3-1, USEPA Exposure Factors Handbook, 2019.</p> <p>An adult body weight of 80 kilograms was used (Table 8-1, USEPA 2011b).</p> <p>A default Relative Source Contribution (RSC) of 20% was included.</p> | <p>The Workgroup discussed the use of an upper percentile water intake. The 95th percentile for consumers only was selected as it would protect those drinking larger amounts of water.</p> <p>As no human serum data was available to assess the population's exposure to GenX from sources other than drinking water, a default Relative Source Contribution of 20% was selected consistent with USEPA (2000) guidance.</p> <p>The Workgroup evaluated the protectiveness of adult exposure in combination with the point of departure. The NOAEL for developmental effects described above was at a dose five times higher than the NOAEL for liver necrosis effects. As a drinking water value based on the developmental NOAEL would be higher than the level presented below, the Workgroup decided that the drinking water HBV below based on liver effects would be sufficiently conservative to be protective of infant exposure.</p> |
| <p>Drinking water HBV</p> | <p>370 ng/L (ppt)</p> | <p>Numeric HBV derived and justified using the above information in the following equation:</p> $HBV = \frac{RSC \times Toxicity\ value \times Body\ weight}{Water\ intake}$ |

Rationale for Individual HBVs

While there are on-going discussions regarding the grouping of multiple PFAS into one drinking water value, there is no consensus from the scientific community on which PFAS should be grouped or the basis of that grouping. Grouping methods that have been applied include combining multiple PFAS into one number based on known or assumed toxicity, carbon chain length, and/or biological half-life (simple addition) as well as the use of relative ability of the grouped PFAS to lead to a comparable health endpoint (toxic equivalency); the latter approach being similar to those used for dioxins, furans, and coplanar polychlorinated biphenyls.

There is, however, scientific agreement that the long-chain PFAS (eight carbons and above for carboxylates and six carbons and above for sulfonates) have similar toxicity. Based on the similarity in toxicity for the long-chain PFAS, the Workgroup recommends use of the HBV for PFNA (6 ng/L [ppt]) as a screening level for all other long-chain PFAS included on the USEPA Method 537.1 analyte list for which the Workgroup did not develop an individual HBV. This screening level should not be used to evaluate the risk of developing health effects, but as a screening tool for EGLE/public water supplies to use for decision making.

Adverse health effects of long chain (six-carbon perfluorosulfonic acids or eight-carbon perfluorocarboxylic acids) have been established in epidemiological and laboratory animal model studies. These adverse health effects include kidney and testicular cancer, elevated serum cholesterol, endocrine effects, immune effects, and reproductive effects (ATSDR, 2018). These effects are supported by studies of different human populations exposed to a few or to many PFAS, including those from populations of high PFAS exposure and the general population and demonstrate that many different long-chain PFAS can produce similar adverse health effects in exposed humans. However, while not all long-chain PFAS have robust data available for the development of a HBV, the totality of evidence indicates that long-chain PFAS in drinking water may pose risks of adverse health effects.

While health concerns are based on the total exposure to PFAS across many sources, because drinking water is the predominant source of exposure for many people consuming contaminated water, it remains the focus for health-based regulation based on current knowledge. Therefore, monitoring of drinking water should continue and be based on levels that will be protective for exposure to all PFAS.

At this time, it is recommended that the proposed HBV for PFNA be used as a screening level for the long chain PFAS included in USEPA Method 537.1 that may be found in drinking water that are not covered by an individual PFAS HBVs as presented in the Summary Table of Drinking Water HBVs.

Summary of Conclusions

Summary Table of Drinking Water HBVs

| Specific PFAS | Drinking Water Health-based Value | Chemical Abstract Services Registry Number (CASRN) |
|---------------|-----------------------------------|--|
| PFNA | 6 ng/L (ppt) | 375-95-1 |
| PFOA | 8 ng/L (ppt) | 335-67-1 |
| PFHxA | 400,000 ng/L (ppt) | 307-24-4 |
| PFOS | 16 ng/L (ppt) | 1763-23-1 |
| PFHxS | 51 ng/L (ppt) | 355-46-4 |
| PFBS | 420 ng/L (ppt) | 375-73-5 |
| GenX | 370 ng/L (ppt) | 13252-13-6 |

For all other PFAS on the USEPA Method 537.1 analyte list, the Workgroup recommendation is to use the lowest long-chain (eight carbons and above for carboxylates and six carbons and above for sulfonates) HBV of 6 ppt, which is the HBV for PFNA. Those other long-chain PFAS included in USEPA Method 537.1 are: NEtFOSAA (CASRN: 2991-50-6); NMeFOSAA (CASRN: 2355-31-9); PFDA (CASRN: 335-76-2); PFD_oA (CASRN: 307-55-1); PFTA (CASRN: 376-06-7); PFT_rDA (CASRN: 72629-94-8); and PFUnA (CASRN: 2058-94-8).

As shown in Figure 1 (below), the drinking water values for PFOS and PFOA have gone down over time. This is a reflection of the evolving science, both the ever-increasing knowledge gained from published toxicology and epidemiology studies and the risk assessments for development of toxicity values and drinking water values. Information continues to become available on multiple PFAS and as there are thousands of PFAS, new information will likely become available for many years to come. It is quite possible that the same trend demonstrated in Figure 1 will be seen for other PFAS, where drinking water values become lower over time and that new values could be developed within a few years' time. As described in the Challenges and Limitations section, along with use of current scientific data, development of drinking water values includes a certain amount of scientific judgement informed from the scientific knowledgebase. It is that combination of scientific judgement and data that ultimately informs the development of drinking water values. With emerging contaminants like PFAS, rapid availability of data drives public health protective actions and drinking water values.

PFOS and PFOA

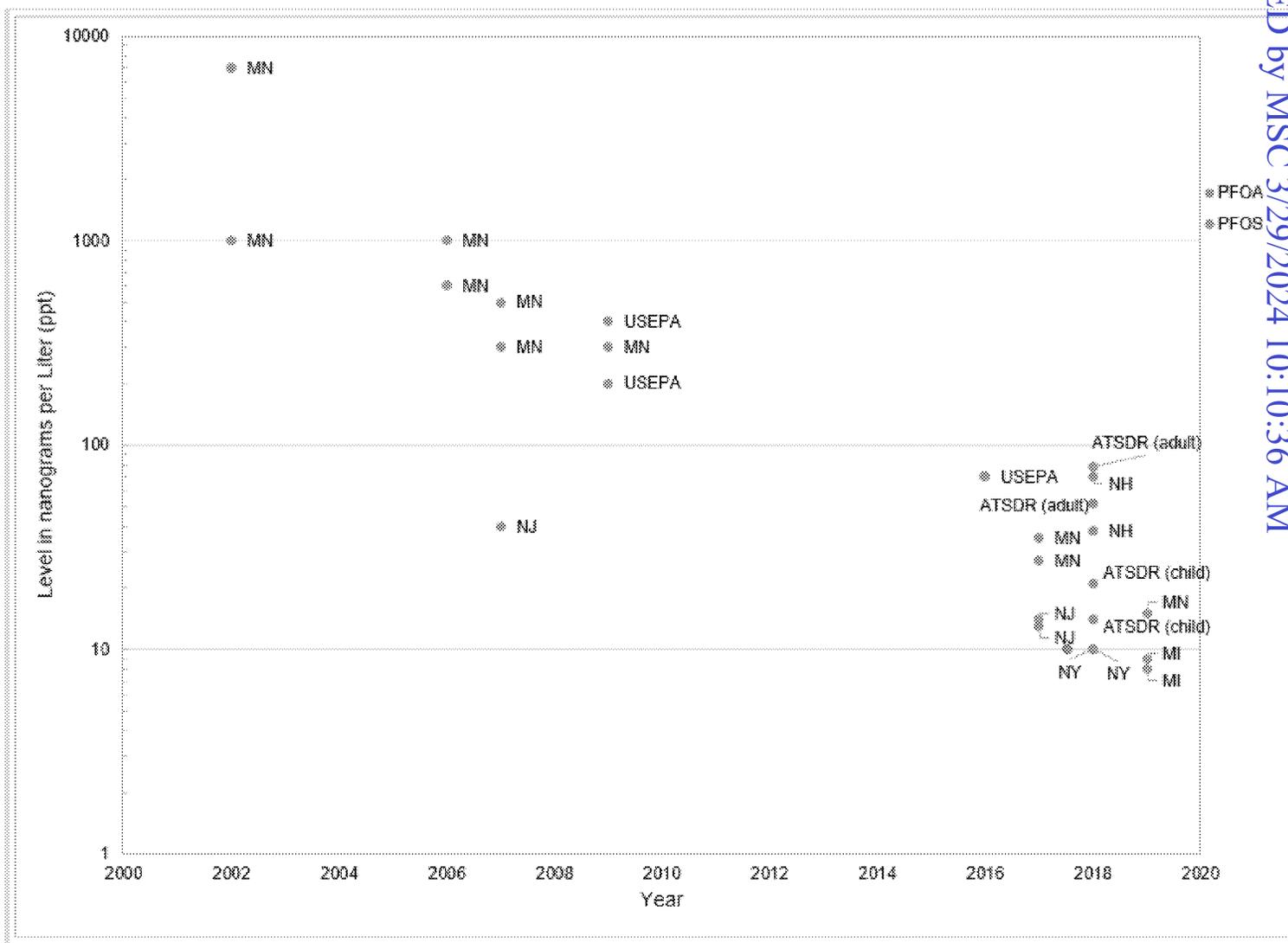


Figure 1: Screening Levels, Health-Based Values, and Regulatory Standards for PFOS and PFOA Over a 20-Year Timeframe.

The numbers in Figure 1 are the various screening levels, HBVs, and regulatory standards developed by various agencies and states over time as of June 2019. It does not include the agencies that include multiple PFAS into a single value. This should not be considered an exhaustive list of all PFAS drinking water values available, and values may be updated, and additional values will likely become available. The Michigan values included in Figure 1 are the MPART Human Health Workgroup public health drinking water screening levels.

Concluding Remarks

The Workgroup would like to commend the State of Michigan for addressing PFAS concerns with unusual rigor, openness, and reliance on independent scientific guidance. From the beginning of the recognition of environmental and public health issues related to PFAS, the State of Michigan has been at the forefront nationally in assessing the scope of the contamination, intervening to mitigate exposure, and monitoring the evidence to guide policy. The statewide survey of drinking

water supplies was highly unusual if not unique relative to other areas, and the process of developing Maximum Contaminant Levels as rigorous as any in the nation. By engaging experts from outside the state agencies to complement the considerable expertise of the staff in the Michigan Departments of Health and Human Services and Environment, Great Lakes, and Energy, they have demonstrated their commitment to following the evidence through to developing sound policy.

RECEIVED by MSC 3/29/2024 10:10:36 AM

References

ATSDR. (2018). Agency for Toxic Substances and Disease Registry. Toxicological Profile for Perfluoroalkyls. Draft for Public Comment. June 2018.

Bartell SM, Calafat AM, Lyu C, et al. 2010. Rate of decline in serum PFOA concentrations after granular activated carbon filtration at two public water systems in Ohio and West Virginia. *Environ Health Perspect* 118(2):222-228.

Beck, N.B., Becker, R.A., Erraguntla, N., Farland, W.H., Grant, Gray, G., Kirman, C., LaKind, J.S., Lewis, R.J., Nance, P., Pottenger, L.H., Santos, S.L., Shirley, S., Simon, T., and Dourson, M.L. (2016). Approaches for describing and communicating overall uncertainty in toxicity characterizations: U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) as a case study. *Environment International* 89-90, 110-128.

Blystone, C. (2019). [Personal Communication. Use of NTP data tables and study protocol (January 2019 email exchange).], cited in Minnesota Department of Health (2019). Toxicological Summary for Perfluorohexane sulfonate. Accessed online June 2019 at:

CDC. (2019). (Center for Disease Control) Fourth National Report on Human Exposure to Environmental Chemicals, Updated Tables, January 2019, Volume One.

Chang, S., JL Butenhoff, GA Parker, PS Coder, JD Zitsow, RM Krisko, JA Bjork, KB Wallace, JG Seed. (2018). Reproductive and developmental toxicity of potassium perfluorohexanesulfonate in CD-1 mice. *Reproductive Toxicology*, 78, 150-168.

Das KP, Grey BE, Rosen MB, et al. 2015. Developmental toxicity of perfluorononanoic acid in mice. *Reproductive Toxicology* 51:133-144.

DeWitt and Belcher (2018) Memorandum from Jamie DeWitt and Scott Belcher to the members of the North Carolina Secretaries' Science Advisory Board. Accessed online June 2019.

Dong GH, Zhang YH, Zheng L, Liu W, Jin YH, He QC. (2009). Chronic effects of perfluorooctanesulfonate exposure on immunotoxicity in adult male C57BL/6 mice. *Arch Toxicol*. 83(9):805-815.

DuPont-18405-1037: E.I. du Pont de Nemours and Company (2010) An Oral (Gavage) Reproduction/Developmental Toxicity Screening Study of H-28548 in Mice. USEPA OPPTS 870.3550; OECD Test Guideline 421. Study conducted by WIL Research Laboratories, LLC (Study Completion Date: December 29, 2010), Ashland, OH. (as cited in USEPA (2018)).

Feng, X; Cao, X; Zhao, S; Wang, X; Hua, X; Chen, L; Chen, L. (2017). Exposure of pregnant mice to perfluorobutanesulfonate causes hypothyroxinemia and developmental abnormalities in female offspring. *Toxicol Sci* 155: 409-419.

Goeden HM, Greene CW, Jacobus, JA (2019) A transgenerational toxicokinetic model and its use in derivation of Minnesota PFOA water guidance. *J. Exposure Sci. Env. Epidemiol.* 29:183-195.

Goeden, HM., CW Greene, JA Jacobus. (2019). [A transgenerational toxicokinetic model and its use in derivation of Minnesota PFOA water guidance.](#) *Journal of Exposure Science & Environmental Epidemiology*.

Hall, AP, Elcombe, CR, Foster, JR, et al. (2012) Liver Hypertrophy: A Review of Adaptive (Adverse and Non-adverse) Changes—Conclusions from the 3rd International ESTP Expert Workshop. *Toxicologic Pathol.* 40: 971-94.

Klaunig, JE, Shinohara, M, Iwai, H, Chengelis, CP, Kirkpatrick, JB, Wang, Z, Bruner, RH (2015) Evaluation of the chronic toxicity and carcinogenicity of perfluorohexanoic acid (PFHxA) in Sprague-Dawley rats. *Toxicol. Pathol.* 43 (2), 209–220.

Koskela A, Finnilä MA, Korkalainen M, Spulber S, Koponen J, Håkansson H, Tuukkanen J, Viluksela M. (2016) Effects of developmental exposure to perfluorooctanoic acid (PFOA) on long bone morphology and bone cell differentiation. *Toxicol Appl Pharmacol.* 301:14-21.

Li, Y., T Fletcher, D Mucs, K Scott, CH Lindh, P Tallving, K Jakobsson. (2018). Half-lives of PFOS, PFHxS and PFOA after end of exposure to contaminated drinking water. *Occupational and Environmental Medicine*, 75, 46-51.

Loveless, S.E., Slezak, B., Serex, T., Lewis, J., Mukerji, P., O'Connor, J.C., Donner, E.M., Frame, S.R., Korzeniowski, S.H., Buck, R.C., 2009. Toxicological evaluation of sodium perfluorohexanoate. *Toxicology* 264 (1–2), 32–44.

Luz, AL, Anderson, JK, Goodrum, P, Durda, J. (2019) Perfluorohexanoic acid toxicity, part I: Development of chronic human health toxicity value for use in risk assessment. *Reg. Toxicol. Pharmacol.* 103: 41-55.

Minnesota Department of Health (2019). [Toxicological Summary for Perfluorooctane sulfonate \(PFOS\).](#) Accessed online June 2019.

Minnesota Department of Health (2017). [Toxicological Summary for: Perfluorobutane Sulfonate \(PFBS\).](#) Accessed online June 2019.

Minnesota Department of Health (2017). Background Document: Toxicokinetic Model for PFOS and PFOA and Its Use in the Derivation of Human Health-based Water Guidance Values.

Minnesota Department of Health (2019). HRA Toxicology Review Worksheet for PFHxS, last revised 3/8/2019.

North Carolina Department of Health and Human Services. [Questions and Answers Regarding North Carolina Department of Health and Human Services Updated Risk Assessment for GenX \(Perfluoro-2-propoxypropanoic acid\).](#) July 14, 2017. Accessed online May 2019.

National Research Council (NRC). (2009). *Science and Decisions: Advancing Risk Assessment*. Washington D.C.: National Academies Press.

NTP. (2018). National Toxicology Program. TOX-96: Toxicity Report Tables and Curves for Short-term Studies: Perfluorinated Compounds: Sulfonates. Retrieved from https://tools.niehs.nih.gov/cebs3/views/?action=main.dataReview&bin_id=3874., cited

in Minnesota Department of Health (2019). Toxicological Summary for Perfluorohexane sulfonate. Accessed online June 2019 at: <https://www.health.state.mn.us/communities/environment/risk/docs/guidance/gw/pfhxs.pdf>.

New Jersey DEP DWQI. (2018). Appendix A - Health-based Maximum Contaminant Level Support Document: Perfluorooctane sulfonate. Trenton, NJ: New Jersey Drinking Water Quality Institute.

New Jersey DEP DWQI. (2015). Maximum contaminant level recommendation for perfluorononanoic acid in drinking water. Trenton, NJ: New Jersey Drinking Water Quality Institute.

Ohmori K, Kudo N, Katayama K, et al. 2003. Comparison of the toxicokinetics between perfluorocarboxylic acids with different carbon chain length. *Toxicology* 184:135-140.

Onishchenko N, Fischer C, Wan Ibrahim WN, Negri S, Spulber S, Cottica D, Ceccatelli S. (2011) Prenatal exposure to PFOS or PFOA alters motor function in mice in a sex-related manner. *Neurotox Res.* 19(3):452-61.

Pachkowski B, Post GB, Stern AH. (2019) The derivation of a Reference Dose (RfD) for perfluorooctane sulfonate (PFOS) based on immune suppression. *Environ Res.* 2019 171:452-469.

Peden-Adams, MM, Keller, JM, EuDaly, JM, Berger, J, Gilkeson, GS, Keil, DE. (2008) Suppression of Humoral Immunity in Mice following Exposure to Perfluorooctane Sulfonate. *Toxicol. Sci.* 104(1): 144-154.

Russell, MH, Nilsson, H, Buck, RC (2013) Elimination kinetics of perfluorohexanoic acid in humans and comparison with mouse, rat and monkey. *Chemosphere.* 93: 2419-2425.

Sundstrom, M., SC Chang, PE Noker, GS Gorman, JA Hart, DJ Ehresman, A Bergman, JL Butenhoff. (2012). Comparative pharmacokinetics of perfluorohexanesulfonate (PFHxS) in rats, mice, and monkeys. *Reproductive Toxicology*, 33, 441-451.

Thompson, J., M. Lorber, L.-M.L. Toms, K. Kato, A.M. Calafat, and J.F. Mueller. 2010. Use of simple pharmacokinetic modeling to characterize exposure of Australians to perfluorooctanoic acid and perfluorooctane sulfonic acid. *Environment International* 36:390–397.

United States Environmental Protection Agency (2000). Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health. EPA-822-B-00-004. USEPA Office of Water, Washington, DC. Accessed online June 2019.

United States Environmental Protection Agency. (2002). A Review of the Reference Dose and Reference Concentration Processes. *Risk Assessment Forum*. EPA/630/P-02/002F, December 2002.

United States Environmental Protection Agency. (2011) Exposure Factor Handbook: 2011 Edition. EPA/600/R-09/052F. USEPA, National Center for Environmental Assessment, Office of Research and Development, Washington, DC. Accessed online June 2019.

United States Environmental Protection Agency (2011a). Recommended Use of Body Weight^{3/4} as the Default Method in Derivation of the Oral Reference Dose. EPA/100/R11/0001. USEPA, Office of the Science Advisor, Risk Assessment Forum, Washington, DC. Accessed online May 2018.

United States Environmental Protection Agency (2011b). Exposure Factors Handbook 2011 Edition. EPA/600/R-09/052F. USEPA, National Center for Environmental Assessment, Office of Research and Development, Washington, DC. Accessed online May 2019.

United States Environmental Protection Agency (2018). Human Health Toxicity Values for Perfluorobutane Sulfonic Acid (CASRN 375-73-5) and Related Compound Potassium Perfluorobutane Sulfonate (CASRN 29420-49-3). Public Comment Draft. EPA-823-R-18-307. USEPA, Office of Research and Development, Washington, DC. Accessed online June 1, 2019.

United States Environmental Protection Agency (2018). Human Health Toxicity Values for Hexafluoropropylene Oxide (HFPO) Dimer Acid and Its Ammonium Salt (CASRN 13252-13-6 and CASRN 62037-80-3), Also Known as "GenX Chemicals". Public Comment Draft. EPA-823-P-18-001. USEPA Office of Water, Washington, DC. Accessed online May 2019.

United States Environmental Protection Agency (2019) Exposure Factors Handbook Chapter 3 (Update): Ingestion of Water and Other Select Liquids. EPA/600/R-18/259F. USEPA Office of Research and Development, Washington, DC. Accessed online June 2019.

Wambaugh JF, Setzer RW, Pitruzzello AM, et al. 2013. Dosimetric anchoring of in vivo and in vitro studies for perfluorooctanoate and perfluorooctanesulfonate. *Toxicol Sci* 136(2):308-327.

Zhang Y, Beeson S, Zhu L, et al. 2013. Biomonitoring of perfluoroalkyl acids in human urine and estimates of biological half-life. *Environ Sci Technol* 47(18):10619-10627.

Appendix A: Acronym List

| | |
|--------------------|---|
| ATSDR | Agency for Toxic Substances and Disease Registry |
| BMD | benchmark dose |
| BMDL | lower confidence limit on the benchmark dose |
| BMR | benchmark response |
| BW | body weight |
| BWa | body weight animal |
| BWh | body weight human |
| CDC | Centers for Disease Control and Prevention |
| DAF | dosimetric adjustment factor |
| EGLE | Environment, Great Lakes, and Energy (Michigan Department of) |
| GD | gestational day |
| GenX | perfluoro-2-propoxypropanoic acid |
| HBV | health-based value |
| HED | human equivalent dose |
| HFPO | hexafluoropropylene oxide |
| HRA | health risk assessment |
| kg | kilogram |
| L | liter |
| LD | lactation day |
| LHA | lifetime health advisory |
| LOAEL | lowest observed adverse effect level |
| MCL | Maximum Contaminant Level |
| MDH | Minnesota Department of Health |
| MDHHS | Michigan Department of Health and Human Services |
| mg | milligram |
| MI | Michigan |
| ml | milliliter |
| MPART | Michigan PFAS Action Response Team |
| µg | microgram |
| ng | nanogram |
| NHANES | National Health and Nutrition Examination Survey |
| NJDEP | New Jersey Department of Environmental Protection |
| NOAEL | no observed adverse effect level |
| OECD | Organization for Economic Co-operation and Development |
| PFAS | per- and polyfluoroalkyl substances |
| PFBS | perfluorobutane sulfonic acid |
| PFHxA | perfluorohexanoic acid |
| PFHxS | perfluorohexane sulfonic acid |
| PFNA | perfluorononanoic acid |
| PFOA | perfluorooctanoic acid |
| PFOS | perfluorooctane sulfonic acid |
| PND | postnatal day |
| POD | point of departure |
| POD _{HED} | point of departure human equivalent dose |
| PPAR | peroxisome proliferator-activated receptor |
| ppt | parts per trillion |
| RfD | reference dose |
| RSC | relative source contribution |
| TWA | time weighted average |
| UF | uncertainty factor |
| USEPA | United States Environmental Protection Agency |

Appendix B: MPART Motion for Creation of Science Advisory Workgroup,
April 4, 2019

Motion

Motion to establish a Science Advisory Workgroup with the Charge described below, comprised of external members with expertise in toxicology, epidemiology, and risk assessment, and further to authorize the chairperson of MPART to finalize the appointments in consultation with MPART members.

Preamble

On March 26, 2019, Governor Whitmer directed the Michigan PFAS Action Response Team (MPART) to further protect public health and the environment, by forming a Science Advisory Workgroup to “review both existing and proposed health-based drinking water standards from around the nation to inform the rule making process for appropriate Maximum Contaminant Levels for Michigan...” Toward this objective, the Science Advisory Workgroup shall make numeric recommendation(s) to MPART for those per- and polyfluoroalkyls substances (PFAS) for which adequate information exists.

Charge

The Science Advisory Workgroup shall:

1. For the PFAS listed in USEPA Method 537.1, review all existing and proposed national- and state-derived PFAS drinking water standards and identify the most scientifically defensible non-cancer or cancer-based public health toxicity values available for each individual PFAS chemical family member, or combination thereof, for which the Science Advisory Workgroup determines that adequate information exists. Provide written justification that shall include, but not be limited to, the basis for the selection of the primary study, critical effect identification, point of departure determination, evaluation of all uncertainty and/or modification factors applied, and the non-cancer or cancer-based toxicity value derivation.
2. Review all existing and proposed national- and state-derived PFAS drinking water standards and identify the most scientifically defensible exposure assessment and risk evaluation methodology for each individual PFAS chemical family member, or combination thereof, for which the Science Advisory Workgroup determines that adequate information exists. Provide written justification that shall include, but not be limited to, selection of the most appropriate receptor(s) and identification of all appropriate exposure assumptions for the receptor(s).
3. Identify the most appropriate and scientifically defensible combination of each specific PFAS toxicity value and exposure assessment and risk evaluation methodology, including consideration of relative source contribution, from which to derive a health-based drinking water value for each individual PFAS chemical family member, or combination thereof, for which the Science Advisory Workgroup determines that adequate information exists.
4. Provide to MPART no later than July 1, 2019, a report recommending scientifically-defensible numeric health-based values to inform the rulemaking process for Maximum Contaminant Levels for each individual PFAS chemical family member, or combination thereof, with written justification for the calculation methodology and each input into used in the methodology by the Science Advisory Workgroup.

End

Appendix C: USEPA Method 537.1 Analyte List

| Analyte Name* | Acronym | Fluorinated Carbon Chain Length | Chemical Abstract Services Registry Number (CASRN) |
|---|----------------|---------------------------------|--|
| Perfluorotetradecanoic acid | PFTeA | C ₁₄ | 376-06-7 |
| Perfluorotridecanoic acid | PFTriA | C ₁₃ | 72629-94-8 |
| Perfluorododecanoic acid | PFDoA | C ₁₂ | 307-55-1 |
| Perfluoroundecanoic acid | PFUnA | C ₁₁ | 2058-94-8 |
| Perfluorodecanoic acid | PFDA | C ₁₀ | 335-76-2 |
| Perfluorononanoic acid | PFNA | C ₉ | 375-95-1 |
| Perfluorooctanoic acid | PFOA | C ₈ | 335-67-1 |
| Perfluoroheptanoic acid | PFHpA | C ₇ | 375-85-9 |
| Perfluorohexanoic acid | PFHxA | C ₆ | 307-24-4 |
| Perfluorooctanesulfonic acid | PFOS | C ₈ | 1763-23-1 |
| Perfluorohexanesulfonic acid | PFHxS | C ₆ | 355-46-4 |
| Perfluorobutanesulfonic acid | PFBS | C ₄ | 375-73-5 |
| 2-(N-Ethylperfluorooctanesulfonamido) acetic acid | N-EtFOSAA | C ₈ | 2991-50-6 |
| 2-(N-Methylperfluorooctanesulfonamido) acetic acid | N-MeFOSAA | C ₈ | 2355-31-9 |
| Hexafluoropropylene oxide dimer acid | HFPO-DA (GenX) | C ₆ | 13252-13-6 ^a |
| 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 11Cl-PF3OUdS | C ₁₀ | 763051-92-9 ^b |
| 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid | 9Cl-PF3ONS | C ₈ | 756426-58-1 ^c |
| 4,8-dioxa-3H-perfluorononanoic acid | ADONA | C ₇ | 919005-14-4 ^d |

^a HFPO-DA is one component of the GenX processing aid technology.

^b 11Cl-PF3OUdS is available in salt form (e.g. CASRN of potassium salt is 83329-89-9).

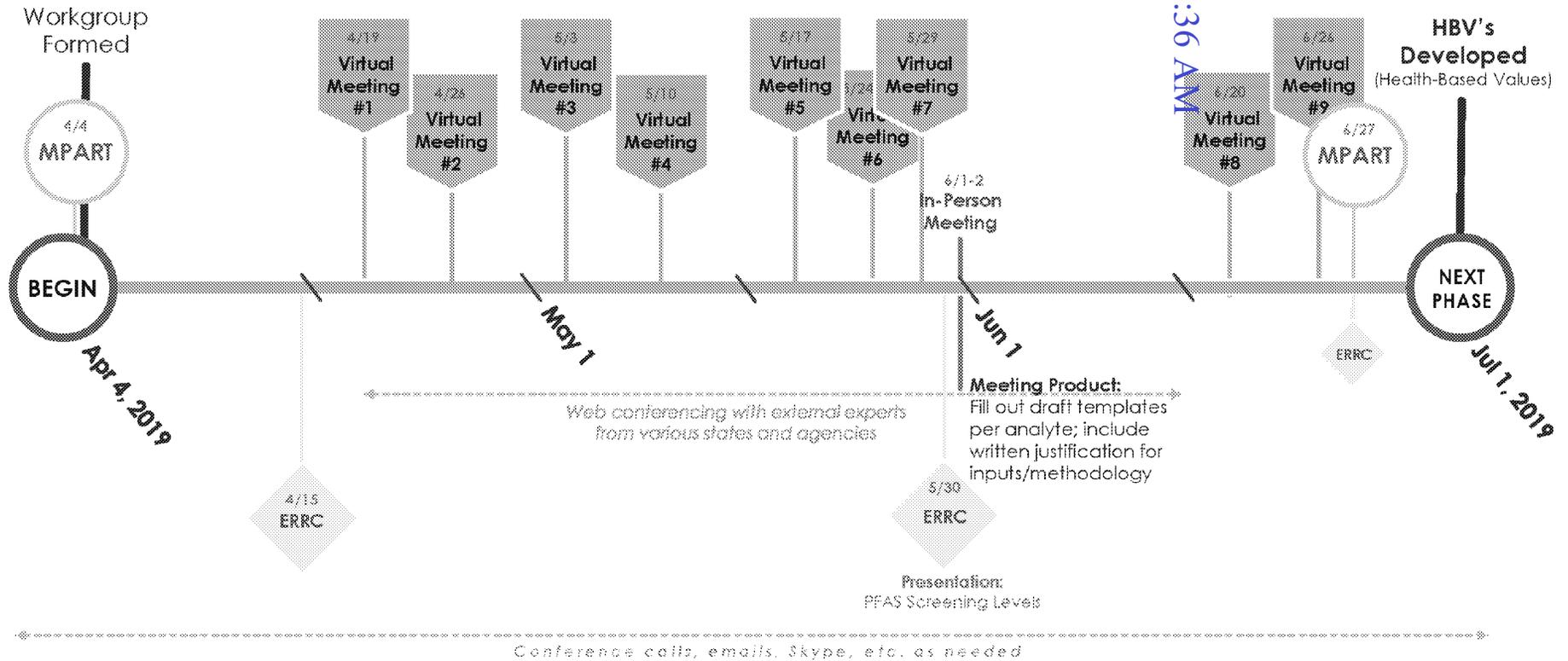
^c 9Cl-PF3ONS analyte is available in salt form (e.g. CASRN of potassium salt is 73606-19-6)

^d ADONA is available as the sodium salt (no CASRN) and the ammonium salt (CASRN is 958445-448).

* Some PFAS are commercially available as ammonium, sodium, and potassium salts. This method measures all forms of the analytes as anions while the counterion is inconsequential. Analytes may be purchased as acids or as any of the corresponding salts.

Appendix D: Timeline for the Science Advisory Workgroup's Development of Drinking Water HBVs

9/2024 10:10:36 AM

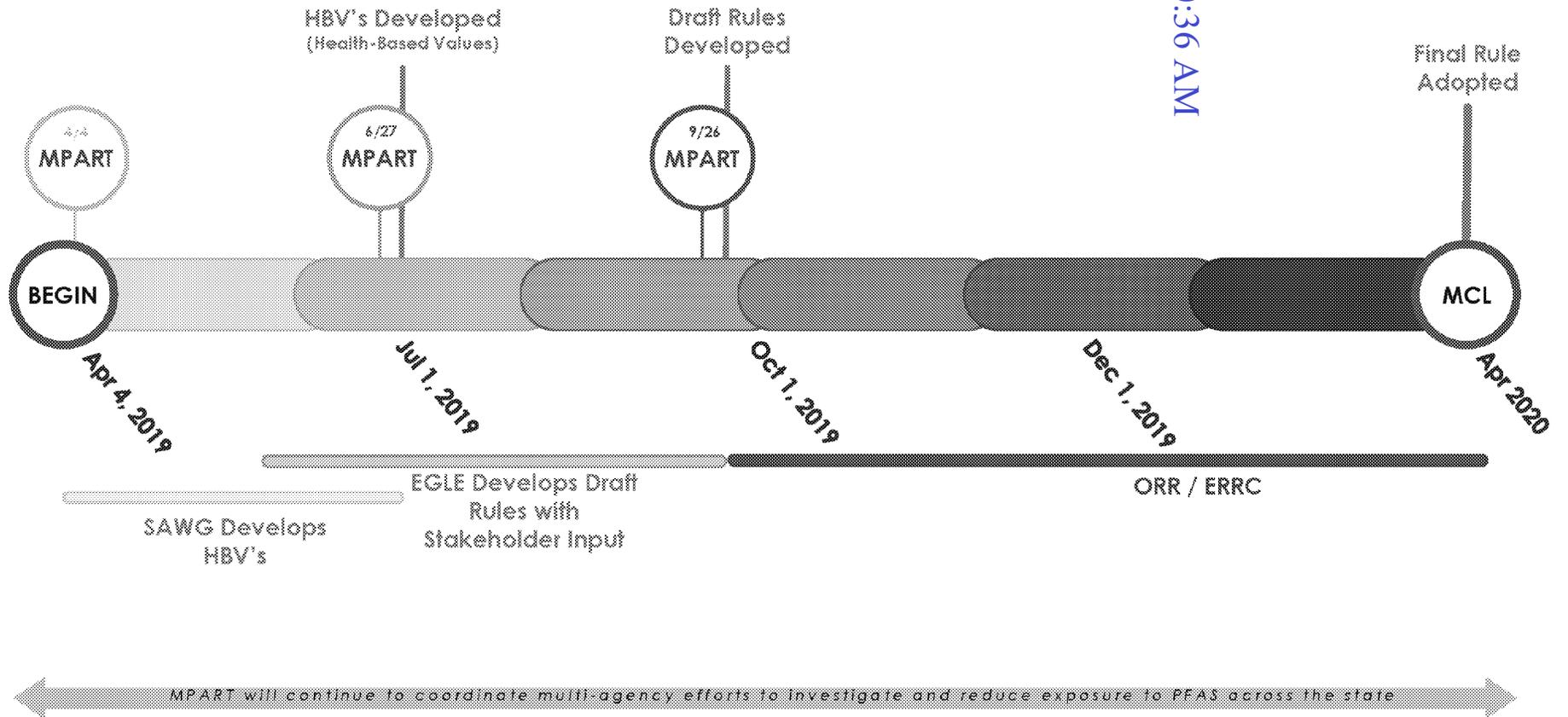


v. 7

ERRC = Environmental Rules Review Committee

Appendix E: Timeline of the Maximum Contaminant Level Development Process

9/2024 10:10:36 AM



v. 5

State Budget Office
Office of Regulatory Reinvention
 111 S. Capitol Avenue; 8th Floor, Romney Building,
 Lansing, MI 48933
 Phone: (517) 335-8658 FAX: (517) 335-9512

REQUEST FOR RULEMAKING (RFR)

Under the Administrative Procedures Act (APA), 1969 PA 306, the agency that has the statutory authority to promulgate rules must electronically file a RFR with the Office of Regulatory Reinvention (ORR) before initiating any changes or additions to the rules. Submit copy to the ORR at orr@michigan.gov.

1. Agency Information

| | |
|---|--|
| Agency name: | Department of Environmental Quality (DEQ) |
| Division/Bureau/Office: | Drinking Water and Municipal Assistance Division |
| Name, title, phone number, and e-mail of person completing this form: | Eric Oswald, Division Director, 517-643-2543, oswalde1@michigan.gov |

2. Rule Set Information

| | |
|--|---------------------------------|
| Title of proposed rule set: | Supplying Water to the Public |
| Rule number(s) or range of numbers: | R 325.10101 through R 325.12820 |
| Included in agency's annual regulatory plan as rule to be processed in current year? | Yes |

3. Estimated timetable for completion, or statutory deadline, if applicable:

| |
|--|
| The draft proposed rules and regulatory impact statement will be submitted to the Office of Regulatory Reinvention by October 1, 2019. |
|--|

4. Describe the general purpose of these rules, including any problem(s) the changes are intended to address:

| |
|--|
| To establish enforceable drinking water standards for per- and polyfluoroalkyl substances (PFAS) found during the 2018 sampling of Michigan's public drinking water supplies. While the U.S. Environmental Protection Agency has established an unenforceable lifetime health advisory level for total perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), many academia, health officials, and the Agency for Toxic Substances and Disease Registry (ASTDR) deem this advisory level is too high. In addition, the lack of an enforceable standard for PFOS and PFOA and other commonly found PFAS chemicals impairs the DEQ's ability to take enforceable actions to protect human health and the environment. |
|--|

5. Cite the specific rule promulgation authority (i.e. agency director, commission, board, etc., listing all applicable statutory references. If the rule(s) are mandated by any applicable constitutional or statutory provision, please explain.

| |
|---|
| Section 5 of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), MCL 325.1005 |
|---|

6. Describe the extent to which the rule(s) conflict with, duplicate, or exceed similar regulations, compliance requirements, or other standards adopted at the state, regional, or federal level. Include applicable public act and statutory references.

| |
|---|
| Act 399 currently contains numerous drinking water standards that are consistent with federal requirements. This requested rulemaking will add additional drinking water standards and related sampling and response requirements. These additional standards |
|---|

would be more stringent than regulations under the federal Safe Drinking Water Act.

7. Is the subject matter of the rule(s) currently contained in any guideline, manual, handbook, instructional bulletin, form with instructions, or operational memo?

No

8. Explain whether the rule(s) will be promulgated under Sections 44 or 48 of the APA or the full rulemaking process:

Full rulemaking process

9. Do the rule(s) incorporate the recommendations of any Advisory Rules Committee formed pursuant to Executive Order 2011-5? If yes, explain.

No

10. Is there an applicable decision record as defined in Section 3(6) and required by Section 39(2) of the APA? If so, please attach the decision record.

No

11. Reviewed by the following Departmental Regulatory Affairs Officer:

Dave Fiedler

 ↓ To be completed by the ORR ↓

Date RFR received:

[FORMCHECKBOX] Based on the information in this RFR, the ORR concludes that there are sufficient policy and legal bases for approving the RFR.

| | |
|-------------------------------|--|
| ORR assigned rule set number: | |
| Date of approval: | |

[FORMCHECKBOX] Based on the information in this RFR, the ORR is not approving the RFR at this time.

| | |
|----------------------|--|
| Date of disapproval: | |
| Explanation: | |

**ENVIRONMENTAL RULES REVIEW COMMITTEE
AGENDA**

Thursday, October 31, 2019, 1:00 – 3:30 p.m.

Michigan Department of Environment, Great Lakes, and Energy
Constitution Hall, Lee Walker Conference Room, Atrium Level North
525 West Allegan Street, Lansing, Michigan 48933

ERRC COMMITTEE MEMBERS:

Attending:

| | | |
|--------------------------|--------------------------|---------------|
| Janet Barlow | Daniel Frakes | Jeremy Orr |
| Shayna Schupan Barry | Dave Maness | Eric Pessell |
| Tyler Ernst | Fadi Mourad | Helen Taylor |
| Mark Fowler (Vice Chair) | Robert Nederhood (Chair) | Grant Trigger |

Non-Voting Members:

| | |
|--------------------|----------------------------|
| James Clift, EGLE | Kirk Lapham, DNR |
| Jim Johnson, MDARD | Deb MacKenzie-Taylor, DHHS |

Clerk:

Candra Wilcox

1. Welcome and Introduction of New Members
Robert Nederhood, ERRC Chair
2. ERRC Roll Call
Candra Wilcox, Clerk
3. Approval of Agenda
Robert Nederhood, ERRC Chair
4. Approval of ERRC Minutes from June 27, 2019, Meeting
Robert Nederhood, ERRC Chair
5. Presentation on the Draft Supplying Water to the Public (PFAS) Rules (2019-35 EG)
Drinking Water and Environmental Health Division Staff
6. Public Comment
7. Deliberation on Draft Rules (2019-35 EG)
ERRC Members
8. ERRC Vote on the Draft Rules (2019-35 EG)
ERRC Members
9. Instructions for Using State Issued Email Addresses
Candra Wilcox
10. Adjournment

Next Scheduled Meeting
November 21, 2019

Environmental Rules Review Committee (ERRC)
Michigan PFAS Action Response Team (MPART)
Constitution Hall, Lansing, Michigan
1:00-3:00 p.m.
June 27, 2019

MEETING MINUTES

MPART Members Present: Kevin Besey, MDARD
Dan Eichinger, MDNR Director
Joneigh Khaldun, MDHHS
Steve Sliver, MDEQ, MPART Executive Director
Mike Trout, MDOT
Kevin Sehlmeier, LARA
Jim Shay, DMVA

ERRC Members Present: Janet Barlow
Tyler Ernst
Mark Fowler
Dave Maness
Fadi Mourad
Robert Nederhood
Jeremy Orr
Eric Pessell
Nickolas Ramos
Helen Taylor
Grant Trigger

ERRC Members Absent: John Myers

Welcome and Introduction of MPART Members

Liesl Clark, EGLE Director, welcomed the MPART/ERRC members and audience for attending.

Roll Call

Heather Feuerstein, clerk, took roll call. Both MPART and the ERRC had a quorum. Steve Sliver also made comments on the run of show. The meeting materials will be made available online at Michigan.gov/PFASResponse

Approval of Agenda

Both MPART and ERRC voted to accept the agenda.

Approval of ERRC Minutes from April 15 and May 30, 2019

Motion: Eric Pessell made a motion to approve the April 15 minutes as provided. Grant Trigger seconded the motion. The motion was approved by all members present

Motion: Dave Maness made a motion to approve the May 30 minutes as provided. Tyler Ernst seconded the motion. The motion was approved by all members present

Approval of MPART Minutes from the April 4, 2019

MPART approved the minutes from the April 4, 2019 meeting.

Presentation: Recommended Health-Based Values for PFAS in Drinking Water

Kevin Cox, a member of the MPART Science Advisory Workgroup presented the Workgroup's recommended health-based values for PFAS in drinking water to MPART and the ERRC.

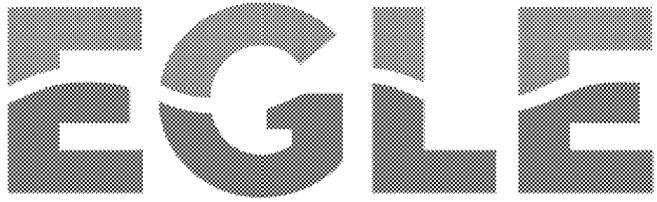
Motion: Dan Eichinger moved to accept the health-based value recommendations. The motion passed with all ayes.

Public Comment:

John Dulmes made comment on behalf of the Michigan Chemistry Council.

Adjourn

The meeting was adjourned at 2:35 p.m.



9/2024 10:10:36 AM

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

PFAS MCL Draft Rules

Drinking Water and Environmental Health Division

Agenda

- Process Overview
- Stakeholders
- Rule Outline
- Regulatory Impact Statement Results
- Questions
- Going Forward

Timeline PFAS MCL Process

9/2024 10:10:36 AM

- July 19 – Stakeholder Listening Sessions
- Aug 19 – EGLE Drafts Rule
- 18/19 Sep 19 – Stakeholder Meetings
- 23 – 30 Sep 19 – EGLE Revises Rule
- 1 Oct 19 – Final Draft Rule
- 1 Oct 19 Forward – MOHR/JCAR Rule Process

Process

- Rule Effort from 2018
- Step 1: Listening Session with Stakeholders
- Step 2: Craft Draft Rules/MCLs and RIS
- Step 3: Stakeholder Input on Draft Rules
- Step 4: Finalize Draft Rules Based on Input
- Step 5: Present Rules for Consideration

Stakeholders

- Industrial Group
 - MI Manufactured Housing Association
 - Michigan Chamber of Commerce
 - Michigan Chemistry Council
 - Michigan Groundwater Association
 - Michigan Manufacturers Association
 - Michigan Waste and Recycle Association
- Health Group
 - District Health Departments 2 and 4
 - Ionia County Health Department
 - Kent County Health Department
 - MDHHS
 - Michigan Association for Local Public Health
 - Michigan Association of Local Environmental Health Administrators

Stakeholders (cont.)

- Environmental Group
 - Clean Water Action
 - Environment Michigan
 - Great Lakes Environmental Law Center
 - Huron River Watershed Council
 - League of Conservation Voters
 - Michigan Environmental Council
 - National Resource Defense Council
 - Nature Conservancy
 - Sierra Club

Stakeholders (cont.)

- Municipalities Group
 - AWWA
 - Consultant – Prein and Newhoff
 - Contractor Operations/Consultant - Fleis & VandenBrink Engineering, Inc.
 - MELA (Michigan Environmental Laboratory Association)
 - Michigan Chapter of American of Public Works Administration
 - Michigan Municipal League
 - Michigan Rural Water Association
 - Michigan Townships Association
 - Michigan Water Environment Association
 - Safe Water Engineering
 - SEMCOG
 - Water Utility – Plainfield Township
 - Water Utility – City of Ann Arbor

Stakeholders (cont.)

9/2024 10:10:36 AM

- Citizens Group
 - Held 2 Webinars with Citizens in Affected Communities
 - Utilized MPART Citizens Advisory Council List
 - One Listening Session
 - One Session to Present Draft Rules and Get Input

Draft Rule Outline

- Applicability
- Sampling Requirement
- Reporting
- Proposed MCLs
- Compliance Calculation
- Public Notification
- Treatment Technologies
- Laboratory Certification

Impacted Supplies

- Community and Non-transient Noncommunity
- EGLE can require sampling of other regulated supplies

Sampling Requirements

- General Requirements:
 - Sample at entry point to distribution system representing each source after treatment
 - EGLE may require confirmation sampling
 - EGLE May require more frequent sampling (variations in system)

Sampling Requirements (Cont)

- Initial Sampling:
 - First Full Quarter: Supplies over 50% of MCL & Supplies not previously sampled
 - Within 6 Months: Supplies without a detection or detection less than or equal to 50% of an MCL
- Ongoing Sampling:
 - Quarterly: Supplies with detection above reporting limit unless/until determined reliably and consistently below the MCL or exceeding an MCL
 - Annually: Supplies with no detections above RL or determined to be consistently below MCL

Reporting

- In accordance with existing requirements:
 - Within first 10 days of the month following the month in which the results are received, or
 - Within 10 days of the end of the monitoring period
 - Whichever is sooner

Proposed MCLs

| Contaminant | MCL (ng/L) | Effective Date | Chemical Abstract Services Registry Number (CASRN) |
|--|------------|----------------|--|
| PERFLUORONONANOIC ACID (PFNA) | 6 | Immediate | 375-95-1 |
| PERFLUOROOCTANOIC ACID (PFOA) | 8 | Immediate | 335-67-1 |
| PERFLUOROOCTANE SULFONIC ACID (PFOS) | 16 | Immediate | 1763-23-1 |
| PERFLUOROHEXANE SULFONIC ACID (PFHxS) | 51 | Immediate | 355-46-4 |
| HEXAFLUOROPROPYLENE OXIDE DIMER ACID (HFPO-DA) (a GenX compound) | 370 | Immediate | 13252-13-6 |
| PERFLUOROBUTANE SULFONIC ACID (PFBS) | 420 | Immediate | 375-73-5 |
| PERFLUOROHEXANOIC ACID (PFHxA) | 400,000 | Immediate | 307-24-4 |

Compliance Calculation

- Compliance based on running annual average at each sampling point
- If one sampling point is out of compliance supply is out of compliance
- Supplies monitoring annually or less frequently whose results exceed the reporting limit go to quarterly sampling
- Any sample result that causes running annual average to exceed MCL at any sampling point causes supply to be out of compliance with MCL immediately

Compliance Calculation (Cont)

- If confirmation sampling is required, the confirmation result(s) shall be averaged with the first result and the average used for compliance determination
- EGLE may exclude results of obvious sampling errors from calculation

Public Notification

- Required if a supply is in noncompliance. To be conducted consistent with existing public notification requirements for similar contaminants
 - If a water supply is out of compliance with an MCL, Tier 2 public notification is required (30-day notice)
 - Tier 2 notice requires mandatory language about the source of each contaminant in drinking water and mandatory health effects language
 - Failure to monitor requires Tier 3 public notice
 - For community water supplies, violations must also be referenced in annual water quality reports (consumer confidence reports)

Treatment Technology

- Best Available: Granular Activated Carbon
 - Cost used for Regulatory Impact Statement
 - Capable of treating to MCLs
 - Waste Stream/Regeneration
- Filtration
 - Produces Concentrated Waste Stream to?
- Ion Exchange

Laboratory Certification

- Requires EPA 537.1
- RL set at 2 ng/L
- Third Party Proficiency Testing
- Quantitative Result Limits
- Suspension/Revocation Criteria

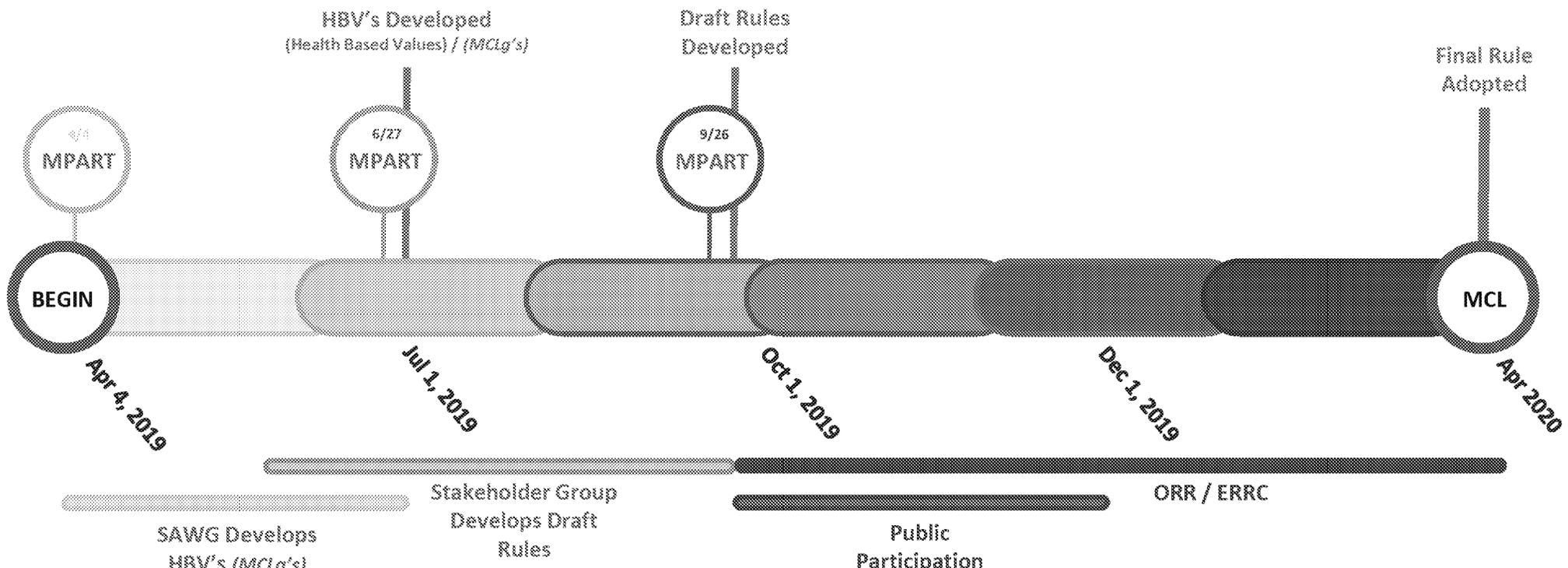
Regulatory Impact Statement

- Cost for Sampling and Analysis: \$6.4M
- Treatment Installation: \$7.4M
- Treatment O&M: \$326K annually
- Benefits addressed qualitatively

Questions/Comments

Going Forward

9/2024 10:10:36 AM



MPART will continue to coordinate multi-agency efforts to investigate and reduce exposure to PFAS across the state

2
2

Michigan Department of
Environment, Great Lakes, and Energy

800-662-9278

www.Michigan.gov/EGLE



Sign up for email updates



Subscribe to our YouTube Channel



Follow us on Twitter @MichiganEGLE

DEPARTMENT OF ENVIRONMENTAL QUALITY ENVIRONMENT, GREAT
LAKES, AND ENERGY

DRINKING WATER AND MUNICIPAL ASSISTANCE ENVIRONMENTAL
HEALTH DIVISION

SUPPLYING WATER TO THE PUBLIC

Filed with the Secretary of State on

These rules take effect 7 days after filing with the Secretary of State.

(By authority conferred on the ~~D~~department of ~~E~~environmental, quality ~~Great Lakes,~~
and ~~Energy~~ quality by section 5 of the **Safe Drinking Water Act**, 1976 PA 399, MCL
325.1005)

**R 325.10107, R 325.10116, R 325.10308b, R 325.10313, R 325.10401a, R 325.10405,
and R 325.12701 of the Michigan Administrative Code are amended, and
R 325.10604g, R 325.10717d, R 325.12708, and R 325.12710 are added, as follows:**

PART 1. GENERAL PROVISIONS

R 325.10107 Definitions; P, R.

Rule 107. As used in these rules:

- (a) "Permit" means a public water supply construction permit that is issued to a supplier of water by the department under section 4 of the act.
- (b) "Person" means an individual, partnership, copartnership, cooperative, firm, company, public or private association or corporation, political subdivision, agency of the state, agency of the federal government, trust, estate, joint structure company, or any other legal entity, or their legal representative, agent, or assignee.
- (c) **"PFAS" means per- and polyfluoroalkyl substances.**
- ~~(e)~~(d) "Pitless adapter" means a device or assembly of parts which permits water to pass through the wall of a well casing or extension of a well casing and which provides access to the well and to the parts of the system within the well in a manner that prevents the entrance of contaminants into the well and the water produced.
- ~~(d)~~(e) "Plans and specifications" means drawings, data, and a true description or representation of an entire waterworks system or parts of the system as it exists or is to be constructed, and a statement of how a waterworks system ~~shall~~**must** be operated.
- ~~(e)~~(f) "Plant intake" means the works or structures at the head of a conduit through which water is diverted from a source, for example, river or lake, into the treatment plant.
- ~~(f)~~(g) "Point-of-entry treatment device (POE)" means a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.
- ~~(g)~~(h) "Point-of-use treatment device (POU)" means a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that 1 tap.

October 22, 2019

~~(h)~~**(i)** "Political subdivision" means a city, village, township, charter township, county, district, authority, or portion or combination of any of the entities specified in this subdivision.

~~(i)~~**(j)** "PQL" means the practical quantitation levels. The PQL is the lowest concentration that can be reliably achieved by well-operated laboratories within specified limits of precision and accuracy during routine laboratory operating conditions.

~~(j)~~**(k)** "Presedimentation" means a preliminary treatment process used to remove gravel, sand, and other particulate material from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.

~~(k)~~**(l)** "Production well" means a well that has been approved for use for a public water supply in accordance with the provisions of part 8 of these rules.

~~(l)~~**(m)** "Public hearing" means a hearing which is conducted by the director of the department on matters relating to the functions and responsibilities of the division and which seeks public input relevant to such functions and responsibilities.

~~(m)~~**(n)** "Public water supply" or "public water system" means a waterworks system that provides water for drinking or household purposes to persons other than the supplier of the water, and does not include either of the following:

(i) A waterworks system that supplies water to only 1 living unit.

(ii) A waterworks system that consists solely of customer site piping.

~~(n)~~**(o)** "Pumping water level" means the distance measured from an established datum at or above ground level to the water surface in a well being pumped at a known rate for a known period of time.

~~(o)~~**(p)** "Rated treatment capacity" means 1 or any combination of the following capacities when water treatment is practiced:

(i) Rated capacity from an approved surface water supply, ground water supply under the direct influence of surface water, or complete treatment system as contained in R 325.11006.

(ii) Firm capacity from an approved ground water supply where firm capacity means the production capability of each respective component of the waterworks system with the largest well, pump, or treatment unit out of service.

(iii) Available capacity obtained under contract and capable of delivery from another approved public water supply.

~~(p)~~**(q)** "Raw water" means water that is obtained from a source by a public water supply before the public water supply provides any treatment or distributes the water to its customers.

~~(q)~~**(r)** "Regional administrator" means the EPA region V administrator.

~~(r)~~**(s)** "Regulated VOCs" means a group of volatile organic chemicals for which state drinking water standards have been promulgated but does not include total trihalomethanes.

~~(s)~~**(t)** "Removed from service" means physically disconnected from the waterworks system in a manner that would prevent the inadvertent use of the well and would require specific authorization from the public water supply to reconnect.

~~(t)~~**(u)** "Repeat sample" means a sample that is collected and analyzed in response to a previous coliform-positive sample.

~~(u)~~**(v)** "Resident" means an individual who owns or occupies a living unit.

(v)-(w) "Routine sample" means a water sample that is collected and analyzed to meet the monitoring requirements for total coliform, as outlined in the written sampling plan.

R 325.10116 Addresses.

Rule 116. The following are addresses and contact information of the department and other organizations referred to in these rules:

(a) Department of ~~Environmental Quality~~ **Environment, Great Lakes, and Energy**, Office of Drinking Water and Municipal Assistance **Environmental Health Division**, 525 West Allegan Street, Post Office Box 30241817, Lansing, MI 48909-77418311, Telephone 800-662-9278. Internet address: <http://www.michigan.gov/deqegle>.

(b) National Council ~~On~~ Radiation Protection and Measurements, 7910 Woodmont Avenue, Suite 400, Bethesda, Maryland 20814-3095, Telephone 301-657-2652. Internet address: <http://www.ncrponline.org/>.

(c) NSF International, P.O. Box 130140, 789 North Dixboro Road, Ann Arbor, Michigan 48105, Telephone 734-769-8010 or 800-673-6275, email info@nsf.org, Internet address <http://www.nsf.org>.

(d) Superintendent of Documents, ~~United States Government Printing~~ **U.S. Government Publishing Office**, Post Office ~~P.O.~~ Box 979050, St. Louis, MO 63197-9000, Telephone 202-512-1800. Internet address ~~to download documents is~~ <http://www.gpoaccess.gov/index.html> or to purchase documents online is <http://bookstore.gpo.gov>.

PART 3. VARIANCES, EXEMPTIONS, AND TREATMENT TECHNOLOGIES

R 325.10308b Best available technology.

Rule 308b. (1) The department identifies the following as the best technology, treatment technique, or other means generally available for achieving compliance with the MCL:

(a) For organic contaminants in R 325.10604b ~~and~~, R325.10604d, **and R 325.10604g** the best available technologies, treatment techniques, or other means available for achieving compliance with the MCLs are granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OX), as listed in table 1 of this rule.

Table 1 Best available technologies for organic contaminants

| Contaminant | GAC | PTA | OX |
|--------------------|-----|-----|----|
| Alachlor | x | | |
| Aldicarb | x | | |
| Aldicarb sulfone | x | | |
| Aldicarb sulfoxide | x | | |
| Atrazine | x | | |
| Benzene | x | x | |
| Benzo(a)pyrene | x | | |
| Carbofuran | x | | |

| Contaminant | GAC | PTA | OX |
|---|----------------------|-----|----|
| Carbon tetrachloride | x | x | |
| Chlordane | x | | |
| Dalapon | x | | |
| 2,4 D | x | | |
| Di (2 ethylhexyl)adipate | x | x | |
| Di (2 ethylhexyl)phthalate | x | | |
| Dibromochloropropane (DBCP) | x | x | |
| o Dichlorobenzene | x | x | |
| para Dichlorobenzene | x | x | |
| 1,2 Dichloroethane | x | x | |
| 1,1 Dichloroethylene | x | x | |
| cis 1,2 Dichloroethylene | x | x | |
| trans 1,2 Dichloroethylene | x | x | |
| Dichloromethane | | x | |
| 1,2 Dichloropropane | x | x | |
| Dinoseb | x | | |
| Diquat | x | | |
| Endothall | x | | |
| Endrin | x | | |
| Ethylbenzene | x | x | |
| Ethylene Dibromide (EDB) | x | x | |
| Glyphosate | | | x |
| Heptachlor | x | | |
| Heptachlor epoxide | x | | |
| Hexachlorobenzene | x | | |
| Hexachlorocyclopentadiene | x | x | |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | x¹ | | |
| Lindane | x | | |
| Methoxychlor | x | | |
| Monochlorobenzene | x | x | |
| Oxamyl (Vydate) | x | | |
| Pentachlorophenol | x | | |
| Perfluorobutanesulfonic acid (PFBS) | x¹ | | |
| Perfluorohexanesulfonic acid (PFHxS) | x¹ | | |
| Perfluorohexanoic acid (PFHxA) | x¹ | | |
| Perfluorononanoic acid (PFNA) | x¹ | | |
| Perfluorooctanesulfonic acid (PFOS) | x¹ | | |
| Perfluorooctanoic acid (PFOA) | x¹ | | |
| Picloram | x | | |
| Polychlorinated biphenyls(PCB) | x | | |
| Simazine | x | | |
| Styrene | x | x | |
| 2,3,7,8 TCDD (Dioxin) | x | | |

| Contaminant | GAC | PTA | OX |
|------------------------|-----|-----|----|
| Tetrachloroethylene | x | x | |
| Toluene | x | x | |
| Toxaphene | x | | |
| 2,4,5 TP (Silvex) | x | | |
| 1,2,4 Trichlorobenzene | x | x | |
| 1,1,1 Trichloroethane | x | x | |
| 1,1,2 Trichloroethane | x | x | |
| Trichloroethylene | x | x | |
| Vinyl chloride | | x | |
| Xylene | x | x | |

¹Best available technology is GAC or an equally efficient technology.

(b) For inorganic contaminants in R 325.10604c, the best available technologies, treatment techniques, or other means available for achieving compliance with the MCLs are listed in table 2 of this rule. The affordable technology, treatment technique, or other means available to supplies serving 10,000 or fewer people for achieving compliance with the maximum contaminant level for arsenic are listed in table 3 of this rule.

Table 2 Best available technologies for inorganic contaminants

| Chemical name | Best available technologies |
|----------------------|--|
| Antimony | 2,7 |
| Arsenic ⁴ | 1,2, 5,6,7,9,11 ⁵ |
| Asbestos | 2,3,8 |
| Barium | 5,6,7,9 |
| Beryllium | 1,2,5,6,7 |
| Cadmium | 2,5,6,7 |
| Chromium | 2,5,6 ² ,7 |
| Cyanide | 5,7,10 |
| Mercury | 2 ¹ ,4,6 ¹ ,7 ¹ |
| Nickel | 5,6,7 |
| Nitrate | 5,7,9 |
| Nitrite | 5,7 |
| Selenium | 1,2 ³ ,6,7,9 |
| Thallium | 1,5 |

¹Best available technology only if influent Hg concentrations are 10 µg/l or less.

²Best available technology for chromium III only.

³Best available technology for selenium IV only.

⁴BATs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.

⁵To obtain high removals, iron to arsenic ratio ~~shall~~**must** be at least 20:1.

Key to best available technologies in table:

1 = activated alumina

- 2 = coagulation/filtration (not BAT for supplies with fewer than 500 service connections)
- 3 = direct and diatomite filtration
- 4 = granular activated carbon
- 5 = ion exchange
- 6 = lime softening (not BAT for supplies than 500 service connections)
- 7 = reverse osmosis
- 8 = corrosion control
- 9 = electro dialysis
- 10 = alkaline chlorination (pH greater than or equal to 8.5)
- 11 = oxidation/filtration

Table 3 Small supplies compliance technologies (SSCTs) for arsenic¹

| Small supply compliance technology | Affordable for listed small supply categories. ² |
|---|---|
| Activated alumina (centralized) | All size categories. |
| Activated alumina (point-of-use) ³ | All size categories. |
| Coagulation/filtration | 501-3,300, 3,301-10,000. |
| Coagulation-assisted microfiltration | 501-3,300, 3,301-10,000. |
| Electrodialysis reversal | 501-3,300, 3,301-10,000. |
| Enhanced coagulation/filtration | All size categories. |
| Enhanced lime softening (pH more than 10.5) | All size categories. |
| Ion exchange | All size categories. |
| Lime softening | 501-3,300, 3,301-10,000. |
| Oxidation/filtration ⁴ | All size categories. |
| Reverse osmosis (centralized) | 501-3,300, 3,301-10,000. |
| Reverse osmosis (point-of-use) ³ | All size categories. |

¹ SSCTs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.

² Three categories of small supplies are: (i) those serving 25 or more, but fewer than 501, (ii) those serving more than 500, but fewer than 3,301, and (iii) those serving more than 3,300, but fewer than 10,001.

³POU ~~shall~~ **must** not be used to obtain a variance.

⁴To obtain high removals, iron to arsenic ratio ~~shall~~ **must** be at least 20:1.

(c) For radionuclide contaminants in R 325.10603, the best available technologies, treatment techniques, or other means available for achieving compliance with the MCLs are listed in table 4 for all size supplies. The affordable technology, treatment technique, or other means available for achieving compliance with the maximum contaminant level are listed in table 5 for supplies serving 10,000 or fewer people as categorized in table 6.

Table 4 Best available technologies for radionuclide contaminants

| Contaminant | Best available technologies. |
|------------------------------------|--|
| Combined radium 226 and radium 228 | Ion exchange, reverse osmosis, lime softening. |

| | |
|---|--|
| Contaminant | Best available technologies. |
| Uranium | Ion exchange, reverse osmosis, lime softening, coagulation/filtration. |
| Gross alpha particle activity (excluding radon and uranium) | Reverse osmosis. |
| Beta particle and proton radioactivity | Ion exchange, reverse osmosis. |

Table 5 List of small supplies compliance technologies for radionuclides and limitations to use

| Unit Technologies | Limitations (see footnotes) | Operator skill level required * | Raw water quality range and considerations. |
|---|-----------------------------|---------------------------------|--|
| 1. Ion exchange | (a) | Intermediate | All ground waters. |
| 2. Reverse osmosis (RO) | (b) | Advanced | Surface waters usually require pre-filtration. |
| 3. Lime softening | (c) | Advanced | All waters. |
| 4. Green sand filtration | (d) | Basic | |
| 5. Co-precipitation and Barium sulfate | (e) | Intermediate to Advanced | Ground waters with suitable water quality. |
| 6. Electrodialysis/ electrodialysis reversal | Not applicable | Basic to intermediate | All ground waters. |
| 7. Pre-formed hydrous Manganese oxide filtration. | (f) | Intermediate | All ground waters. |
| 8. Activated alumina | (a), (g) | Advanced | All ground waters; competing anion concentrations may affect regeneration frequency. |
| 9. Enhanced coagulation/ filtration | (h) | Advanced | Can treat a wide range of water qualities. |

* An operator with a basic skill level has minimal experience in the water treatment field and can perform the necessary system operation and monitoring if provided with proper instruction. The operator is capable of reading and following explicit directions. An operator with an intermediate skill level understands the principles of water treatment and has a knowledge of the regulatory framework. The operator is capable of making system changes in response to source water fluctuations. An operator with an advanced skill level possesses a thorough understanding of the principles of system operation. The operator is knowledgeable in water treatment and regulatory requirements. The operator

may, however, have advanced knowledge of only the particular treatment technology. The operator seeks information, remains informed, and reliably interprets and responds to water fluctuations and system intricacies.

Limitations Footnotes: Technologies for Radionuclides:

- a. The regeneration solution contains high concentrations of the contaminant ions. Disposal options ~~shall~~**must** be carefully considered before choosing this technology.
- b. Reject water disposal options ~~shall~~**must** be carefully considered before choosing this technology.
- c. The combination of variable source water quality and the complexity of the water chemistry involved may make this technology too complex for small surface water systems.
- d. Removal efficiencies may vary depending on water quality.
- e. This technology may be very limited in application to small systems. Since the process requires static mixing, detention basins, and filtration, it is most applicable to systems with sufficiently high sulfate levels that already have a suitable filtration treatment train in place.
- f. This technology is most applicable to small systems that already have filtration in place.
- g. Handling of chemicals required during regeneration and pH adjustment may be too difficult for small systems without an adequately trained operator.
- h. Assumes modification to a coagulation/filtration process already in place.

Table 6 Compliance technologies by supply size category for radionuclide Requirements

| Contaminant | Compliance technologies* for supply size categories (population served) | | |
|---|---|---------------------|---------------------|
| | 25-500 | 501-3,300 | 3,301 – 10,000 |
| 1. Combined radium 226 and radium 228 | 1, 2, 3, 4, 5, 6, 7 | 1, 2, 3, 4, 5, 6, 7 | 1, 2, 3, 4, 5, 6, 7 |
| 2. Gross alpha particle activity | 2 | 2 | 2 |
| 3. Beta particle activity and photon activity | 1, 2 | 1, 2 | 1, 2 |
| 4. Uranium | 1, 8, 9 | 1, 2, 3, 8, 9 | 1, 2, 3, 8, 9 |

* Numbers correspond to those technologies listed in Table 5 of this rule.

(2) The department shall require community water supplies and nontransient, noncommunity water supplies to employ a treatment method identified in subrule (1) of this rule as a condition for granting a variance, except as provided in subrule (3) of this rule. If, after the treatment method is installed in the system, the supply cannot meet the MCL, then the supply shall be eligible for a variance under this part and section 20 of the act.

(3) If a supply demonstrates through comprehensive engineering assessments, which may include pilot plant studies, that the treatment methods identified in subrule (1) of this rule may only achieve a de minimis reduction in contaminants, then the department may issue a schedule of compliance that requires the supply being granted the variance to examine other treatment methods as a condition of obtaining the variance.

(4) If the department determines that a treatment method identified in subrule (3) of this rule is technically feasible, then the department may require the supply to use that treatment method in connection with a compliance schedule issued under section 20 of the act. The department's determination ~~shall~~ **must** be based on studies by the supply and other relevant information.

(5) The department may require a community or noncommunity supply to use point-of-use devices, point-of-entry devices, or other means as a condition of granting a variance or an exemption from the requirements of R 325.10603, R 325.10604b, R 325.10604c, or R 325.10604d, to avoid an unreasonable risk to health. The department may require a public water supply to use point-of-use devices or other means, but not point-of-entry devices, as a condition for granting an exemption from corrosion control treatment requirements for lead and copper in R 325.10604f(2) and (3) to avoid an unreasonable risk to health. The department may require a public water supply to use point-of-entry devices as a condition for granting an exemption from the source water and lead service line replacement requirements for lead and copper under R 325.10604f(4) and (5) to avoid an unreasonable risk to health, provided the supply demonstrates that the device will not cause an increased corrosion of lead and copper bearing materials located between the device and the tap that may increase contaminant levels at the tap.

(6) Community or noncommunity water supplies that use point-of-use or point-of-entry devices under this rule shall meet the conditions in R 325.10313.

R 325.10313 Criteria for water supplies using POE, or POU, or both.

Rule 313. (1) Community and noncommunity water supplies shall not use point-of-use devices (POU) or point-of-entry devices (POE) except as required by the department under R 325.10308b or under all of the following provisions with department approval:

(a) Community water supplies may use POE to comply with the maximum contaminant level or treatment technique for organic, inorganic, and radiological contaminants.

(b) Noncommunity water supplies may use POU, or POE, or both, to comply with maximum contaminant levels or treatment techniques for organic and inorganic contaminants.

(c) An alternative source of water that meets state drinking water standards is not available.

(2) Supplies that use POU or POE, or both, shall meet all of the following requirements:

(a) The supply shall operate and maintain the POU, or POE, or both.

(b) Before POU, or POE, or both, are installed, the supply shall obtain department approval of a monitoring plan that ensures that the devices provide health protection equivalent to that provided by central water treatment. If the POU, or POE, or both, are being used to comply with maximum contaminant levels or treatment techniques, then "equivalent" means that the water ~~shall~~ **must** meet all state drinking water standards and shall be of acceptable quality similar to water distributed by a well-operated central

treatment plant. At a minimum, the monitoring plan ~~shall~~**must** include all of the following:

- (i) Contaminants and parameters to be analyzed.
- (ii) Physical measurements and observations, such as total flow treated and mechanical condition of the treatment equipment.
- (iii) Location of sampling sites.
- (iv) Frequency of sampling. Approximately 10% of the treatment units ~~shall~~**must** be sampled at regular intervals so that all the POE or POU are monitored at least as frequently as required in part 7 for a particular contaminant. For example, for a contaminant that is required to be sampled every 3 years, 10% of the POE or POU ~~shall~~**must** be monitored quarterly so that in 3 years time all of the POE or POU have been monitored. The department may approve an alternate frequency that better represents the rate of degradation of the POE or POU.

(c) Before POU, or POE, or both, are installed, the supply shall obtain department approval of a technology plan that ensures that effective technology is applied and that the microbiological safety of the water is maintained at all times. At a minimum, the technology plan ~~shall~~**must** include all of the following:

- (i) The POU, or POE, or both, ~~shall~~**must** be equipped with mechanical warnings to ensure that customers are automatically notified of operational problems.
- (ii) If a specific type of POU or POE has been independently certified to comply with the maximum contaminant level or treatment technique in accordance with the American national standards institute/national sanitation foundation standards 44, 53, 58, or 62, as adopted by reference in R 325.10112, then individual units of that type ~~shall~~**must** be used to comply with the maximum contaminant level or treatment technique. A supply may use an alternate type of POU or POE if the supply demonstrates to the department, using pilot plant studies or other means, that the alternative POU or POE consistently complies with the maximum contaminant level or treatment technique and the department approves the use of the POU or POE.
- (iii) The design and application of the POU, or POE, or both, ~~shall~~**must** consider the potential for increasing concentrations of heterotrophic bacteria in water treated with activated carbon. Frequent backwashing, post-contactor disinfection, and heterotrophic plate count monitoring may ensure that the microbiological safety of the water is not compromised.

(d) The supply shall demonstrate that buildings connected to the system have sufficient POU, or POE, or both, that are properly installed, maintained, and monitored such that all of consumers shall be protected.

(e) If the POU, or POE, or both, are used to meet an MCL or treatment technique, then the supply shall replace or repair the POU or POE when the contaminant for which the device is intended to control is above the maximum contaminant level in a confirmed sample.

(3) Compliance with the maximum contaminant level ~~shall~~**must** be determined based on the analytical results obtained at each POU or POE, also known as "sampling point". Compliance determination ~~shall~~**must** be made under R 325.10604b(2) for volatile organic contaminants, R 325.10604c(2) for inorganic contaminants, ~~or~~ R 325.10604d(2) for synthetic organic chemicals, **or R 325.10604g(2) for per- and polyfluoroalkyl substances.**

(4) Supplies that violate the MCL shall notify the department under part 7 of these rules and shall notify the public under part 4 of these rules. The supply may limit the distribution of the public notice to only persons served by the POU or POE that is out of compliance.

PART 4. PUBLIC NOTIFICATION AND PUBLIC EDUCATION

R 325.10401a General public notification requirements.

Rule 401a. (1) Each community water supply, nontransient noncommunity water supply, or transient noncommunity water supply shall give notice for violations of the maximum contaminant level (MCL), maximum residual disinfection level (MRDL), treatment technique (TT), monitoring requirements, testing procedures in these rules, and for other situations, as listed in the following provisions:

(a) Violations and other situations requiring public notice, including all of the following:

(i) Failure to comply with an applicable maximum contaminant level (MCL) or maximum residual disinfectant level (MRDL).

(ii) Failure to comply with a prescribed treatment technique (TT).

(iii) Failure to perform water quality monitoring, as required by part 7 of these rules.

(iv) Failure to comply with testing procedures as prescribed by part 6 of these rules.

(b) Variance and exemptions under part 3 of these rules, including both of the following:

(i) Operation under a variance or an exemption.

(ii) Failure to comply with the requirements of a schedule that has been set under a variance or exemption.

(c) Special public notices, including all of the following:

(i) Occurrence of a waterborne disease outbreak or other waterborne emergency.

(ii) Exceedance of the nitrate MCL by noncommunity water supplies, where granted permission by the department.

(iii) Fluoride level above 2.0 mg/l as specified in R 325.10408a.

(iv) Availability of unregulated contaminant monitoring data.

(v) Other violations and situations which are determined by the department to require a public notice under this part and which are not already listed in table 1 of this rule. The tier assignment for each specific violation or situation requiring a public notice is identified in table 1 of this rule. Community and noncommunity water supplies are also considered "water supplies" or "supplies" in this rule, R 325.10402 to R 325.10407, and R 325.10408a to R 325.10409.

(2) Public notice requirements are divided into 3 tiers to take into account the seriousness of the violation or situation and of the potential adverse health effects that may be involved. The public notice requirements for each violation or situation listed in subrule (1) of this rule are determined by the tier to which the violation or situation is assigned. The definition of each tier is provided in the following provisions:

(a) Tier 1 public notice is required for violations and situations that have significant potential to have serious adverse effects on human health as a result of short term exposure.

(b) Tier 2 public notice is required for all other violations and situations that have potential to have serious adverse effects on human health.

(c) Tier 3 public notice is required for all other violations and situations not included in tier 1 and tier 2. The tier assignment for each specific violation or situation is identified in table 1 of this rule.

(3) Supplies shall provide public notice to the following:

(a) Each supply shall provide public notice to persons served by the supply as specified in this part. Supplies that sell or otherwise provide drinking water to other public water supplies, such as to consecutive supplies, shall give public notice to the consecutive supply. The consecutive supply shall provide public notice to the persons it serves.

(b) If a public water supply has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, then the department may grant permission, which ~~shall~~**must** be in writing, to the supply to limit distribution of the public notice to only persons served by that portion of the system which is out of compliance. To be physically separated, the supply shall show that the affected portion of the distribution system is separated from other parts of the distribution system with no interconnections. To be considered hydraulically separated, the supply shall show that the design of the distribution system or the system operation, or both, created a situation where water in the affected portion is effectively isolated from the water in all other parts of the distribution system because of projected water flow patterns and water pressure zones.

(4) The supply, within 10 days of completing the public notification requirements under this part for the initial public notice and applicable repeat notices, shall submit to the department a certification that it fully complied with the public notification regulations. The supply shall include with this certification a representative copy of each type of notice distributed, published, posted, and made available to the persons served by the supply and to the media.

Table 1 Violations and other situations requiring public notice

| Contaminant | MCL/MRDL/TT violations ¹ | | Monitoring, testing, & reporting procedure violations | |
|---|-------------------------------------|------------------------|---|--|
| | Tier of public notice required | Citation | Tier of public notice required | Citation |
| I. Violations of MCL, MRDL, treatment technique, monitoring and reporting, and testing procedure requirements: | | | | |
| A. Microbiological contaminants | | | | |
| Total coliform until March 31, 2016 | 2 | R 325.10602(a) and (b) | 3 | R 325.10704 to R 325.10707a R 325.10702(2) R 325.10707b(4) |
| Total coliform (TT violations resulting from failure to perform assessments or corrective actions, monitoring violations, and reporting violations) beginning April 1, 2016 | 2 | R 325.10704j(2)(a) | 3 | R 325.10704j(3) R 325.10704j(4)(a) |

| Contaminant | MCL/MRDL/TT violations ¹ | | Monitoring, testing, & reporting procedure violations | |
|--|-------------------------------------|---|---|--|
| | Tier of public notice required | Citation | Tier of public notice required | Citation |
| Seasonal supply failure to follow department-approved start-up plan before serving water to the public or failure to provide certification to the department beginning April 1, 2016 | 2 | R 325.10704j(2)(b) | 3 | R 325.10704j(4)(c) |
| Fecal coliform/E. coli until March 31, 2016 | 1 | R 325.10602(c) | 1, 3 ² | R 325.10704(3) R 325.10707b(4) |
| E. coli (MCL, monitoring, and reporting violations) beginning April 1, 2016 | 1 | R 325.10704j(1) | 3 | R 325.10704j(3)(b) R 325.10704j(4)(a) R 325.10704j(4)(b) |
| E. coli (TT violations resulting from failure to perform level 2 assessments or corrective action) beginning April 1, 2016 | 2 | R 325.10704j(2)(a) | n/a | n/a |
| Turbidity (for TT violations resulting from a single exceedance of maximum allowable turbidity level) | 2, 1 ³ | R 325.10611b | 3 | R 325.10605 R 325.10720(2)(a) and (b) |
| Violations, other than violations resulting from single exceedance of max. allowable turbidity level (TT) | 2 | R 325.10611, R 325.10611a, and R 325.10611b | 3 | R 325.10605 R 325.10720(2)(c) and (d) |
| Violations of disinfection profiling and benchmarking | N/A | N/A | 3 | R 325.10722 |
| Violations of filter backwash recycling provisions | 2 | R 325.10611c | 3 | R 325.1507 |

| Contaminant | MCL/MRDL/TT violations ¹ | | Monitoring, testing, & reporting procedure violations | |
|--|-------------------------------------|------------------------------|---|---|
| | Tier of public notice required | Citation | Tier of public notice required | Citation |
| Violations of enhanced treatment for cryptosporidium | 2 | R 325.10611e to R 325.10611m | 2, 3 | 40 CFR §141.701 to §141.705, as adopted by reference in R 325.10720b, R 325.10720c and R 325.10720d. Failure to collect 3 or more samples for Cryptosporidium analysis is a Tier 2 violation requiring special notice as required in R 325.10408d. All other monitoring and testing procedure violations are Tier 3. |
| Violations of rules for ground water supplies subject to R 325.10612 | 2 | R 325.10612b | 3 | R 325.10739(7) R 325.10739a(5) |
| B. Inorganic chemicals (IOC) | | | | |
| Antimony | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Arsenic | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) R 325.10605 |
| Asbestos (fibers longer than 10 µm) | 2 | R 325.10604c(1) | 3 | R 325.10710(4), (6) |
| Barium | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Beryllium | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Cadmium | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Chromium (total) | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Cyanide (free) | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Fluoride | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Mercury (inorganic) | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Nitrate (as nitrogen) | 1 | R 325.10604c(1) | 1, 3 ⁴ | R 325.10710(3), (4), (7), and (9)(b) |
| Nitrite (as nitrogen) | 1 | R 325.10604c(1) | 1, 3 ⁴ | R 325.10710(3), (4), (8), and (9)(b) |
| Total nitrate and nitrite (as nitrogen) | 1 | R 325.10604c(1) | 3 | R 325.10710(4) |

| Contaminant | MCL/MRDL/TT violations ¹ | | Monitoring, testing, & reporting procedure violations | |
|--|-------------------------------------|---|---|--|
| | Tier of public notice required | Citation | Tier of public notice required | Citation |
| Selenium | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Thallium | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| C. Lead and copper (action level for lead is 0.015 mg/l through December 31, 2024 and 0.012 mg/l beginning January 1, 2025; action level for copper is 1.3 mg/l) | | | | |
| Lead and copper rule (TT) | 2 | R 325.10604f(1) – (5) R 325.10410(2) and (3) | 3 | R 325.10710a to R 325.10710c and R 325.10605 |
| D. Synthetic organic chemicals (SOC) | | | | |
| 2,4-D | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| 2,4,5-TP (silvex) | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Alachlor | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Atrazine | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Benzo(a)pyrene (PAHs) | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Carbofuran | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Chlordane | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Dalapon | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Di (2-ethylhexyl) adipate | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Di (2-ethylhexyl) phthalate | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Dibromochloropropane | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Dinoseb | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Dioxin (2,3,7,8-TCDD) | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Diquat | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Endothall | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Endrin | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Ethylene dibromide | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Glyphosate | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Heptachlor | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Heptachlor epoxide | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Hexachlorobenzene | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Hexachlorocyclopentadiene | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Lindane | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Methoxychlor | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Oxamyl (vydate) | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Pentachlorophenol | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Picloram | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Polychlorinated biphenyls [PCBs] | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Simazine | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Toxaphene | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| E. Volatile organic chemicals (VOC) | | | | |
| Benzene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Carbon tetrachloride | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Chlorobenzene (monochloro-benzene) | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| O-dichlorobenzene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| P-dichlorobenzene | 2 | R 325.10604b(1) | 3 | R 325.10716 |

| Contaminant | MCL/MRDL/TT violations ¹ | | Monitoring, testing, & reporting procedure violations | |
|--|-------------------------------------|-------------------|---|---|
| | Tier of public notice required | Citation | Tier of public notice required | Citation |
| 1,2-dichloroethane | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| 1,1-dichloroethylene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Cis-1,2-dichloroethylene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Trans-1,2-dichloroethylene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Dichloromethane | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| 1,2-dichloropropane | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Ethylbenzene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Styrene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Tetrachloro-ethylene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Toluene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| 1,2,4-trichlorobenzene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| 1,1,1-trichloroethane | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| 1,1,2-trichloroethane | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Trichloroethylene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Vinyl chloride | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Xylenes (total) | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| F. per- and polyfluoroalkyl substances (PFAS) | | | | |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | 2 | R 325.10604g(1) | 3 | R 325.10717d |
| Perfluorobutane sulfonic acid (PFBS) | 2 | R 325.10604g(1) | 3 | R 325.10717d |
| Perfluorohexane sulfonic acid (PFHxS) | 2 | R 325.10604g(1) | 3 | R 325.10717d |
| Perfluorohexanoic acid (PFHxA) | 2 | R 325.10604g(1) | 3 | R 325.10717d |
| Perfluorononanoic acid (PFNA) | 2 | R 325.10604g(1) | 3 | R 325.10717d |
| Perfluorooctane sulfonic acid (PFOS) | 2 | R 325.10604g(1) | 3 | R 325.10717d |
| Perfluorooctanoic acid (PFOA) | 2 | R 325.10604g(1) | 3 | R 325.10717d |
| F-G. Radioactive contaminants | | | | |
| Beta/photon emitters | 2 | R 325.10603(2)(c) | 3 | R 325.10605 R 325.10725 R 325.10730 |
| Alpha emitters (gross alpha) | 2 | R 325.10603(2)(b) | 3 | R 325.10605 R 325.10725 R 325.10726 R 325.10728 R 325.10729 |
| Combined radium (226 & 228) | 2 | R 325.10603(2)(a) | 3 | R 325.10605 R 325.10725 R 325.10726 R 325.10728 R 325.10729 |

| Contaminant | MCL/MRDL/TT violations ¹ | | Monitoring, testing, & reporting procedure violations | |
|--|---|--|---|--|
| | Tier of public notice required | Citation | Tier of public notice required | Citation |
| Uranium (pCi/L) | 2 | R 325.10603(2)(d) | 3 | R 325.10605 R 325.10725 R 325.10726 R 325.10728 R 325.10729 |
| G-H. Disinfection byproducts (DBP), byproduct precursors, disinfectant residuals. Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBP). The department sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THM) and haloacetic acids (HAA). See R 325.10610 to R 325.10610d, and R 325.10719e to R 325.10719n for disinfection byproduct MCLs, disinfectant MRDLs, and related monitoring requirements. | | | | |
| Total trihalomethanes (TTHM) | 2 | R 325.10610(2) R 325.10610b(2)(a) | 3 | R 325.10610d, R 325.10719e(1) and (2)(a), and R 325.10719h to R 325.10719n |
| Haloacetic acids (HAA) | 2 | R 325.10610(2) R 325.10610b(2)(a) | 3 | R 325.10610d, R 325.10719e(1) and (2)(a), and R 325.10719h to R 325.10719n |
| Bromate | 2 | R 325.10610 R 325.10610b(2)(b) | 3 | R 325.10719e(1) and (2)(c) |
| Chloramine (MRDL) | 2 | R 325.10610a R 325.10610b(3)(a) | 3 | R 325.10719e(1) and (3) |
| Chlorine (MRDL) | 2 | R 325.10610a R 325.10610b(3)(a) | 3 | R 325.10719e(1) and (3) |
| Chlorite | 2 | R 325.10610 R 325.10610b(2)(c) | 3 | R 325.10719e(1) and (2)(b) |
| Chlorine dioxide (MRDL), where any 2 consecutive daily samples at entrance to distribution system only are above MRDL | 2 | R 325.10610a R 325.10610b(3)(b)(ii) | 2 *, 3 | R 325.10719e(1), (3)(b)(i) and (iii) |
| | * Failure to monitor for chlorine dioxide at the entrance to the distribution system the day after exceeding the MRDL at the entrance to the distribution system is a tier 2 violation. | | | |
| Chlorine dioxide (MRDL), where sample(s) in distribution system the next day are also above MRDL | 1 * | R 325.10610a R 325.10610b(3)(b)(i) | 1 | R 325.10719e(1), (3)(b)(ii) and (iii) |
| | * If any daily sample taken at the entrance to the distribution system exceeds the MRDL for chlorine dioxide and 1 or more samples taken in the distribution system the next day exceed the MRDL, tier 1 notification is required. Failure to take the required samples in the distribution system after the MRDL is exceeded at the entry point also triggers tier 1 notification. | | | |
| Control of DBP precursors—TOC (TT) | 2 | R 325.10610b(4) R 325.10610c | 3 | R 325.10719e(1) and (4) |
| Bench marking and disinfection profiling | N/A | N/A | 3 | R 325.10722 |
| Development of monitoring plan | N/A | N/A | 3 | R 325.10719e(5) |
| H-I. Other treatment techniques | | | | |
| Acrylamide (TT) | 2 | R 325.10604e | N/A | N/A |

| Contaminant | MCL/MRDL/TT violations ¹ | | Monitoring, testing, & reporting procedure violations | |
|---|---|-----------------|---|------------------------------|
| | Tier of public notice required | Citation | Tier of public notice required | Citation |
| Epichlorohydrin (TT) | 2 | R 325.10604e | N/A | N/A |
| II. Other monitoring: | | | | |
| Unregulated contaminants | N/A | N/A | 3 | 40 CFR §141.40 ⁵ |
| Nickel | N/A | N/A | 3 | R 325.10710(4), (5), and (9) |
| III. Public notification for variances and exemptions: | | | | |
| Operation under a variance or exemption | 3 | R 325.10302 | N/A | N/A |
| Violation of conditions of a variance or exemption | 2 | R 325.10312 | N/A | N/A |
| IV. Other situations requiring public notification: | | | | |
| Fluoride level above 2.0 mg/l | 3 | R 325.10408a(1) | N/A | N/A |
| Exceedance of nitrate MCL for noncommunity supplies, as allowed by the department | 1 | R 325.10604c(3) | N/A | N/A |
| Availability of unregulated contaminant monitoring data | 3 | R 325.10407 | N/A | N/A |
| Waterborne disease outbreak | 1 | R 325.10734(4) | N/A | N/A |
| Source water sample positive for Fecal Indicator: E.coli, enterococci, or coliphage | 1 | R 325.10739(6) | N/A | N/A |
| Other waterborne emergencies and other situations as determined by the department | 1 or 2 or 3 * | N/A | N/A | N/A |
| | * Waterborne emergencies require a tier 1 public notice. The department may place other situations in any tier it determines appropriate, based on threat to public health. | | | |

¹MCL - Maximum contaminant level, MRDL - maximum residual disinfectant level, TT - treatment technique.

²Failure to test for fecal coliform or E. coli is a tier 1 violation if testing is not done after any repeat sample tests positive for coliform. All other total coliform monitoring and testing procedure violations are tier 3.

³Supplies with treatment technique violations involving a single exceedance of a maximum turbidity limit under R 325.10611b(1) are required to initiate consultation with the department within 24 hours after learning of the violation. Based on this consultation, the department may subsequently decide to elevate the violation to tier 1. If a supply is unable to make contact with the department in the 24-hour period, the violation is automatically elevated to tier 1.

⁴Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL is a tier 1 violation. Other monitoring violations for nitrate are tier 3.

⁵Title 40 CFR part 141 Section 40, being 40 CFR §141.40, (2014), which pertains to Unregulated Contaminant Monitoring, is contained in Title 40 CFR parts 136 to 149 and is available for purchase for \$67.00 from the superintendent of documents at the address in R 325.10116. The material is available for inspection from the offices of the department at the address in R 325.10116(a) or available on the Internet at <http://www.ecfr.gov/>.

R 325.10405 Content of public notice.

Rule 405. (1) If a community or noncommunity water supply that is subject to R 325.10401a has a violation or situation requiring public notification, then each public notice ~~shall~~ **must** include all of the following elements:

- (a) A description of the violation or situation, including the contaminant or contaminants of concern, and, as applicable, the contaminant level or levels.
- (b) When the violation or situation occurred.
- (c) The potential adverse health effects from the violation or situation, including the standard language under subrule (4)(a) or (b) of this rule, whichever is applicable.
- (d) The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in their drinking water.
- (e) If alternative water supplies should be used.
- (f) What actions consumers should take, including when they should seek medical help, if known.
- (g) What the supply is doing to correct the violation or situation.
- (h) When the supply expects to return to compliance or resolve the situation.
- (i) The name, business address, and phone number of the supply or designee of the supply as a source of additional information concerning the notice.
- (j) A statement to encourage the notice recipient to distribute the public notice to other persons served, using the standard language under subrule (4)(c) of this rule, where applicable.

(2) All of the following elements ~~shall~~ **must** be included in the public notice for public water supplies operating under a variance or exemption:

- (a) If a public water supply has been granted a variance or an exemption, then the public notice ~~shall~~ **must** contain all of the following elements:
 - (i) An explanation of the reasons for the variance or exemption.
 - (ii) The date on which the variance or exemption was issued.
 - (iii) A brief status report on the steps the supply is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance or exemption.
 - (iv) A notice of opportunities for public input in the review of the variance or exemption.

(b) If a public water supply violates the conditions of a variance or exemption, then the public notice ~~shall~~ **must** contain the 10 elements listed in subrule (1) of this rule.

(3) The public notice ~~shall~~ **must** be presented in the following manner:

(a) Each public notice required by this part ~~shall~~ **must** meet all of the following criteria:

- (i) ~~Shall~~ **Must** be displayed in a conspicuous way when printed or posted.
- (ii) ~~Shall~~ **Must** not contain overly technical language or very small print.
- (iii) ~~Shall~~ **Must** not be formatted in a way that defeats the purpose of the notice.
- (iv) ~~Shall~~ **Must** not contain language which nullifies the purpose of the notice.

(b) In communities where more than 10% of the consumers are non-English speaking consumers, the public notice ~~shall~~ **must** contain information in the appropriate language or languages regarding the importance of the notice or contain a telephone number or address where persons served may contact the supply to obtain a translated copy of the notice or to request assistance in the appropriate language.

(4) The supply shall include the following standard language in the public notice:

(a) The supply shall include in each public notice the health effects language specified in table 1 of this rule corresponding to each MCL, MRDL, and treatment technique violation listed in table 1 of R 325.10401a, and for each violation of a condition of a variance or exemption.

(b) The supply shall include the following language in the notice, including the language necessary to fill in the blanks, for all monitoring and testing procedure violations listed in table 1 of R 325.10401a: "We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During [compliance period], we 'did not monitor or test' or 'did not complete all monitoring or testing' for [contaminant or contaminants], and therefore cannot be sure of the quality of your drinking water during that time."

(c) The supply shall include in the notice the following language, where applicable, to encourage the distribution of the public notice to all persons served: "Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail."

Table 1 Regulated contaminants

Key

AL=Action level

MCL=Maximum contaminant level

MCLG=Maximum contaminant level goal

mfl=Million fibers per liter

MRDL=Maximum residual disinfectant level

MRDLG=Maximum residual disinfectant level goal

mrem/year=Millirems per year (a measure of radiation absorbed by the body)

N/A=Not applicable

NTU=Nephelometric turbidity units (a measure of water clarity)

pci/l=Picocuries per liter (a measure of radioactivity)

ppm=Parts per million, or milligrams per liter (mg/l)

ppb=Parts per billion, or micrograms per liter ($\mu\text{g/l}$)

ppt=Parts per trillion, or nanograms per liter

ppq=Parts per quadrillion, or picograms per liter

TT=Treatment technique

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | 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 until March 31, 2016 | MCL: For water supplies analyzing 40 or more samples per month, not more than 5.0% of the monthly samples may be positive for total coliform. For supplies analyzing fewer than 40 samples per month, not more than 1 sample per month may be positive for total coliform. | | zero | | 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, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems. |
| Total coliform bacteria beginning April 1, 2016. This row applies to Consumer Confidence Reporting. | TT | No conversion necessary | 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. |
| Fecal coliform and E. coli until March 31, 2016 | zero | No conversion necessary | zero | zero | Human and animal fecal waste | Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term 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. |
| E. coli beginning April 1, 2016 | MCL: Routine and repeat samples are total coliform-positive and either is E. coli-positive or supply fails to take all required repeat samples following E. coli-positive routine sample or supply fails to analyze total coliform-positive repeat sample for E. coli | | | zero | Human and animal fecal waste | 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. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--|---|---------------------------------|------------------|-------------------|---------------------------------|---|
| Coliform Assessment and/or Corrective Action Violations beginning April 1, 2016. This row applies to public notification. For Consumer Confidence Reporting, see R 325.10413(12)(g) (i). | N/A | No conversion necessary | TT | N/A | N/A | 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 SUPPLY MUST USE 1 OF THE FOLLOWING APPLICABLE SENTENCES:] We failed to conduct the required assessment. We failed to correct all identified sanitary defects that were found during the assessment(s). |
| E. coli Assessment and/or Corrective Action Violations beginning April 1, 2106. This row applies to public notification. For Consumer Confidence Reporting, see R 325.10413(12)(g) (ii). | N/A | No conversion necessary | TT | N/A | N/A | 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 violated the standard for E. coli, 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 SUPPLY MUST USE 1 OF THE FOLLOWING APPLICABLE SENTENCES:] We failed to conduct the required assessment. We failed to correct all identified sanitary defects that were found during the assessment that we conducted. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|---|--|---------------------------------|------------------|---------------------------------------|--------------------------------------|---|
| Seasonal Supply Treatment Technique Violations of the Total Coliform Rule beginning April 1, 2016. | N/A | No conversion necessary | TT | N/A | N/A | When this violation includes the failure to monitor for total coliforms or E. coli prior to serving water to the public, the mandatory language found at R 325.10405(4)(b) shall must be used. When this violation includes failure to complete other actions, the appropriate public notice elements found in R 325.10405(1) shall must be used. |
| Fecal indicator under groundwater requirements in R 325.10612 et. al: - E.coli - enterococci or - coliphage) | TT | No conversion necessary | TT | E.coli: zero Others: 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 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. |
| Violations of rules for ground water supplies subject to R 325.10612 | TT | No conversion necessary | TT | N/A | N/A | Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches. |
| Turbidity (ntu) | TT | No conversion necessary | TT | N/A | Soil runoff | Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. |
| Other microbiological contaminants | | | | | | |
| Giardia lamblia, viruses, heterotrophic plate count (HPC) bacteria, legionella, cryptosporidium | TT* | No conversion necessary | TT* | zero | Naturally present in the environment | Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. |
| | * The treatment technique violations that involve turbidity exceedances may use health effects language for turbidity instead. | | | | | |
| Inorganic contaminants | | | | | | |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|---|---|---------------------------------|------------------|-------------------|---|---|
| Antimony (ppb) | 0.006 | 1000 | 6 | 6 | Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder | Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar. |
| Arsenic (ppb) | 0.010 | 1000 | 10 | 0 | Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes | Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer. |
| Asbestos [fibers longer than 10 µm] (mfl) | 7 mfl | No conversion necessary | 7 | 7 | Decay of asbestos cement water mains; erosion of natural deposits | Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps. |
| Barium (ppm) | 2 | No conversion necessary | 2 | 2 | Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits | Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure. |
| Beryllium (ppb) | 0.004 | 1000 | 4 | 4 | Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries | Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions. |
| Cadmium (ppb) | 0.005 | 1000 | 5 | 5 | Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints | Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage. |
| Chromium [total] (ppb) | 0.1 | 1000 | 100 | 100 | Discharge from steel and pulp mills; erosion of natural deposits | Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|---|---|---------------------------------|------------------|-------------------|--|---|
| Cyanide [free] (ppb) | 0.2 | 1000 | 200 | 200 | Discharge from steel/metal factories; discharge from plastic and fertilizer factories | Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid. |
| Fluoride (ppm) | 4.0 | No conversion necessary | 4.0 | 4.0 | Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories | Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than 9 years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums. |
| Mercury [inorganic] (ppb) | 0.002 | 1000 | 2 | 2 | Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland | Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage. |
| Nitrate [as nitrogen] (ppm) | 10 | No conversion necessary | 10 | 10 | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits | Infants below the age of 6 months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. |
| Nitrite [as nitrogen] (ppm) | 1 | No conversion necessary | 1 | 1 | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits | Infants below the age of 6 months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. |
| Total nitrate and nitrite [as nitrogen] (ppm) | 10 | No conversion necessary | 10 | 10 | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits | Infants below the age of 6 months who drink water containing nitrate and nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--|---|---------------------------------|--|-------------------|---|---|
| Selenium (ppb) | 0.05 | 1000 | 50 | 50 | Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines | Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation. |
| Thallium (ppb) | 0.002 | 1000 | 2 | 0.5 | Leaching from ore-processing sites; discharge from electronics, glass, and drug factories | Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver. |
| Lead and copper | | | | | | |
| Lead (ppb) | AL=0.015 through December 31, 2024; AL=0.012 beginning January 1, 2025. | 1000 | AL=15 through December 31, 2024; AL=12 beginning January 1, 2025. (TT) | zero | Lead services lines, corrosion of household plumbing including fittings and fixtures; erosion of natural deposits | Infants and children who drink water containing lead could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. |
| Copper (ppm) | AL=1.3 | No conversion necessary | AL=1.3 (TT) | 1.3 | Corrosion of household plumbing systems; erosion of natural deposits | Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor. |
| Synthetic organic contaminants including pesticides and herbicides | | | | | | |
| 2,4-D (ppb) | 0.07 | 1000 | 70 | 70 | Runoff from herbicide used on row crops | Some people who drink water containing the weed killer 2,4-d well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--------------------------------|---|---------------------------------|------------------|-------------------|---|--|
| 2,4,5-TP [silvex] (ppb) | 0.05 | 1000 | 50 | 50 | Residue of banned herbicide | Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems. |
| Alachlor (ppb) | 0.002 | 1000 | 2 | zero | Runoff from herbicide used on row crops | Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer. |
| Atrazine (ppb) | 0.003 | 1000 | 3 | 3 | Runoff from herbicide used on row crops | Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties. |
| Benzo(a)pyrene [PAHs] (ppt) | 0.0002 | 1,000,000 | 200 | zero | Leaching from linings of water storage tanks and distribution lines | Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer. |
| Carbofuran (ppb) | 0.04 | 1000 | 40 | 40 | Leaching of soil fumigant used on rice and alfalfa | Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood or nervous or reproductive systems. |
| Chlordane (ppb) | 0.002 | 1000 | 2 | zero | Residue of banned termiticide | Some people who drink water containing chlordane in excess of the mcl over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer. |
| Dalapon (ppb) | 0.2 | 1000 | 200 | 200 | Runoff from herbicide used on rights of way | Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes. |
| Di(2-ethylhexyl) adipate (ppb) | 0.4 | 1000 | 400 | 400 | Discharge from chemical factories | Some people who drink water containing di (2-ethylhexyl) adipate well in excess of the MCL over many years could experience toxic effects such as weight loss, liver enlargement, or possible reproductive difficulties. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|-----------------------------------|---|---------------------------------|------------------|-------------------|---|---|
| Di(2-ethylhexyl) phthalate (ppb) | 0.006 | 1000 | 6 | zero | Discharge from rubber and chemical factories | Some people who drink water containing di (2-ethylhexyl) phthalate well in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer. |
| Dibromochloropropane [DBCP] (ppt) | 0.0002 | 1,000,000 | 200 | zero | Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards | Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer. |
| Dinoseb (ppb) | 0.007 | 1000 | 7 | 7 | Runoff from herbicide used on soybeans and vegetables | Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties. |
| Dioxin [2,3,7,8-TCDD] (ppq) | 0.00000003 | 1,000,000,000 | 30 | zero | Emissions from waste incineration and other combustion; discharge from chemical factories | Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer. |
| Diquat (ppb) | 0.02 | 1000 | 20 | 20 | Runoff from herbicide use | Some people who drink water containing diquat in excess of the MCL over many years could get cataracts. |
| Endothall (ppb) | 0.1 | 1000 | 100 | 100 | Runoff from herbicide use | Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines. |
| Endrin (ppb) | 0.002 | 1000 | 2 | 2 | Residue of banned insecticide | Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems. |
| Ethylene dibromide (ppt) | 0.00005 | 1,000,000 | 50 | zero | Discharge from petroleum refineries | Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer. |
| Glyphosate (ppb) | 0.7 | 1000 | 700 | 700 | Runoff from herbicide use | Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|---------------------------------|---|---------------------------------|------------------|-------------------|---|---|
| Heptachlor (ppt) | 0.0004 | 1,000,000 | 400 | zero | Residue of banned pesticide | Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer. |
| Heptachlor epoxide (ppt) | 0.0002 | 1,000,000 | 200 | zero | Breakdown of heptachlor | Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer. |
| Hexachlorobenzene (ppb) | 0.001 | 1000 | 1 | zero | Discharge from metal refineries and agricultural chemical factories | Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer. |
| Hexachlorocyclopentadiene (ppb) | 0.05 | 1000 | 50 | 50 | Discharge from chemical factories | Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach. |
| lindane (ppt) | 0.0002 | 1,000,000 | 200 | 200 | Runoff/leaching from insecticide used on cattle, lumber, gardens | Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver. |
| Methoxychlor (ppb) | 0.04 | 1000 | 40 | 40 | Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock | Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties. |
| Oxamyl [vydate] (ppb) | 0.2 | 1000 | 200 | 200 | Runoff/leaching from insecticide used on apples, potatoes, and tomatoes | Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects. |
| Pentachlorophenol (ppb) | 0.001 | 1000 | 1 | zero | Discharge from wood preserving factories | Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|---|---|---------------------------------|------------------|-------------------|--|---|
| Picloram (ppb) | 0.5 | 1000 | 500 | 500 | Herbicide runoff | Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver. |
| Polychlorinated biphenyls [PCBs] (ppt) | 0.0005 | 1,000,000 | 500 | zero | Runoff from landfills; discharge of waste chemicals | Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer. |
| Simazine (ppb) | 0.004 | 1000 | 4 | 4 | Herbicide runoff | Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood. |
| Toxaphene (ppb) | 0.003 | 1000 | 3 | zero | Runoff/leaching from insecticide used on cotton and cattle | Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer. |
| Per- and polyfluoroalkyl substances (PFAS) | | | | | | |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) (ppt) | 370 ppt (ng/l) | No conversion necessary | 370 | N/A | Discharge and waste from industrial facilities utilizing the Gen X chemical process | Some people who drink water containing HFPO-DA in excess of the MCL could experience problems with their liver. Some fetuses and/or infants born to mothers drinking water containing HFPO-DA in excess of the MCL may experience developmental effects. |
| Perfluorobutane sulfonic acid (PFBS) (ppt) | 420 ppt (ng/l) | No conversion necessary | 420 | N/A | Discharge and waste from industrial facilities; stain-resistant treatments | Some infants born to mothers drinking water containing PFBS in excess of the MCL may experience decreased thyroid hormone levels. |
| Perfluorohexane sulfonic acid (PFHxS) (ppt) | 51 ppt (ng/l) | No conversion necessary | 51 | N/A | Firefighting foam; discharge and waste from industrial facilities | Some people who drink water containing PFHxS in excess of the MCL could experience problems with their thyroid, liver, and cholesterol levels. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|---|---|---------------------------------|------------------|-------------------|--|---|
| Perfluorohexanoic acid (PFHxA) (ppt) | 400,000 ppt (ng/l) | No conversion necessary | 400,000 | N/A | Firefighting foam; discharge and waste from industrial facilities | Some people who drink water containing PFHxA in excess of the MCL could experience problems with their liver and kidneys. |
| Perfluorononanoic acid (PFNA) (ppt) | 6 ppt (ng/l) | No conversion necessary | 6 | N/A | Discharge and waste from industrial facilities; breakdown of precursor compounds | Some fetuses and/or infants born to mothers drinking water containing PFNA in excess of the MCL may experience developmental delays and decreased body weight gain. |
| Perfluorooctane sulfonic acid (PFOS) (ppt) | 16 ppt (ng/l) | No conversion necessary | 16 | N/A | Firefighting foam; discharge from electroplating facilities; discharge and waste from industrial facilities | Some fetuses and/or infants born to mothers drinking water containing PFOS in excess of the MCL may experience developmental delays and decreased body weight gain. |
| Perfluorooctanoic acid (PFOA) (ppt) | 8 ppt (ng/l) | No conversion necessary | 8 | N/A | Discharge and waste from industrial facilities; stain-resistant treatments | Some fetuses and/or infants born to mothers drinking water containing PFOA in excess of the MCL may experience neurodevelopmental effects and skeletal effects. |
| Volatile organic contaminants | | | | | | |
| Benzene (ppb) | 0.005 | 1000 | 5 | zero | Discharge from factories; leaching from gas storage tanks and landfills | Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer. |
| Carbon tetrachloride (ppb) | 0.005 | 1000 | 5 | zero | Discharge from chemical plants and other industrial activities | Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer. |
| Chlorobenzene (ppb) | 0.1 | 1000 | 100 | 100 | Discharge from chemical and agricultural chemical factories | Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|----------------------------------|---|---------------------------------|------------------|-------------------|--|--|
| O-dichlorobenzene (ppb) | 0.6 | 1000 | 600 | 600 | Discharge from industrial chemical factories | Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems. |
| P-dichlorobenzene (ppb) | 0.075 | 1000 | 75 | 75 | Discharge from industrial chemical factories | Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood. |
| 1,2-dichloroethane (ppb) | 0.005 | 1000 | 5 | zero | Discharge from industrial chemical factories | Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer. |
| 1,1-dichloroethylene (ppb) | 0.007 | 1000 | 7 | 7 | Discharge from industrial chemical factories | Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver. |
| Cis-1,2-dichloroethylene (ppb) | 0.07 | 1000 | 70 | 70 | Discharge from industrial chemical factories | Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver. |
| Trans-1,2-dichloroethylene (ppb) | 0.1 | 1000 | 100 | 100 | Discharge from industrial chemical factories | Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver. |
| Dichloromethane (ppb) | 0.005 | 1000 | 5 | zero | Discharge from pharmaceutical and chemical factories | Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer. |
| 1,2-dichloropropane (ppb) | 0.005 | 1000 | 5 | zero | Discharge from industrial chemical factories | Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer. |
| Ethylbenzene (ppb) | 0.7 | 1000 | 700 | 700 | Discharge from petroleum refineries | Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys. |
| Styrene (ppb) | 0.1 | 1000 | 100 | 100 | Discharge from rubber and plastic factories; leaching from landfills | Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|------------------------------|---|---------------------------------|------------------|-------------------|---|--|
| Tetrachloro-ethylene (ppb) | 0.005 | 1000 | 5 | Zero | Discharge from factories and dry cleaners | Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer. |
| Toluene (ppm) | 1 | No conversion necessary | 1 | 1 | Discharge from petroleum factories | Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver. |
| 1,2,4-trichlorobenzene (ppb) | 0.07 | 1000 | 70 | 70 | Discharge from textile-finishing factories | Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands. |
| 1,1,1-trichloroethane (ppb) | 0.2 | 1000 | 200 | 200 | Discharge from metal degreasing sites and other factories | Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system. |
| 1,1,2-trichloroethane (ppb) | 0.005 | 1000 | 5 | 3 | Discharge from industrial chemical factories | Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems. |
| Trichloroethylene (ppb) | 0.005 | 1000 | 5 | zero | Discharge from metal degreasing sites and other factories | Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer. |
| Vinyl chloride (ppb) | 0.002 | 1000 | 2 | zero | Leaching from PVC piping; discharge from plastics factories | Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer. |
| Xylenes [total] (ppm) | 10 | No conversion necessary | 10 | 10 | Discharge from petroleum factories; discharge from chemical factories | Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system. |
| Radioactive contaminants | | | | | | |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--|---|---------------------------------|------------------|-------------------|---|--|
| Beta/photon emitters (mrem/yr) | 4 mrem/yr | No conversion necessary | 4 | zero | Decay of natural and man-made deposits | Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta particle and photon radioactivity in excess of the MCL over many years may have an increased risk of getting cancer. |
| Alpha emitters [gross alpha] (pci/l) | 15 pCi/L | No conversion necessary | 15 | zero | Erosion of natural deposits | Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer. |
| Combined radium [226 & 228] (pci/l) | 5 pCi/L | No conversion necessary | 5 | zero | Erosion of natural deposits | Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer. |
| Uranium (pCi/L) | 30 ug/L | No conversion necessary | 30 | Zero | Erosion of natural deposits | Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity. |
| Disinfection byproducts (DBP), byproduct precursors, and disinfectant residuals: where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBP). The department sets standards for controlling the levels of disinfectants and DBP in drinking water, including trihalomethanes (THM) and haloacetic acids (HAA). See R 325.10610 to R 325.10610d and R 325.10719e to R 325.10719n for disinfection byproduct MCLs, disinfectant MRDLs, and related monitoring requirements. | | | | | | |
| Total trihalomethanes [TTHM] (ppb) | 0.080* | 1000 | 80* | N/A | By-product of drinking water disinfection | Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer. |
| | * The MCL for total trihalomethanes is the sum of the concentrations of the individual trihalomethanes. | | | | | |
| Haloacetic acids (HAAs) (ppb) | 0.060* | 1000 | 60* | N/A | By-product of drinking water disinfection | Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer. |
| | * The MCL for haloacetic acids is the sum of the concentrations of the individual haloacetic acids. | | | | | |
| Bromate (ppb) | 0.010 | 1000 | 10 | zero | By-product of drinking water disinfection | Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--------------------------|---|---------------------------------|------------------|-------------------|---|---|
| Chloramines (ppm) | MRDL = 4 | No conversion necessary | MRDL = 4 | MRDLG = 4 | Water additive used to control microbes | Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia. |
| Chlorine (ppm) | MRDL = 4 | No conversion necessary | MRDL = 4 | MRDLG = 4 | Water additive used to control microbes | Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort. |
| Chlorite (ppm) | 1 | No conversion necessary | 1 | 0.8 | By-product of drinking water disinfection | Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia. |
| Chlorine dioxide (ppb) | MRDL = 0.8 | 1000 | MRDL = 800 | MRDLG = 800 | Water additive used to control microbes | Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. |
| | <p>Add the following only to public notification where any 2 consecutive daily samples taken at the entrance to the distribution system are above the MRDL: "The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, not within the distribution system which delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers."</p> <p>Add the following only to public notification where 1 or more distribution system samples are above the MRDL: "The chlorine dioxide violations reported today include exceedances of the drinking water standard within the distribution system which delivers water to consumers. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short-term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure."</p> | | | | | |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--|---|---------------------------------|------------------|-------------------|---|--|
| Total organic carbon [TOC - control of DBP precursors] (ppm) | TT | No conversion necessary | TT | None | Naturally present in the environment | Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THM) and haloacetic acids (HAA). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer. |
| Other treatment techniques | | | | | | |
| Acrylamide | TT | No conversion necessary | TT | zero | Added to water during sewage/ wastewater treatment | Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer. |
| Epichlorohydrin | TT | No conversion necessary | TT | zero | Discharge from industrial chemical factories; an impurity of some water treatment chemicals | Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer. |

PART 6. STATE DRINKING WATER STANDARDS AND ANALYTICAL METHODS

R 325.10604g MCLs for per- and polyfluoroalkyl substances.

Rule 604g. (1) The maximum contaminant levels and effective dates for per- and polyfluoroalkyl substances in table 1 of this rule apply to community and nontransient noncommunity water supplies.

Table 1 MCLs for per and polyfluoroalkyl substances

| Contaminant | Maximum Contaminant Level in ng/l | Effective Date |
|---|--|--------------------------------------|
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | 370 | [effective date of this rule] |
| Perfluorobutane sulfonic acid (PFBS) | 420 | [effective date of this rule] |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | [effective date of this rule] |
| Perfluorohexanoic acid (PFHxA) | 400,000 | [effective date of this rule] |
| Perfluorononanoic acid (PFNA) | 6 | [effective date of this rule] |
| Perfluorooctane sulfonic acid (PFOS) | 16 | [effective date of this rule] |
| Perfluorooctanoic acid (PFOA) | 8 | [effective date of this rule] |

(2) Compliance with the MCLs in table 1 of this rule must be determined based on the analytical results obtained at each sampling point. If 1 sampling point is in violation of an MCL, then the supply is in violation of the MCL. All of the following provisions apply:

(a) For supplies monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point.

(b) Supplies monitoring annually whose sample result exceeds an MCL in Table 1 of this rule shall begin quarterly sampling. Compliance with the MCL must be based on the running annual average. For the purpose of calculating the running annual average, the initial exceedance must be the result for the first quarter. If the department requires a confirmation sample under R 325.10717d(12), then the average of the initial exceedance and the confirmation sample must be the result for the first quarter, unless the department determines a sample should be excluded per R 325.10717d(12). The supply shall not be in violation of the MCL until it has completed 1 year of quarterly sampling.

(c) If any sample result causes the running annual average to exceed the MCL at any sampling point, then the supply is out of compliance with the MCL immediately.

(d) If a supply fails to collect the required number of samples, then compliance must be based on the total number of samples collected.

(e) If a sample result is less than the reporting limit, then zero must be used to calculate the annual average.

PART 7. SURVEILLANCE, INSPECTION, AND MONITORING

R 325.10717d Collection and analysis of samples for per- and polyfluoroalkyl substances.

Rule 717d. (1) Suppliers of community and nontransient noncommunity water supplies shall collect samples and cause analyses to be made under this rule for per- and polyfluoroalkyl substances to determine compliance with the state drinking water standards in R 325.10604g. Each supplier shall monitor at the time designated by the department.

(2) For transient noncommunity and type III public water supplies, the department may require samples to be collected and analyzed at prescribed frequencies for per- and polyfluoroalkyl substances.

(3) A groundwater supplier shall take at least 1 sample at every entry point to the distribution system that is representative of each well after treatment, also known as sampling point. Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(4) A surface water supplier, or combined surface water and ground water, shall take at least 1 sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment, also known as sampling point. Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(5) If a system draws water from more than 1 source and the sources are combined before distribution, then the supplier shall sample at an entry point to the distribution system during periods of normal operating conditions when water that is representative of all sources is being used.

(6) An existing supplier with one or more samples taken at each sampling point described in subrules (3), (4), or (5) as part of the State of Michigan's 2018/2019 Statewide PFAS Survey shall conduct initial sampling as follows:

(a) A supplier with one or more sample results greater than 50% of the MCL for a contaminant listed in rule 10604g shall collect samples from each sampling point beginning the first full quarter following the effective date of this rule.

(b) A supplier with no detection or a detection less than or equal to 50% of the MCL for a contaminant listed in rule 10604g shall collect at least 1 sample from each sampling point within 6 months of the effective date of this rule.

(7) An existing supplier without sampling conducted under subrule (6) of this rule, shall collect samples beginning the first full quarter following the effective date of this rule.

(8) A new community or nontransient noncommunity water supply shall collect samples beginning the first full quarter following the initiation of operations.

(9) If the results of samples collected under subrules (6), (7), or (8) are below the reporting limits specified in R 325.12708, the department may allow the water supply to monitor annually.

(10) If a contaminant in R 325.10604g is detected above the reporting limit in any sample, then all of the following provisions apply:

(a) Each supply shall monitor quarterly at each sampling point that resulted in a detection. The department may decrease the quarterly monitoring requirement specified in this subrule if it has determined that the supply is reliably and consistently below the MCL. A groundwater supplier shall take not fewer than 2 quarterly samples and a surface water supplier shall take not fewer than 4 quarterly samples before this determination.

(b) After the department determines that the supply is reliably and consistently below the MCL, the department may allow the supply to monitor annually.

(11) A supplier that violates R 325.10604g shall monitor quarterly. If not fewer than 4 quarterly samples show that the supply is in compliance and the department determines the supply is reliably and consistently below the MCL, then the department may allow the supply to monitor annually.

(12) The department may require confirmation sampling for positive or negative results. If confirmation sampling is required, then the results must be averaged with the first sampling result and the average must be used for the compliance determination. The department may exclude results of obvious sampling errors from this calculation.

(13) The department may increase the required monitoring to detect variations within the system.

(14) All new supplies or supplies that use a new source of water shall demonstrate compliance with the MCLs before serving water to the public. The supply shall also comply with the initial sampling frequencies specified by the department.

PART 27. LABORATORY CERTIFICATION

R 325.12701 Purpose.

Rule 2701. An analytical result that is used to determine compliance with a state drinking water standard established in part 6 ~~must shall~~ be the result of an analysis performed by a department or EPA certified laboratory, except that measurements for alkalinity, bromide, calcium, daily chlorite samples at the entrance to the distribution system, conductivity, magnesium, orthophosphate, pH, residual disinfectant concentration, silica, specific ultraviolet absorbance, temperature, **chloride, sulfate**, and turbidity may be performed by personnel acceptable to the department. This part sets forth requirements established by the federal act for laboratory certification.

R 325.12708 Certification for PFAS analyses.

Rule 2708. To qualify for certification to conduct analyses for the PFASs in table 1 of R 325.10604g, a laboratory must be in compliance with the following provisions:

(a) Samples must be collected and analyzed in accordance with EPA method 537.1 or other methods as approved by the department.

(b) The minimum reporting limit must be 2 ng/l.

(c) Analytical results must be reported to the nearest ng/l.

(d) Analyze performance evaluation samples which include the PFASs in table 1 of this rule, acquired from a third party proficiency test provider approved by the department at least once per year.

(e) For each regulated PFAS contaminant included in the performance evaluation sample, achieve quantitative results on the analyses that are within the acceptance limits listed in table 1 of this rule.

Table 1 Acceptance limits

| Contaminant | Chemical Abstract Services Registry Number | Acceptance Limits (percent) |
|--|--|-----------------------------|
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | 13252-13-6 | ± 30% (GV) ¹ |
| Perfluorobutane sulfonic acid (PFBS) | 373-73-5 | ± 30% (GV) ¹ |
| Perfluorohexane sulfonic acid (PFHxS) | 335-46-4 | ± 30% (GV) ¹ |
| Perfluorohexanoic acid (PFHxA) | 307-24-4 | ± 30% (GV) ¹ |
| Perfluorononanoic acid (PFNA) | 375-95-1 | ± 30% (GV) ¹ |
| Perfluorooctane sulfonic acid (PFOS) | 1763-23-1 | ± 30% (GV) ¹ |
| Perfluorooctanoic acid (PFOA) | 335-67-1 | ± 30% (GV) ¹ |

¹Gravimetric value

R 325.12710 Suspension or revocation of certification.

Rule 2710. (1) If the department determines that a laboratory certified under the provisions of the act and rules is not operating in an approved manner, is reporting results that do not meet state laboratory certification requirements, or is operating in a manner which may cause a hazard to the public health, the department may move to suspend or revoke the certification of the laboratory following the provisions of the Administrative Procedures Act of 1969, Act 306 of 1969.

(2) Reasons for suspension of a laboratory's certification in part or whole, or the denial of an initial certification request include but are not limited to:

- (a) Failure to pay certification fees.
- (b) Failure to pass a laboratory inspection.
- (c) Failure to meet proficiency test requirements.
- (d) Failure to respond to a laboratory inspection report within the allotted timeframe.
- (e) Persistent failure to report compliance data to the public water system or the state drinking water program in a timely manner, thereby preventing timely compliance determination with federal or state regulations and endangering public health.
- (f) Failure to correct deficiencies noted in an on-site inspection report.
- (g) Refusal to participate in an on-site inspection conducted by the certifying agency.
- (h) Failure to make records pertaining to the analysis of regulated drinking water contaminants available for review or copying by the laboratory certification program.

(3) Suspension of a laboratory's certification must remain in effect until the laboratory provides documentation that the reason or reasons for the suspension have been corrected.

(4) Reasons for revocation of a laboratory's certification include but are not limited to:

- (a) Falsification of the certification application or certification renewal application.**
- (b) Fraud or other criminal activity.**
- (c) Falsification of records or analytical results.**
- (d) Reporting results not meeting SDWA or method requirements.**
- (e) Reporting proficiency test data from another laboratory as its own.**
- (f) Using analytical methodology not listed on the laboratory's certification letter for reporting regulated drinking water contaminants.**
- (g) A written notification from the laboratory that it is voluntarily relinquishing certification.**

**Michigan Office of Administrative Hearings and Rules
Administrative Rules Division (ARD)**

611 W. Ottawa Street
Lansing, MI 48909

Phone: 517-335-8658 Fax: 517-335-9512

**REGULATORY IMPACT STATEMENT
and COST-BENEFIT ANALYSIS (RIS)**

Agency Information:

Department name:

Environment, Great Lakes and Energy

Bureau name:

Drinking Water & Municipal Assistance Division

Name of person filling out RIS:

Candra Wilcox

Phone number of person filling out RIS:

517-284-5004

E-mail of person filling out RIS:

WilcoxC2@michigan.gov

Rule Set Information:

ARD assigned rule set number:

2019-35 EG

Title of proposed rule set:

Supplying Water to the Public

Comparison of Rule(s) to Federal/State/Association Standard:

1. Compare the proposed rules to parallel federal rules or standards set by a state or national licensing agency or accreditation association, if any exist.

The Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), currently contains numerous drinking water standards that are consistent with federal requirements. This requested rulemaking will add additional drinking water standards and related sampling and response requirements. These additional standards would be in addition to the regulations under the federal Safe Drinking Water Act (SDWA), which was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The SDWA authorizes the U.S.

Environmental Protection Agency to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. Title 40 of the Code of Federal Regulations (CFR), Part 141, National Primary Drinking Water Regulations, currently does not contain standards for per and poly-fluorinated substances (PFAS).

A. Are these rules required by state law or federal mandate?

These rules are not required by state law or federal mandate.

B. If these rules exceed a federal standard, please identify the federal standard or citation, describe why it is necessary that the proposed rules exceed the federal standard or law, and specify the costs and benefits arising out of the deviation.

There are no applicable federal standards for these chemicals.

2. Compare the proposed rules to standards in similarly situated states, based on geographic location, topography, natural resources, commonalities, or economic similarities.

Four other states have established maximum contaminant levels (MCLs) for several PFAS compounds. New Hampshire, New Jersey, New York, and Vermont are establishing regulations for the chemicals. Michigan's proposed levels similar to standards being proposed by other states.

A. If the rules exceed standards in those states, please explain why and specify the costs and benefits arising out of the deviation.

MCL 24.245(3)

The standards in these rules are similar to standards being proposed by other states.

3. Identify any laws, rules, and other legal requirements that may duplicate, overlap, or conflict with the proposed rules.

No other rules or legal requirements pertain.

A. Explain how the rules have been coordinated, to the extent practicable, with other federal, state, and local laws applicable to the same activity or subject matter. This section should include a discussion of the efforts undertaken by the agency to avoid or minimize duplication.

There are surface water standards and groundwater cleanup standards. The groundwater cleanup standards for PFOA and PFOS will be changed as a result of the rule. Surface water standards will remain the same. There are no other laws concerning PFAS standards in drinking water.

4. If MCL 24.232(8) applies and the proposed rules are more stringent than the applicable federally mandated standard, a statement of specific facts that establish the clear and convincing need to adopt the more stringent rules and an explanation of the exceptional circumstances that necessitate the more stringent standards is required.

Because there are no existing applicable federal standards, MCL 24.232(8) does not apply. Further, in any event, there is a “clear and convincing need” for these rules given the prevalence of PFAS contamination within the state and its potential impact on drinking water. The state has conducted extensive sampling for 14 PFAS compounds at all community water systems and many non-transient non-community water systems to determine the extent of contamination. Through these efforts, a significant exposure was discovered in the city of Parchment which posed a significant on-going risk to the public. Through a voluntary effort with the City of Parchment and the City of Kalamazoo, the public was protected from further exposure. This sampling also identified a number of drinking water systems with levels of PFAS contaminants that could cause adverse health effects if not addressed. The new rules require on-going sampling and response to selected PFAS chemicals and represent a balanced approach to protecting public health and managing impact to water supplies.

5. If MCL 24.232(9) applies and the proposed rules are more stringent than the applicable federal standard, either the statute that specifically authorizes the more stringent rules or a statement of the specific facts that establish the clear and convincing need to adopt the more stringent rules and an explanation of the exceptional circumstances that necessitate the more stringent standards is required.

Because there are no existing federal standards, MCL 24.232(9) does not apply. Nonetheless, the Michigan Safe Drinking Water Act allows EGLE to promulgate rules setting standards for public water supplies, see MCL 325.1003.

6. Identify the behavior and frequency of behavior that the proposed rules are designed to alter.

The proposed rules are designed to alter the current practices of public water supplies (PWSs) in the state of Michigan in order to be more protective of public health by requiring certain water supplies to sample for seven PFAS chemicals. Supplies would be required to initially sample for seven regulated PFAS chemicals on a quarterly basis. Based on sampling results, sampling could be reduced. Supplies currently do not routinely sample for any PFAS chemicals.

A. Estimate the change in the frequency of the targeted behavior expected from the proposed rules.

The change is from no sampling to quarterly or annual sampling.

B. Describe the difference between current behavior/practice and desired behavior/practice.

The current practice is no testing for PFAS chemicals. The rules will require quarterly or annual testing and reporting for seven PFAS chemicals.

C. What is the desired outcome?

Improved public health by limiting exposure to PFAS chemicals. The rules will also broaden the understanding of where these chemicals are occurring in our drinking water systems.

7. Identify the harm resulting from the behavior that the proposed rules are designed to alter and the likelihood that the harm will occur in the absence of the rule.

Exposure to PFAS chemicals has been shown to cause numerous adverse health impacts. The Science Advisory Workgroup (SAW) assigned by the Michigan PFAS Action Response Team (MPART) identified seven PFAS contaminants of concern for which, in their professional judgement, there was enough scientific evidence to establish Health-Based Values (HBVs). HBVs establish a level of contamination below which there is not expected to be adverse health impacts. The DWEHD took these HBVs and used them to create MCLs. Supplies will sample for these chemicals, and when a running annual average exceeds the MCL for any PFAS contaminant, they will be required to take action to reduce that level of contamination to below the appropriate MCL.

A. What is the rationale for changing the rules instead of leaving them as currently written?

The current rules provide no protection or monitoring for PFAS chemicals.

8. Describe how the proposed rules protect the health, safety, and welfare of Michigan citizens while promoting a regulatory environment in Michigan that is the least burdensome alternative for those required to comply.

The proposed rules protect public health by requiring the monitoring of selected PFAS chemicals, and in the event they exceed the established limit, a response to lower exposure below that limit. The rules require quarterly samples that are averaged over a year in order to address seasonal and source variations. The rules require a violation for exceedances of the MCL but does not stipulate a required strategy or timeline to return to compliance. Instead, the supply will likely enter into an Administrative Consent Order (ACO) with EGLE to establish timelines and other details for the response. This process ensures an approach that balances the need to protect public health with the fiscal and technical realities the supply is facing.

9. Describe any rules in the affected rule set that are obsolete or unnecessary and can be rescinded.

There are no components that are obsolete.

10. Please provide the fiscal impact on the agency (an estimate of the cost of rule imposition or potential savings for the agency promulgating the rule).

These rules will impose an increased fiscal impact on EGLE due to increased oversight and data handling. Although the proposed MCLs will be added to an existing monitoring program, the initial sampling requirement and training burden will be significant. Approximately 2,700 public water supplies will be subject to the new monitoring requirements. Quarterly sampling will generate almost 11,000 sample results and calculations that will need to be reviewed. We also anticipate approximately 22 supplies will be out of compliance based on prior testing. This will result in the need for increased oversight and review of ACOs and corrective action plans.

11. Describe whether or not an agency appropriation has been made or a funding source provided for any expenditures associated with the proposed rules.

The fiscal year 2020 budget includes funding for new FTEs for the drinking water program. It is anticipated that some of these additional FTEs will be utilized to administer the new rules.

12. Describe how the proposed rules are necessary and suitable to accomplish their purpose, in relationship to the burden(s) the rules place on individuals. Burdens may include fiscal or administrative burdens, or duplicative acts.

The new rules are necessary to protect human health from PFAS contamination that has been identified in PWSs. The burden of the new rules is lessened due to the fact that the MCLs have been added to an existing sampling requirement, meaning supplies will simply have to take more samples. Sampling for PFAS contamination, it should be noted, is more difficult due to the potential for cross-contamination and training will be required. The new rules will most likely result in some systems requiring modification/addition of their treatment process that will result in increased costs.

A. Despite the identified burden(s), identify how the requirements in the rules are still needed and reasonable compared to the burdens.

The rules are still needed to identify PFAS contamination in drinking water and to limit the exposure, through treatment or alternate sources, to the public.

13. Estimate any increase or decrease in revenues to other state or local governmental units (i.e. cities, counties, school districts) as a result of the rule. Estimate the cost increases or reductions for other state or local governmental units (i.e. cities, counties, school districts) as a result of the rule. Include the cost of equipment, supplies, labor, and increased administrative costs in both the initial imposition of the rule and any ongoing monitoring.

These rules will impose costs on local government units that own or operate a PWS, including most municipalities (community water supplies) along with some schools and other public entities that are on their own wells (non-transient noncommunity water supplies). There are approximately 1,400 community water supplies (CWSs) in the

MCL 24.245(3)

state, and 733 of them are owned by a local unit of government. There are approximately 1,300 non-transient noncommunity water supplies in the state, and 291 of them are owned publicly. These two categories make up the water supplies that will be impacted by this rule. The cost estimates below apply to all impacted water supplies, both private and public.

There are two significant drivers of cost to PWSs. The first is the cost of sampling and monitoring PFAS in the drinking water supplies. The second is the cost of installation and operation of treatment where supplies exceed the MCL.

The initial costs to all water supplies regulated by these rules will be the requirement to sample for PFAS on a quarterly basis. If all supplies sample quarterly for the first year, a total of 10,800 samples will be required. The average sample analysis has been approximately \$300 per sample for a total sampling cost of \$3.2 million. The cost to take samples, by contract, has also averaged \$300 per sample. Therefore, the additional cost to physically take the samples is approximately \$3.2 million. Supplies may reduce this cost if they elect to take their own samples. The total conservative estimate for the sampling effort is \$6.4 million for the first year the rules are in effect. Because some supplies will only be required to sample annually, and there are provisions for reduction in sampling if a track record for detections under a certain level can be established, this estimate is likely higher than the actual anticipated cost of sampling and analysis. Annual sampling and analysis costs after the first year should run lower than this estimate.

The other significant cost will be the installation of treatment. There are two options a water system can pursue to reduce the level of contamination in their finished water. The first is to switch to an alternate water source. Because this option is extremely variable from supply to supply, and indeed may not even be an option for some supplies, EGLE cannot reliably develop a cost estimate for that option. The second option is treatment. Recommended treatment is based on a study by the New Jersey Drinking Water Quality Institute that identified Granular Activated Carbon (GAC) as the preferred treatment option. The major costs of GAC include design, installation, and operation/maintenance. While a specific cost of design and installation vary by site, we can make a rough estimated based on a general cost per million gallons treated.

After several rounds of testing affected water supplies, we have identified 22 water systems that may likely be impacted by a requirement to install treatment due to an exceedance of the proposed MCLs. These supplies are treating a total of 0.93 million gallons per day (MGD). Cost estimates are based on a January 2019 report from the State of New Hampshire. New Hampshire identified a one-time treatment installation cost based on gallons treated per day. Their lowest cost estimate was \$2.90 per gallon, and their highest cost estimate was \$8.10 per gallon. Based on a conservative estimated cost of \$8 per gallon treated per day, the estimated one-time installation cost of the new rules will be \$7.4 million (\$8 x 930,000) for affected supplies to install treatment. There will also be a cost associated with operating and maintaining the treatment systems. Those costs are more difficult to estimate based on the unique water chemistry and existing treatment design associated with each water supply. Those variables will affect how a GAC solution is implemented and how often the GAC system media will need to be replaced. The New Hampshire study used a high annual estimate of \$0.35 per gallon, or \$0.000959 per gallon per day.

$$0.000959 \text{ dollars/gallon/day} \times 930,000 \text{ gal/1} \times 365 \text{ day/1} = \$325,500$$

Based on that, the estimated annual operation and maintenance cost for the new rules is \$325,500 per year.

It is noted that several water systems have proactively responded to PFAS contamination which has resulted in costs that could have been incurred if those actions were taken after this rule went into effect. The City of Plainfield is installing GAC treatment in response to contamination which is not currently in excess of the proposed MCLs. The treatment installation is estimated to be approximately \$15 million. Additionally, the City of Ann Arbor has been conducting a treatment study and has been sampling for PFAS in a manner that exceeds the requirements of the new rule. The City of Parchment abandoned their public water system and connected to the City of Kalamazoo resulting in costs to both systems.

14. Discuss any program, service, duty, or responsibility imposed upon any city, county, town, village, or school district by the rules.

MCL 24.245(3)

Water supplies owned by governmental units will need to comply with all of the requirements of the new PFAS MCLs, including increased sampling and reporting. There are also expanded public notification requirements and follow up based on sampling results.

A. Describe any actions that governmental units must take to be in compliance with the rules. This section should include items such as record keeping and reporting requirements or changing operational practices.

Municipalities that own/operate a PWS will be required to comply with the new rules and to sample, report, and respond to exceedance of the new MCLs.

15. Describe whether or not an appropriation to state or local governmental units has been made or a funding source provided for any additional expenditures associated with the proposed rules.

No identification of funding source or appropriation has taken place.

16. In general, what impact will the rules have on rural areas?

In general, rural areas will be less impacted by these rules than urban areas, since most contamination found to date occurs in larger systems. EGLE staff will be gearing up to provide additional direct assistance to small rural supplies if these rules are promulgated.

A. Describe the types of public or private interests in rural areas that will be affected by the rules.

Water supplies located in rural areas will be affected by the new rules.

17. Do the proposed rules have any impact on the environment? If yes, please explain.

A secondary goal of the selected preferred treatment method is the possibility that regeneration of the GAC media may physically destroy the PFAS contamination. Most other treatment options simply move the contamination from one media to another. If the spent GAC media is regenerated through incineration, it will physically destroy the PFAS contamination, breaking the cycle of media transfer and thereby improving the environment by ending the cycle and destroying the contamination. This benefit depends on the ultimate fate of spent GAC media. Some supplies may choose to dispose of the media in an appropriate landfill, therefore, this benefit may not apply.

18. Describe whether and how the agency considered exempting small businesses from the proposed rules.

No – EGLE did not consider exempting small businesses from the proposed rules.

19. If small businesses are not exempt, describe (a) the manner in which the agency reduced the economic impact of the proposed rules on small businesses, including a detailed recitation of the efforts of the agency to comply with the mandate to reduce the disproportionate impact of the rules upon small businesses as described below (in accordance with MCL 24.240(1)(a-d)), or (b) the reasons such a reduction was not lawful or feasible.

While small private water supplies will be required to comply, the impact should be minimized due to the low amount of water treated at these supplies. The state will offer technical support to these supplies as required.

A. Identify and estimate the number of small businesses affected by the proposed rules and the probable effect on small businesses.

There are approximately 650 privately-owned CWSs with populations under 10,000 and approximately 1,000 privately-owned non-transient noncommunity water supplies in Michigan. These two categories constitute the PWSs that are impacted by the proposed MCLs. These PWSs will be required to comply with the requirements of the rules, creating a financial and administrative burden.

B. Describe how the agency established differing compliance or reporting requirements or timetables for small businesses under the rules after projecting the required reporting, record-keeping, and other administrative costs.

While small private PWSs do have to comply with the proposed rules requirements, any exceedance of an MCL will be ultimately resolved through an ACO. The ACO will take into account economic factors in the supply's return to compliance while maintaining a balance to protect human health.

C. Describe how the agency consolidated or simplified the compliance and reporting requirements for small businesses and identify the skills necessary to comply with the reporting requirements.

EGLE incorporated the new requirements into an existing regulatory framework that PWSs are already familiar with, thereby simplifying compliance. EGLE is also working on a new database system that will allow laboratories to report monitoring results electronically, as well as accept electronic submittal of reports. This will significantly reduce the effort involved for all regulated supplies.

D. Describe how the agency established performance standards to replace design or operation standards required by the proposed rules.

MCLs are by their nature already performance-based. Although GAC is identified as a preferred treatment method, supplies are free to use any available treatment method that is proven to remove PFAS contamination to below the MCLs.

MCL 24.245(3)

20. Identify any disproportionate impact the proposed rules may have on small businesses because of their size or geographic location.

Small businesses should be impacted less by this regulation since they treat a lower volume of water than municipalities due to their size and less urban location.

21. Identify the nature of any report and the estimated cost of its preparation by small businesses required to comply with the proposed rules.

There are no reports required by the new rules.

22. Analyze the costs of compliance for all small businesses affected by the proposed rules, including costs of equipment, supplies, labor, and increased administrative costs.

The compliance costs for all PWSs are analyzed above in #13; however, these costs will impact the medium and large municipal systems far more than the smaller private supplies.

23. Identify the nature and estimated cost of any legal, consulting, or accounting services that small businesses would incur in complying with the proposed rules.

It is possible that a small private PWS will hire an engineering firm to help them with compliance with these rules, but the majority of these systems will be able to comply without third party assistance. EGLE will be placing considerable emphasis on providing compliance assistance to PWSs.

24. Estimate the ability of small businesses to absorb the costs without suffering economic harm and without adversely affecting competition in the marketplace.

Since the rules apply equally to all small private PWSs, there will not be an uneven distribution of burden between them. It is likely that some costs will be passed along to ratepayers who are using the drinking water supply.

25. Estimate the cost, if any, to the agency of administering or enforcing a rule that exempts or sets lesser standards for compliance by small businesses.

None – there will be equal oversight for all impacted by the rules.

26. Identify the impact on the public interest of exempting or setting lesser standards of compliance for small businesses.

The rules still require small businesses to comply with the new sampling requirements and MCLs, thereby protecting public health interests.

27. Describe whether and how the agency has involved small businesses in the development of the proposed rules.

Several small businesses and/or those serving small private water supplies were involved in the stakeholder process. These include the Michigan Manufactured Housing Association and the Michigan Rural Water Association.

A. If small businesses were involved in the development of the rules, please identify the business(es).

No specific small businesses were involved in development of the rules.

28. Estimate the actual statewide compliance costs of the rule amendments on businesses or groups.

The businesses that will be most affected by these rules will be those with their own water supply. This includes approximately 650 CWSs. More than half of these are manufactured housing communities, and many of the rest are condominiums, apartment buildings, and other residential units. It also includes approximately 1,000 non-transient noncommunity water supplies – industries, small businesses, etc. – that are not hooked up to municipal water.

The compliance costs for all PWSs are analyzed above in #13; however, these costs will impact medium and large municipal systems far more than smaller private supplies. Specific costs are directly related to the contaminant level in source water and the amount of water the system delivers to its customers. Many of the other ancillary costs associated with these rules have been minimized for small supplies.

A. Identify the businesses or groups who will be directly affected by, bear the cost of, or directly benefit from the proposed rules.

Those directly affected include owners of private water systems, laboratories, engineering firms, companies that supply and install treatment, and companies that provide water system operations services.

B. What additional costs will be imposed on businesses and other groups as a result of these proposed rules (i.e. new equipment, supplies, labor, accounting, or recordkeeping)? Please identify the types and number of businesses and groups. Be sure to quantify how each entity will be affected.

Businesses that operate their own water supplies will be required to comply with the new rules. They will be required to sample their finished drinking water for PFAS (\$300 per sample if the business collects themselves or \$600 per sample if they hire a contractor to take the sample) and find alternate water or install treatment if their water exceeds the proposed MCLs. Costs are outlined in #13.

MCL 24.245(3)

29. Estimate the actual statewide compliance costs of the proposed rules on individuals (regulated individuals or the public). Include the costs of education, training, application fees, examination fees, license fees, new equipment, supplies, labor, accounting, or recordkeeping.

There are no direct compliance costs to the public for this rule. There is a likelihood that PWSs will pass along to their customers at least some of the costs associated with compliance with these rules. Municipalities and other governmental bodies, in particular, will likely need to increase their utility rates to pay for their infrastructure upgrades and additional compliance costs. This will result in higher costs to homeowners, but it is very difficult to estimate this impact. It is important to note that drinking water has historically been the most affordable utility and will likely remain this way even with increases.

A. How many and what category of individuals will be affected by the rules?

Approximately 75% of Michigan residents get their drinking water from a PWS. Assuming 10 million people in the state, this equates to 7.5 million people that will be served drinking water that is regularly tested for PFAS chemicals.

B. What qualitative and quantitative impact do the proposed changes in rules have on these individuals?

The impact will be a general improvement in public health achieved through limiting PFAS exposure. The individuals will also have access to testing records so they will be aware of the level of PFAS in their drinking water regardless of the level.

30. Quantify any cost reductions to businesses, individuals, groups of individuals, or governmental units as a result of the proposed rules.

There are no known cost reductions associated directly with these rules.

31. Estimate the primary and direct benefits and any secondary or indirect benefits of the proposed rules. Please provide both quantitative and qualitative information, as well as your assumptions.

The primary benefits of this rules package are reducing the exposure to the PFAS chemicals regulated under the rules. Implementation of treatment will also remove other contaminants (other PFAS compounds, etc.) that will result in less exposure to contamination, thereby improving public health.

While estimating the cost to implement the new rules is relatively easy, the estimate of the benefits is not. It is generally difficult to monetize the benefits of drinking water standards, and this is especially true for PFAS chemicals. In particular, indirect costs such as reduced quality of life are particularly hard to capture. More study on the health benefits and impacts of PFAS exposure reduction and the economic benefit is required before a serious estimate can be made. There is likely a significant benefit to the reduction in exposure to PFAS chemicals given recent findings of the health effects. Health effects that have been identified include: lowering a woman's chance of getting pregnant, an increase in the chance of high blood pressure in pregnant women, an increase in the chance of thyroid disease, an increase in cholesterol levels, changes in immune response, and an increase in the chance of cancer, especially kidney and testicular cancers. In a general, qualitative measure, given the potential for direct health care treatment costs, loss of income, and associated indirect costs, limiting exposure to the seven PFAS chemicals for which these rules establish MCLs will likely result in significant avoided costs.

An additional consideration, and environmental benefit, of the rules is the preference given to GAC treatment of PFAS compounds. This treatment technology has the advantage of not only capturing the contamination but the potential for permanent destruction of PFAS compounds in the regeneration process. More study is needed to quantify the temperature at which PFAS chemicals are destroyed.

Additional benefits will be general improvement to water systems and quality, creation of jobs, and increased community goodwill through better service to customers.

32. Explain how the proposed rules will impact business growth and job creation (or elimination) in Michigan.

The proposed rules have the potential to increase demand on engineering firms and laboratories in the state. If water treatment plant modifications are required, the rules will also create some business growth in that sector. Ongoing treatment operation and maintenance may also increase job opportunities at PWSs around the state.

33. Identify any individuals or businesses who will be disproportionately affected by the rules as a result of their industrial sector, segment of the public, business size, or geographic location.

PFAS contamination tends to be found in more industrialized, urban areas leading to a higher compliance burden in those geographic locations.

34. Identify the sources the agency relied upon in compiling the regulatory impact statement, including the methodology utilized in determining the existence and extent of the impact of the proposed rules and a cost-benefit analysis of the proposed rules.

- Summary Report on the New Hampshire Department of Environmental Services Development of Maximum Contaminant Levels and Ambient Groundwater Quality Standards for Perfluorooctanesulfonic Acid (PFOS), Perfluorooctanoic Acid (PFOA), Perfluorononanoic Acid (PFNA), and Perfluorohexanesulfonic Acid (PFHxS). New Hampshire Department of Environmental Services, January 2019.
- Recommendation on Perfluorinated Compound Treatment Options for Drinking Water. New Jersey Drinking Water Quality Institute Treatment Subcommittee, June 2015.
- Health-Based Drinking Water Value Recommendations for PFAS in Michigan. Michigan Science Advisory Workgroup, Michigan PFAS Action Response Team, June 2019.

A. How were estimates made, and what were your assumptions? Include internal and external sources, published reports, information provided by associations or organizations, etc., which demonstrate a need for the proposed rules.

Estimates of sampling costs were made based on the statewide sampling effort under MPART. Treatment costs were made based on the number of supplies over the proposed MCLs at the time the estimate was made and the average cost of treatment based on a study by the State of New Hampshire.

35. Identify any reasonable alternatives to the proposed rules that would achieve the same or similar goals.

There are no reasonable alternatives. Possible alternatives include no establishment of any MCL or testing requirement that provides no public health protection, the requirement to install basic treatment for PFAS chemicals at all water supplies that is cost prohibitive, or a change in the MCLs that were based on the best data available.

A. Please include any statutory amendments that may be necessary to achieve such alternatives.

Changes in the MCLs would be required if additional science shows that is prudent.

36. Discuss the feasibility of establishing a regulatory program similar to that proposed in the rules that would operate through private market-based mechanisms. Please include a discussion of private market-based systems utilized by other states.

This is a federal law (SDWA) that must be implemented in Michigan. The state is choosing to add PFAS to its regulated contaminants; no other states have implemented a market-based system of regulation, and this does not seem feasible.

36. Discuss the feasibility of establishing a regulatory program similar to that proposed in the rules that would operate through private market-based mechanisms. Please include a discussion of private market-based systems utilized by other states.

Stakeholders had concerns about the levels at which the MCLs were set. The MCLs were set based on an expert panel that considered the latest scientific data available.

Many alternatives discussed dealt with changes to the timing and logistics of the new requirements, levels of the MCLs, testing protocols, sampling frequency to capture seasonal variations, applicability of the new rules, laboratory capacity concerns, reporting limit concerns, and public notification requirements. We wrote and modified the rules where these concerns and suggestions provided less ambiguity in the rules and provided better, more reasonable public health protection.

38. As required by MCL 24.245b(1)(c), please describe any instructions regarding the method of complying with the rules, if applicable.

Significant guidance material will be available to provide compliance assistance.

Dear Chairman Nederhood and members of the Environmental Rules Review Committee:

Thank you for the opportunity to speak with you today. On behalf of the Michigan Municipal League we would like to thank EGLE for their work to facilitate a cooperative, engaging and transparent process for all stakeholder groups participating in this process. Our membership was able to provide answers to open-ended questions addressing best treatment techniques, accessibility of laboratory testing, timeline considerations, necessary training certifications and more. Based on the dialogue during the listening session and the final product, it is evident EGLE has done their best to incorporate as much of the feedback that was provided by all those at the table.

Over the past 10 months, in coordination with this body, EGLE, MPART, the Science Advisory Workgroup, and participating stakeholders, we have made significant strides in understanding and addressing PFAS contamination in Michigan. In addition, several of our member communities have already independently taken significant steps to mitigate existing PFAS contamination within their respective water supplies. This type of collaboration is critical, and we hope that theme continues beyond this rule-making process.

Delivering affordable, clean, quality drinking water to our residents is of utmost importance to Michigan's communities. It is a charge and responsibility that we take with tremendous care. As you consider these rules, we hope you recognize our communities must still navigate addressing the costs of contamination and cleanup. Many communities, especially our smaller cities and villages, will require substantial investment in new treatment technologies, sampling, staffing and more – many of which that can be estimated, and others that are currently unknown.

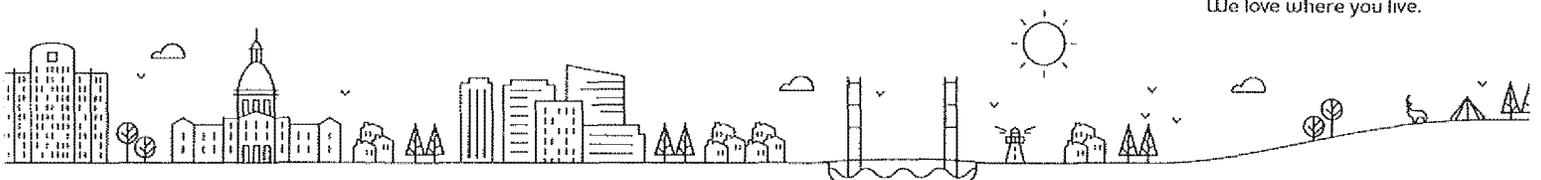
While it is helpful the state has provided some cost estimates for implementation and utilization of effective treatment techniques, there are still many other costs and steps needed down the road that are not included in these estimates. Thus far, nothing has directly addressed the costs to communities and their ratepayers. PFAS is still an emerging contaminate, and as our knowledge of these contaminants develops, we must remain sensitive that flexibility that will be required to make this an achievable expectation. As we continue this process, the League will be as a cooperative partner to address these concerns, and we look forward to continuing this conversation.

We appreciate the opportunity to work in partnership to provide quality, accessible drinking water, balanced with effective asset and rate management for the residents of Michigan.

Respectfully,

The Michigan Municipal League

We love where you live.



**ENVIRONMENTAL RULES REVIEW COMMITTEE
MINUTES**

Thursday, October 31, 2019, 1:00 – 3:30 p.m.

Michigan Department of Environment, Great Lakes, and Energy
Constitution Hall, Lee Walker Conference Room, Atrium Level North
525 West Allegan Street, Lansing, Michigan 48933

COMMITTEE MEMBERS:

Voting Members Present:

| | | |
|--------------------------|--------------------------|---------------|
| Janet Barlow | Daniel Frakes | Jeremy Orr |
| Shayna Schupan Barry | Dave Maness | Eric Pessell |
| Tyler Ernst | Fadi Mourad | Helen Taylor |
| Mark Fowler (Vice Chair) | Robert Nederhood (Chair) | Grant Trigger |

Voting Members Absent:

None

Non-Voting Members:

| | | |
|----------------------------|------------------|--------------------|
| James Clift, EGLE | Kirk Lapham, DNR | Kevin Besey, MDARD |
| Deb MacKenzie-Taylor, DHHS | | |

Clerk:

Candra Wilcox

1. Welcome and Introduction of New Members

Robert Nederhood, Chair, called the meeting to order at 1:01 p.m., and introduced new members, Shayna Schupan Barry and Daniel Frakes.

2. ERRC Roll Call

Candra Wilcox, clerk, provided roll call. Robert Nederhood, Chair, noted that a quorum was present.

3. Approval of Agenda

Motion: Tyler Ernst made a motion to approve the agendas as provided; Dave Manness seconded the motion. The motion was approved by all members present.

4. Approval of ERRC Minutes from June 27, 2019, Meeting

Grant Trigger requested that the minutes be amended for the presentation on the Recommended Health-Based Values for PFAS in Drinking Water to read: "Motion: Dan Eichinger moved **that MPART** accept the health-based value recommendations. The motion passed with all eyes."

Motion: Eric Pessel made a motion to approve the minutes as provided; Fadi Mourad seconded the motion. The motion was approved by all members present.

5. Presentation on the Draft Supplying Water to the Public (PFAS) Rules (2019-35 EG)

George Krisztian and Kris Philip, Drinking Water and Environmental Health Division, provided an overview of the draft rule process.

6. Public Comment

Charlotte Jamison, Michigan Environmental Council, strongly urged the ERRC to move forward with the rules and not delay any further. EGLE conducted a very thorough stakeholder process and stakeholders were given ample time to weigh in on the rules. There are members that have a direct financial conflict of interest for this rule package, and Charlotte asked them to disclose and recuse themselves.

David Winn, Oscoda Need our Water Group, stated that the Wurtsmith Air Force Base has delayed efforts to remediate the PFAS in their community. In the past year, there has been PFAS foam on the lakes and the deer and fish population have been affected. The Air Force Base does not know what they are going to do and it may be years before they have a remediation plan. David urged the ERRC not to delay in approving the MCL so that people affected by contamination can get things taken care of immediately.

Stephen Brown, Sierra Club, has a PhD in Chemistry and is a resident of Ann Arbor, where there is contamination in the Huron River. Dr. Brown urged the ERRC to approve the draft rules without further delay. Chemical manufacturing has been exposing the public to these compounds for many years. The rules are reasonable to protect the public health. The rules are consistent with rules being considered by other states.

Laura Campbell, Michigan Farm Bureau, stated that there is a disproportionate effect of cost to the smaller water supplies, such as farms. They do not have an option to pass the cost increase on to rate payers. Cleanup standards have to be taken into account when having standards for enforcement for MCLs.

Herasanna Richards, Michigan Municipal League (MML), stated that the MML has been involved in the process since the spring. Over the past ten months, the members have worked with the Science Advisory Workgroup, the ERRC, and EGLE to better understand and address PFAS contamination. Providing clean, affordable drinking water is a priority. As the ERRC considers adopting these rules, there are communities still navigating the cost. As we move forward continue to have these conversations.

Jaime Fleming, American Water Works Association (AWWA), stated that she attended both listening sessions. Everyone in the room was approaching the rules from the perspective of what is in the best interest of public health. The proposed rules are straightforward and are consistent with the framework of other rules. The cost of additional monitoring and implementing treatment is not insignificant. The availability of funding sources must be an ongoing discussion.

Mara Herman, Ecology Center, stated that the ERRC should move forward with the rulemaking process as it's best for public health.

7. Deliberation on Draft Rules (2019-35 EG)

The ERRC members asked additional questions of EGLE staff and deliberated on the draft rules. The ERRC members will forward questions on the Regulatory Impact Statement (RIS) to Dave Fiedler who will compile them and forward to the appropriate EGLE staff.

8. ERRC Vote on the Draft Rules (2019-35 EG)

Motion: Grant Trigger moved to table the vote to the next scheduled meeting; Daniel Frakes seconded the motion. The motion was approved by all members present.

Motion: Grant Trigger moved to schedule a special meeting on November 14 to review the supplemental comments on the Regulatory Impact Statement; Tyler Ernst seconded the motion. The motion was approved by all members present.

9. Instructions for Using State Issued Email Addresses

Candra Wilcox, EGLE, provided state of Michigan email accounts to the ERRC members. The new state of Michigan email accounts should be used for all ERRC business.

10. Adjournment

Motion: Helen Taylor made a motion to adjourn the meeting at 3:44 p.m.; Jeremy Orr seconded the motion. The motion was approved by all members present.

APPROVED at the ERRC Board Meeting on November 14, 2019



STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY



GRETCHEN WHITMER
GOVERNOR

LANSING

LIESL EICHLER CLARK
DIRECTOR

RECEIVED by MSC 3/29/2024 10:10:36 AM

VIA E-MAIL

TO: Rob Nederhood, Chairman, Environmental Rules Review Committee
FROM: David Fiedler, Regulatory Affairs Officer 
DATE: November 13, 2019
SUBJECT: Updated EGLE Response to Questions Posed by the Environmental Rules Review Committee (ERRC) Regarding the Proposed Supplying Water to the Public Rules

The Department of Environment, Great Lakes, and Energy (EGLE) offers the following responses to questions posed by the ERRC following the ERRC's October 31, 2019, meeting. Where appropriate, EGLE has also revised the Regulatory Impact Statement and Cost-Benefit Analysis (RIS) in response to some of these comments to provide additional clarity. The revised RIS is attached for the ERRC's review.

1. *Question 10 of the RIS asks the department about their costs to oversee the rule. My question to the department at the meeting was; are there any other regulatory agencies responsible for enforcement of this rule? Their answer was affirmative, the Local Health Departments are authorized to provide regulatory oversight of the rule too and they would also have increased costs due to the rule being implemented. So, my request is for the RIS to accurately reflect this cost to Local Health Departments as well.*

EGLE Response:

The following was added to Question 10 of the RIS. Local health departments directly oversee approximately half of these supplies which will result in increased oversight responsibilities and costs primarily in processing sampling results and issuing enforcement communications. The bulk of the cost of the response, approving and overseeing corrective action will be borne by EGLE as EGLE approves construction permits for treatment systems. It is important to note that the increase in oversight is mitigated by the fact that the new rules require sampling, analysis and compliance calculation in exactly the same way

CONSTITUTION HALL • 525 WEST ALLEGAN STREET • P.O. BOX 30473 • LANSING, MICHIGAN 48909-7973

Michigan.gov/EGLE • 800-662-9278

Document received by the MI Court of Claims.

as existing rules resulting in a lower "learning curve" for local health departments in administering the new rules.

2. *In the response to Question 13, the cost for installation of treatment technology is based on New Hampshire's 2019 report and is stated as a cost per gallon. Since the 22 systems that have been identified to date as having levels of contamination in excess of the proposed maximum contaminant levels (MCLs) are all fairly low-volume systems, would New Hampshire's model accurately reflect the cost to these systems? Is there a threshold minimum cost for installation of a GAC system regardless of how small a supply system is?*
3. *In the responses to Questions 16, 19, and 20, the Department states that rural areas and small businesses will be impacted less than urban areas and large municipalities since most contamination found to date occurs in larger systems and since small water supplies have to treat a lower volume of water. Although this makes sense in theory, the 22 systems identified thus far (and mentioned earlier in the cost analysis section) are all lower-volume systems (including schools, trailer parks, small businesses, and a couple small community supplies) that are mostly in more rural areas of the state. Please provide additional information indicating what percentage of the estimated \$6.4 million/yr. testing costs, \$7.4 million treatment installation costs, and \$326K O&M costs are likely to be borne by these and other rural supplies and small businesses.*

EGLE Response to Questions 2 and 3:

The following was updated in Question 13 of the RIS. The cost estimates below apply to all impacted water supplies, both private and public. In general, non-transient noncommunity water systems tend to be smaller while community water systems tend to be larger.

After several rounds of testing affected water supplies, we have identified 22 water systems that may likely be impacted by a requirement to install treatment due to an exceedance of the proposed MCLs. These 22 systems consist of both small systems and larger systems. Because smaller systems often pay a higher cost per gallon due to their size, we have estimated the cost separately for the larger community water systems and the smaller non-community systems.

The larger, community systems are treating a total of 0.928 million gallons per day (MGD). To estimate the costs for these systems we were able to use a January 2019 report from the State of New Hampshire. New Hampshire identified a one-time treatment installation cost based on gallons treated per day. Their lowest cost estimate was \$2.90 per gallon, and their highest cost estimate was \$8.10 per gallon. To be conservative in our estimate, we have used the

higher end of this range at \$8 per gallon treated per day. Based on this value, the estimated one-time installation cost of the new rules for the larger, community systems will be \$7.4 million (\$8 x 928,000).

The smaller, non-community systems treat a total of 79 thousand gallons per day. A recent cost estimate for Robinson Elementary school was \$206,000 to treat a designed load of 4,500 gallons of water per day (\$46 per gallon treated per day). Projecting this value forward, to install treatment for 79,000 gallons of water it is estimated that it will cost \$3.6 million.

Combining the estimated cost for treatment installation at the larger, community systems with the estimated cost for the smaller, non-community systems, the total estimated cost for all water systems where we currently know PFAS needs to be addressed is an estimated total of \$11 million.

4. *If the proposed rules take effect, please clarify which of the MCLs for the seven identified PFAS compounds will automatically become clean-up standards under Part 201?*
5. *What is the expected impact on the biosolids land application program when these criteria become the new Part 201 groundwater criteria?*

EGLE Response to Questions 4 and 5:

The following was updated in Question 3.A. There are surface water standards and groundwater cleanup standards. The groundwater cleanup standards for PFOA and PFOS will be changed as a result of the rule to match the final values adopted for those chemicals. The state may move forward for groundwater standards for PFNA, PFHxS, PFBS, PFHxA and HFPO-DA following the process set forth in MCL 324.20120a. However, adoption of the proposed rules does not alter that process. Any new groundwater standards will be factored into future decisions regarding the biosolids application program. Surface water standards will remain the same. There are no other laws concerning PFAS standards in drinking water.

6. *I would like to pose a question to EGLE on rules ability to adapt to the evolving science of the MCL's. It has been acknowledged that science around these new MCL's will continuing to emerge. As more research and findings become available is there any language that would address this in the rule? For example, a requirement in the rule or anywhere else for an annual review and corresponding MCL adjustments by MPART or EGLE?*

EGLE Response:

The current rule was developed in less than a year after it became clear that the EPA health protection levels did not appear to be protective enough. If scientific research indicates EGLE needs to develop standards for other PFAS chemicals or require an adjustment to existing standards there is no reason to believe that the same process could not be used again to quickly revise standards based on the new data.

7. *Further to Question 3 above since these systems are likely to be more remote will they even have a practical alternative of connecting to another clean public water supply as was suggested during our discussion? With respect to the agricultural community, Do the impacted members have practical alternatives? What plans are in place to mitigate the cost burden to these stakeholders?*

EGLE Response:

The standard will not vary depending on size of system or whether the system is rural or urban. All Michigan residents connected to a public water system should be able to count on the system providing them with safe, reliable water. Some systems could obviously be more complicated to address than others. EGLE will work with those systems to identify and implement appropriate actions.

8. *Further to Question 4 above please explain why the surface water quality standards would not be changed by EGLE using the Rule 57 process as a consequence of the adoption of the MCL?*

EGLE Response:

Establishing MCLs do not necessitate EGLE to change surface water quality standards. If EGLE decides at a later date that the PFAS water quality standards need to be adjusted as a result of more current data or science, that decision will be made irrespective for the MCLs.

9. *Further – what is the estimated impact on small business, any state agencies (such as MDOT or Agriculture) or any municipalities in Michigan or any other category of stakeholder when the PFOA and PFOS criteria are changed under Part 201?*

EGLE Response:

If an entity is responsible for either causing a PFAS release or being responsible for the due diligence associated with a PFOS or PFOA release under Part 201,

then they would be obligated to meet these standards. This impact will vary depending on the PFOS or PFOA concentration, media effected, and extent of contamination. Because of this variability, it is not practical to determine the impact of this change. Even if it was, this impact is a result of current statutory applicability not a regulatory requirement.

10. *What level of discussion occurred during the stakeholder process on the impact these rules would have on the Part 201 program and related criteria – were all stakeholders advised of this consequence? What is the cost and impact of the proposed rules on cleanups in Michigan? How many properties in the State will be deemed contaminated “facilities” due to the rule? How many of those properties are residential? How many previously remediated or “closed” facilities will be reopened for possible additional investigation and remediation? What cost to small business will occur?*

EGLE Response:

Yes, this issue was discussed with the stakeholder groups during the regulation development process. If an entity is responsible for either causing a PFAS release or being responsible for the due diligence associated with a PFOS or PFOA release under Part 201, then they would be obligated to meet these standards. This impact will vary depending on the PFOS or PFOA concentration, media effected, and extent of contamination. Because of this variability, it is not practical to determine the impact of this change. Even if it was, this impact is a result of current statutory applicability not a regulatory requirement.

11. *Please identify and describe in the RIS the provisions of the DW rules and statute that outline how EGLE will administer the administrative consent order (ACO) process mentioned in Question 8, to ensure “an approach that balances the need to protect public health with the fiscal and technical realities the supply is facing.”*

EGLE Response:

The Department routinely enters into ACOs with facilities and systems that are in violation of environmental standards. These joint agreements are negotiated to clarify expectations, set reasonable compliance schedules, and permit systems to continue to operate while correcting environmental challenges in a timely and appropriate manner.

Rob Nederhood
Page 6
November 13, 2019

EGLE appreciates the ERRC's interest in these important rules that, when in effect, will provide critical protections to Michigan's citizens who are struggling with exposure to PFAS in their drinking water. EGLE looks forward to the ERRC's action on the proposed rules at the meeting scheduled for November 14, 2019.

Attachment

cc/att: Aaron B. Keatley, Chief Deputy Director, EGLE
Amy Epkey, Senior Deputy Director, EGLE
Eric Oswald, EGLE

RECEIVED by MSC 3/29/2024 10:10:36 AM

Document received by the MI Court of Claims.

**ENVIRONMENTAL RULES REVIEW COMMITTEE
MINUTES**

Thursday, November 14, 2019, 1:00 – 3:30 p.m.

Michigan Department of Environment, Great Lakes, and Energy
Constitution Hall, Lee Walker Conference Room, Atrium Level North
525 West Allegan Street, Lansing, Michigan 48933

COMMITTEE MEMBERS:

Voting Members Present:

| | | |
|----------------------|--------------------------|---------------|
| Janet Barlow | Dave Maness | Eric Pessell |
| Shayna Schupan Barry | Fadi Mourad | Helen Taylor |
| Tyler Ernst | Robert Nederhood (Chair) | Grant Trigger |
| Daniel Frakes | Jeremy Orr | |

Voting Members Absent:

Mark Fowler (Vice Chair)

Non-Voting Members:

| | | |
|----------------------------|------------------|--------------------|
| James Clift, EGLE | Kirk Lapham, DNR | Kevin Besey, MDARD |
| Deb MacKenzie-Taylor, DHHS | | |

Clerk:

Candra Wilcox

1. ERRC Roll Call

The meeting was called to order at 1:04 p.m. Candra Wilcox, clerk, provided roll call. Robert Nederhood, Chair, noted that a quorum was present.

2. Approval of Agenda

Motion: Dave Maness made a motion to approve the agendas as provided; Eric Pessell seconded the motion. The motion was approved by all members present.

3. Approval of ERRC Minutes from October 31, 2019, Meeting

Motion: Grant Trigger made a motion to approve the minutes as provided; Daniel Frakes seconded the motion. The motion was approved by all members present.

4. Rulemaking Process Refresher

Dave Fiedler, EGLE, provided a refresher on the rulemaking process. The ERRC can vote to have the rules proceed to the public hearing process; vote that additional review is needed; vote that the rules can return to the normal rule making process; or take no vote today, at which time the rules would default to the public hearing process.

After the public hearing process, EGLE staff will summarize the comments of the public hearing; EGLE can make changes to the rules based on public comments. EGLE will provide the rules to the ERRC after the public hearings, at which time the ERRC will vote on the rules.

5. Discussion of the changes to the Regulatory Impact Statement for the Draft Supplying Water to the Public (PFAS) Rules (2019-35 EG)

Eric Oswald, Director, Drinking Water and Environmental Health Division, provided an update on the Regulatory Impact Statement.

6. Public Comment

Tim Minotas, Sierra Club, urged the ERRC to move forward with the package without further delay.

Alia Phillips, Michigan League of Conservation Voters, stated that there are more than 1.9 million people at risk. So far Michigan has been ahead of the curve in testing; we should be the first in the nation to take action to protect families. Alia is disappointed that the ERRC did not move the rules two weeks ago. Alia urged the ERRC to not delay any further to establish a tough drinking water standard.

Sean McBrearty, Clean Water Action, represents 250,000 members across Michigan. The proposed standards are well grounded in current science and encouraged the ERRC to put the rules in place as soon as possible. There are people across the state right now who cannot drink the water out of their taps; this is a real concern. Michigan residents have been waiting for the development of the rules and hope today that you move it forward to the public comment phase. Sean asked the ERRC to consider the impact PFAS has on families that cannot drink water from their taps, and to vote today to move standards forward or not vote and let it move to the public comment process.

Steve Sliver, MPART, stated that a Citizens Advisory Workgroup was formed from impacted communities across the state. The workgroup recently held a web-based meeting with the members and pointed out the meeting today as a key milestone in moving the rules forward. The workgroup fully supports moving the package forward without any delay.

7. Deliberation on Draft Rules (2019-35 EG)

The ERRC members deliberated on the draft rules.

8. ERRC Vote on the Draft Rules (2019-35 EG)

Motion: Jeremy Orr made a motion to move forward with the regular rulemaking process; Helen Taylor seconded the motion. A roll call vote was taken, and the following members voted affirmatively: Jeremy Orr, Eric Pessell, and Helen Taylor. The motion was not passed.

Motion: Eric Pessell made a motion that Rule Set No. 2019-35 EG meets the criteria of the Administrative Procedures Act and should move to public hearing; Tyler Ernst seconded the motion. A roll call vote was taken, and the following members voted affirmatively: Janet Barlow, Shayna Schupan Barry, Tyler Ernst, Daniel Frakes, Dave Maness, Fadi Mourad, Robert Nederhood, Jeremy Orr, Eric Pessell, Helen Taylor, and Grant Trigger. The motion passed.

9. Meeting Schedule for the Remainder of 2019 and 2020

Motion: Dave Maness made a motion to approve the 2020 schedule as provided and cancel the November 21, 2019, meeting; Grant Trigger seconded the motion. The motion was approved by all members present.

10. Adjournment

Motion: Eric Pessell made a motion to adjourn the meeting at 2:55 p.m.; Janet Barlow seconded the motion. The motion was approved by all members present.

Meeting minutes were APPROVED at the ERRC Meeting on January 30, 2020

**Michigan Office of Administrative Hearings and Rules
Administrative Rules Division (ARD)**

611 W. Ottawa Street
Lansing, MI 48909

Phone: 517-335-8658 Fax: 517-335-9512

**REGULATORY IMPACT STATEMENT
and COST-BENEFIT ANALYSIS (RIS)**

Agency Information:

Department name:

Environment, Great Lakes and Energy

Bureau name:

Drinking Water and Environmental Health Division

Name of person filling out RIS:

Candra Wilcox

Phone number of person filling out RIS:

517-284-5004

E-mail of person filling out RIS:

WilcoxC2@michigan.gov

Rule Set Information:

ARD assigned rule set number:

2019-35 EG

Title of proposed rule set:

Supplying Water to the Public

Comparison of Rule(s) to Federal/State/Association Standard:

1. Compare the proposed rules to parallel federal rules or standards set by a state or national licensing agency or accreditation association, if any exist.

The Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), currently contains numerous drinking water standards that are consistent with federal requirements. This requested rulemaking will add additional drinking water standards and related sampling and response requirements. These additional standards would be in addition to the regulations under the federal Safe Drinking Water Act (SDWA), which was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The SDWA authorizes the U.S.

Environmental Protection Agency to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. Title 40 of the Code of Federal Regulations (CFR), Part 141, National Primary Drinking Water Regulations, currently does not contain standards for per and poly-fluorinated substances (PFAS).

A. Are these rules required by state law or federal mandate?

These rules are not required by state law or federal mandate.

B. If these rules exceed a federal standard, please identify the federal standard or citation, describe why it is necessary that the proposed rules exceed the federal standard or law, and specify the costs and benefits arising out of the deviation.

There are no applicable federal standards for these chemicals.

2. Compare the proposed rules to standards in similarly situated states, based on geographic location, topography, natural resources, commonalities, or economic similarities.

Four other states have established maximum contaminant levels (MCLs) for several PFAS compounds. New Hampshire, New Jersey, New York, and Vermont are establishing regulations for the chemicals. Michigan's proposed levels are similar to standards being proposed by other states.

A. If the rules exceed standards in those states, please explain why and specify the costs and benefits arising out of the deviation.

MCL 24.245(3)

The standards in these rules are similar to standards being proposed by other states.

3. Identify any laws, rules, and other legal requirements that may duplicate, overlap, or conflict with the proposed rules.

No other rules or legal requirements pertain to establishing drinking water standards for public water supplies.

A. Explain how the rules have been coordinated, to the extent practicable, with other federal, state, and local laws applicable to the same activity or subject matter. This section should include a discussion of the efforts undertaken by the agency to avoid or minimize duplication.

Since there are not generic groundwater cleanup standards for PFNA, PFHxS, PFBS, PFHxA and HFPO-DA, the department may establish them following the process set forth in Natural Resource and Environmental Protection Act, 1994 PA 451, MCL 324.20120a(23).

4. If MCL 24.232(8) applies and the proposed rules are more stringent than the applicable federally mandated standard, a statement of specific facts that establish the clear and convincing need to adopt the more stringent rules and an explanation of the exceptional circumstances that necessitate the more stringent standards is required.

Because there are no existing applicable federal standards, MCL 24.232(8) does not apply. Further, in any event, there is a “clear and convincing need” for these rules given the prevalence of PFAS contamination within the state and its potential impact on drinking water. The state has conducted extensive sampling for 14 PFAS compounds at all community water systems and many non-transient non-community water systems to determine the extent of contamination. Through these efforts, a significant exposure was discovered in the city of Parchment which posed a significant on-going risk to the public. Through a voluntary effort with the City of Parchment and the City of Kalamazoo, the public was protected from further exposure. This sampling also identified a number of drinking water systems with levels of PFAS contaminants that could cause adverse health effects if not addressed. The new rules require on-going sampling and response to selected PFAS chemicals and represent a balanced approach to protecting public health and managing impact to water supplies.

5. If MCL 24.232(9) applies and the proposed rules are more stringent than the applicable federal standard, either the statute that specifically authorizes the more stringent rules or a statement of the specific facts that establish the clear and convincing need to adopt the more stringent rules and an explanation of the exceptional circumstances that necessitate the more stringent standards is required.

Because there are no existing federal standards, MCL 24.232(9) does not apply. Nonetheless, the Michigan Safe Drinking Water Act allows EGLE to promulgate rules setting standards for public water supplies, see MCL 325.1003.

6. Identify the behavior and frequency of behavior that the proposed rules are designed to alter.

The proposed rules are designed to alter the current practices of public water supplies (PWSs) in the state of Michigan in order to be more protective of public health by requiring certain water supplies to sample for seven PFAS chemicals. Supplies would be required to initially sample for seven regulated PFAS chemicals on a quarterly basis. Based on sampling results, sampling could be reduced. Supplies currently do not routinely sample for any PFAS chemicals.

A. Estimate the change in the frequency of the targeted behavior expected from the proposed rules.

The change is from no sampling to quarterly or annual sampling.

B. Describe the difference between current behavior/practice and desired behavior/practice.

The current practice is no testing for PFAS chemicals. The rules will require quarterly or annual testing and reporting for seven PFAS chemicals.

C. What is the desired outcome?

Improved public health by limiting exposure to PFAS chemicals. The rules will also broaden the understanding of where these chemicals are occurring in our drinking water systems.

7. Identify the harm resulting from the behavior that the proposed rules are designed to alter and the likelihood that the harm will occur in the absence of the rule.

Exposure to PFAS chemicals has been shown to cause numerous adverse health impacts. The Science Advisory Workgroup (SAW) assigned by the Michigan PFAS Action Response Team (MPART) identified seven PFAS contaminants of concern for which, in their professional judgement, there was enough scientific evidence to establish Health-Based Values (HBVs). HBVs establish a level of contamination below which there is not expected to be adverse health impacts. The Drinking Water and Environmental Health Division (DWEHD) took these HBVs and used them to create MCLs. Supplies will sample for these chemicals, and when a running annual average exceeds the MCL for any PFAS contaminant, they will be required to take action to reduce that level of contamination to below the appropriate MCL.

A. What is the rationale for changing the rules instead of leaving them as currently written?

The current rules provide no protection or monitoring for PFAS chemicals.

8. Describe how the proposed rules protect the health, safety, and welfare of Michigan citizens while promoting a regulatory environment in Michigan that is the least burdensome alternative for those required to comply.

The proposed rules protect public health by requiring the monitoring of selected PFAS chemicals, and in the event they exceed the established limit, a response to lower exposure below that limit. The rules require quarterly samples that are averaged over a year in order to address seasonal and source variations. The rules require a violation for exceedances of the MCL but does not stipulate a required strategy or timeline to return to compliance. Instead, the supply will likely enter into an Administrative Consent Order (ACO) with EGLE to establish timelines and other details for the response. This process ensures an approach that balances the need to protect public health with the fiscal and technical realities the supply is facing.

9. Describe any rules in the affected rule set that are obsolete or unnecessary and can be rescinded.

There are no components that are obsolete.

10. Please provide the fiscal impact on the agency (an estimate of the cost of rule imposition or potential savings for the agency promulgating the rule).

These rules will impose an increased fiscal impact on EGLE due to increased oversight and data handling. Although the proposed MCLs will be added to an existing monitoring program, the initial sampling requirement and training burden will be significant. Approximately 2,700 public water supplies will be subject to the new monitoring requirements. Quarterly sampling will generate almost 11,000 sample results and calculations that will need to be reviewed. We also anticipate approximately 22 supplies will be out of compliance based on prior testing. This will result in the need for increased oversight and review of ACOs and corrective action plans. Local health departments directly oversee approximately half of these supplies which will result in increased oversight responsibilities and costs primarily in processing sampling results and issuing enforcement communications. The bulk of the cost of the response, approving and overseeing corrective action, will be borne by EGLE as EGLE approves construction permits for treatment systems. It is important to note that the increase in oversight is mitigated by the fact that the new rules require sampling, analysis and compliance calculation in exactly the same way as existing rules resulting in a lower "learning curve" for local health departments in administering the new rules.

11. Describe whether or not an agency appropriation has been made or a funding source provided for any expenditures associated with the proposed rules.

The fiscal year 2020 budget includes funding for new FTEs for the drinking water program. It is anticipated that some of these additional FTEs will be utilized to administer the new rules.

12. Describe how the proposed rules are necessary and suitable to accomplish their purpose, in relationship to the burden(s) the rules place on individuals. Burdens may include fiscal or administrative burdens, or duplicative acts.

The new rules are necessary to protect human health from PFAS contamination that has been identified in PWSs. The burden of the new rules is lessened due to the fact that the MCLs have been added to an existing sampling requirement, meaning supplies will simply have to take more samples. Sampling for PFAS contamination, it should be noted, is more difficult due to the potential for cross-contamination and training will be required. The new rules will most likely result in some systems requiring modification/addition of their treatment process that will result in increased costs.

A. Despite the identified burden(s), identify how the requirements in the rules are still needed and reasonable compared to the burdens.

The rules are still needed to identify PFAS contamination in drinking water and to limit the exposure, through treatment or alternate sources, to the public.

13. Estimate any increase or decrease in revenues to other state or local governmental units (i.e. cities, counties, school districts) as a result of the rule. Estimate the cost increases or reductions for other state or local governmental units (i.e. cities, counties, school districts) as a result of the rule. Include the cost of equipment, supplies, labor, and increased administrative costs in both the initial imposition of the rule and any ongoing monitoring.

These rules will impose costs on local government units that own or operate a PWS, including most municipalities (community water supplies) along with some schools and other public entities that are on their own wells (non-transient noncommunity water supplies). There are approximately 1,400 community water supplies (CWSs) in the state, and 733 of them are owned by a local unit of government. There are approximately 1,300 non-transient noncommunity water supplies in the state, and 291 of them are owned publicly. These two categories make up the water supplies that will be impacted by this rule. The cost estimates below apply to all impacted water supplies, both private and public. In general, non-transient noncommunity water systems tend to be smaller while community water systems tend to be larger.

There are two significant drivers of cost to PWSs. The first is the cost of sampling and monitoring PFAS in the drinking water supplies. The second is the cost of installation and operation of treatment where supplies exceed the MCL.

The initial costs to all water supplies regulated by these rules will be the requirement to sample for PFAS on a quarterly basis. If all supplies sample quarterly for the first year, a total of 10,800 samples will be required. The average sample analysis has been approximately \$300 per sample for a total sampling cost of \$3.2 million. The cost to take samples, by contract, has also averaged \$300 per sample. Therefore, the additional cost to physically take the samples is approximately \$3.2 million. Supplies may reduce this cost if they elect to take their own samples. The total conservative estimate for the sampling effort is \$6.4 million for the first year the rules are in effect. Because some supplies will only be required to sample annually, and there are provisions for reduction in sampling if a track record for detections under a certain level can be established, this estimate is likely higher than the actual anticipated cost of sampling and analysis. Annual sampling and analysis costs after the first year should run lower than this estimate.

The other significant cost will be the installation of treatment. There are two options a water system can pursue to reduce the level of contamination in their finished water. The first is to switch to an alternate water source. Because this option is extremely variable from supply to supply, and indeed may not even be an option for some supplies, EGLE cannot reliably develop a cost estimate for that option. The second option is treatment. Recommended treatment is based on a study by the New Jersey Drinking Water Quality Institute that identified Granular Activated Carbon (GAC) as the preferred treatment option. The major costs of GAC include design, installation, and operation/maintenance. While a specific cost of design and installation vary by site, we can make a rough estimated based on a general cost per million gallons treated.

After several rounds of testing affected water supplies, we have identified 22 water systems that may likely be impacted by a requirement to install treatment due to an exceedance of the proposed MCLs. These 22 systems consist of both small systems and larger systems. Because smaller systems often pay a higher cost per gallon due to their size, we have estimated the cost separately for the larger community waster systems and the smaller non-community systems.

The larger, community systems are treating a total of 0.928 million gallons per day (MGD). To estimate the costs for these systems we were able to use a January 2019 report from the State of New Hampshire. New Hampshire identified a one-time treatment installation cost based on gallons treated per day. Their lowest cost estimate was \$2.90 per gallon, and their highest cost estimate was \$8.10 per gallon. To be conservative in our estimate, we have used the higher end of this range at \$8 per gallon treated per day. Based on this value, the estimated one-time installation cost of the new rules for the larger, community systems will be \$7.4 million (\$8 x 928,000).

The smaller, non-community systems treat a total of 79,000 gallons per day. A recent cost estimate for Robinson Elementary school was \$206,000 to treat a designed load of 4,500 gallons of water per day (\$46 per gallon treated per day). Projecting this value forward, to install treatment for 79,000 gallons of water it is estimated that it will cost \$3.6 million.

MCL 24.245(3)

Combining the estimated cost for treatment installation at the larger, community systems with the estimated cost for the smaller, non-community systems, the total estimated cost for all water systems where we currently know PFAS needs to be addressed is an estimated total of \$11 million.

14. Discuss any program, service, duty, or responsibility imposed upon any city, county, town, village, or school district by the rules.

Water supplies owned by governmental units will need to comply with all of the requirements of the new PFAS MCLs, including increased sampling and reporting. There are also expanded public notification requirements and follow up based on sampling results.

The following is a continuation of the response to Question 13 above:

There will also be a cost associated with operating and maintaining the treatment systems. Those costs are more difficult to estimate based on the unique water chemistry and existing treatment design associated with each water supply. Those variables will affect how a GAC solution is implemented and how often the GAC system media will need to be replaced. The New Hampshire study used a high annual estimate of \$0.35 per gallon, or \$0.000959 per gallon per day.

Based on that, the estimated annual operation and maintenance cost for the new rules is \$352,500 per year. There is no anticipated difference in operations and maintenance costs between large and small systems.

It is noted that several water systems have proactively responded to PFAS contamination which has resulted in costs that could have been incurred if those actions were taken after this rule went into effect. The City of Plainfield is installing GAC treatment in response to contamination which is not currently in excess of the proposed MCLs. The treatment installation is estimated to be approximately \$15 million. Additionally, the City of Ann Arbor has been conducting a treatment study and has been sampling for PFAS in a manner that exceeds the requirements of the new rule. The City of Parchment abandoned their public water system and connected to the City of Kalamazoo resulting in costs to both systems. While these costs are not directly related to the new rule it is important to acknowledge that some systems have already implemented actions to protect their communities that are not included in this cost estimate.

In conclusion, there are many costs to regulated supplies, including ancillary administrative costs. Again, this is the cost for all impacted water supplies in the state, both public and private, with the largest impact to medium and large municipalities.

A. Describe any actions that governmental units must take to be in compliance with the rules. This section should include items such as record keeping and reporting requirements or changing operational practices.

Municipalities that own/operate a PWS will be required to comply with the new rules and to sample, report, and respond to exceedance of the new MCLs.

15. Describe whether or not an appropriation to state or local governmental units has been made or a funding source provided for any additional expenditures associated with the proposed rules.

No identification of funding source or appropriation has taken place.

16. In general, what impact will the rules have on rural areas?

In general, rural areas will be less impacted by these rules than urban areas, since most contamination found to date occurs in larger systems. EGLE staff will be gearing up to provide additional direct assistance to small rural supplies if these rules are promulgated.

A. Describe the types of public or private interests in rural areas that will be affected by the rules.

Water supplies located in rural areas will be affected by the new rules.

17. Do the proposed rules have any impact on the environment? If yes, please explain.

A secondary goal of the selected preferred treatment method is the possibility that regeneration of the GAC media may physically destroy the PFAS contamination. Most other treatment options simply move the contamination from one media to another. If the spent GAC media is regenerated through incineration, it will physically destroy the PFAS contamination, breaking the cycle of media transfer and thereby improving the environment by ending the cycle and destroying the contamination. This benefit depends on the ultimate fate of spent GAC media. Some supplies may choose to dispose of the media in an appropriate landfill, therefore, this benefit may not apply.

18. Describe whether and how the agency considered exempting small businesses from the proposed rules.

No – EGLE did not consider exempting small businesses from the proposed rules.

19. If small businesses are not exempt, describe (a) the manner in which the agency reduced the economic impact of the proposed rules on small businesses, including a detailed recitation of the efforts of the agency to comply with the mandate to reduce the disproportionate impact of the rules upon small businesses as described below (in accordance with MCL 24.240(1)(a-d)), or (b) the reasons such a reduction was not lawful or feasible.

While small private water supplies will be required to comply, the impact should be minimized due to the low amount of water treated at these supplies. The state will offer technical support to these supplies as required.

A. Identify and estimate the number of small businesses affected by the proposed rules and the probable effect on small businesses.

There are approximately 650 privately-owned CWSs with populations under 10,000 and approximately 1,000 privately-owned non-transient noncommunity water supplies in Michigan. These two categories constitute the PWSs that are impacted by the proposed MCLs. These PWSs will be required to comply with the requirements of the rules, creating a financial and administrative burden.

B. Describe how the agency established differing compliance or reporting requirements or timetables for small businesses under the rules after projecting the required reporting, record-keeping, and other administrative costs.

While small private PWSs do have to comply with the proposed rules requirements, any exceedance of an MCL will be ultimately resolved through an ACO. The ACO will take into account economic factors in the supply's return to compliance while maintaining a balance to protect human health.

C. Describe how the agency consolidated or simplified the compliance and reporting requirements for small businesses and identify the skills necessary to comply with the reporting requirements.

EGLE incorporated the new requirements into an existing regulatory framework that PWSs are already familiar with, thereby simplifying compliance. EGLE is also working on a new database system that will allow laboratories to report monitoring results electronically, as well as accept electronic submittal of reports. This will significantly reduce the effort involved for all regulated supplies.

D. Describe how the agency established performance standards to replace design or operation standards required by the proposed rules.

MCLs are by their nature already performance-based. Although GAC is identified as a preferred treatment method, supplies are free to use any available treatment method that is proven to remove PFAS contamination to below the MCLs.

20. Identify any disproportionate impact the proposed rules may have on small businesses because of their size or geographic location.

Small businesses should be impacted less by this regulation since they treat a lower volume of water than municipalities due to their size and less urban location.

21. Identify the nature of any report and the estimated cost of its preparation by small businesses required to comply with the proposed rules.

There are no reports required by the new rules. Test results will be reported directly to regulators through standard means already in place for similar contaminants.

22. Analyze the costs of compliance for all small businesses affected by the proposed rules, including costs of equipment, supplies, labor, and increased administrative costs.

There are approximately 1,300 non-transient noncommunity water supplies in the state that EGLE will define as "small businesses." The sampling requirement for these supplies is estimated to be \$3.1 million annually (1,300 supplies sampling 4 times per year at a cost of \$600 per sample). The cost for smaller water supplies that will exceed the proposed MCLs to install treatment is estimated to be \$3.6 million with an annual maintenance cost of \$76 thousand.

23. Identify the nature and estimated cost of any legal, consulting, or accounting services that small businesses would incur in complying with the proposed rules.

MCL 24.245(3)

It is possible that a small private PWS will hire an engineering firm to help them with compliance with these rules, but the majority of these systems will be able to comply without third party assistance. EGLE will be placing considerable emphasis on providing compliance assistance to PWSs.

24. Estimate the ability of small businesses to absorb the costs without suffering economic harm and without adversely affecting competition in the marketplace.

Since the rules apply equally to all small private PWSs, there will not be an uneven distribution of burden between them. It is likely that some costs will be passed along to ratepayers who are using the drinking water supply.

25. Estimate the cost, if any, to the agency of administering or enforcing a rule that exempts or sets lesser standards for compliance by small businesses.

None – there will be equal oversight for all impacted by the rules.

26. Identify the impact on the public interest of exempting or setting lesser standards of compliance for small businesses.

Exempting small business or setting lesser standards would ignore the public health risk created by these chemicals and create two classes of drinking water customers in the state, those protected from PFAS exposure at a level determined to be protective by science, and second class customers exposed at a higher level. This would be unacceptable from a public health and environmental justice perspective.

27. Describe whether and how the agency has involved small businesses in the development of the proposed rules.

Several small businesses and/or those serving small private water supplies were involved in the stakeholder process. These include the Michigan Manufactured Housing Association and the Michigan Rural Water Association.

A. If small businesses were involved in the development of the rules, please identify the business(es).

No specific small businesses were involved in development of the rules.

28. Estimate the actual statewide compliance costs of the rule amendments on businesses or groups.

The businesses that will be most affected by these rules will be those with their own water supply. This includes approximately 650 CWSs. More than half of these are manufactured housing communities, and many of the rest are condominiums, apartment buildings, and other residential units. It also includes approximately 1,000 non-transient noncommunity water supplies – industries, small businesses, etc. – that are not hooked up to municipal water.

The compliance costs for all PWSs as presented in item #13 would apply to this group as follows. For annual monitoring this group of 1,650 water supplies would spend approximately \$4 million (1,650 supplies taking 4 samples per year at a cost of \$600 per sample. Of the 22 water systems identified in statewide testing to be exceeding the proposed MCLs, 9 can be classified as businesses (not a school or a church). Using the methodology in item 13, these supplies pump an average of 20,000 gallons per day. With an estimated cost of treatment of \$46 per gallon it is estimated that these supplies will spend \$920,000 to install treatment with an anticipated annual maintenance cost of \$7,000.

A. Identify the businesses or groups who will be directly affected by, bear the cost of, or directly benefit from the proposed rules.

Those directly affected include owners of private water systems, laboratories, engineering firms, companies that supply and install treatment, and companies that provide water system operations services.

B. What additional costs will be imposed on businesses and other groups as a result of these proposed rules (i.e. new equipment, supplies, labor, accounting, or recordkeeping)? Please identify the types and number of businesses and groups. Be sure to quantify how each entity will be affected.

Businesses that operate their own water supplies will be required to comply with the new rules. They will be required to sample their finished drinking water for PFAS (\$300 per sample if the business collects themselves or \$600 per sample if they hire a contractor to take the sample) and find alternate water or install treatment if their water exceeds the proposed MCLs. Sampling costs are estimated at \$4 million annually. Installation of treatment is estimated to be a one-time cost of \$920,000 with annual maintenance costs of \$7,000. Reporting cost increases are negligible as these supplies are already required to report monthly operations and testing – this rule would add one more item 4 times a year.

29. Estimate the actual statewide compliance costs of the proposed rules on individuals (regulated individuals or the public). Include the costs of education, training, application fees, examination fees, license fees, new equipment, supplies, labor, accounting, or recordkeeping.

There are no direct compliance costs to the public for this rule. There is a likelihood that PWSs will pass along to their customers at least some of the costs associated with compliance with these rules. Municipalities and other governmental bodies, in particular, will likely need to increase their utility rates to pay for their infrastructure upgrades and additional compliance costs. This will result in higher costs to homeowners, but it is very difficult to estimate this impact. It is important to note that drinking water has historically been the most affordable utility and will likely remain this way even with increases.

A. How many and what category of individuals will be affected by the rules?

Approximately 75% of Michigan residents get their drinking water from a PWS. Assuming 10 million people in the state, this equates to 7.5 million people that will be served drinking water that is regularly tested for PFAS chemicals.

B. What qualitative and quantitative impact do the proposed changes in rules have on these individuals?

The impact will be a general improvement in public health achieved through limiting PFAS exposure. The individuals will also have access to testing records so they will be aware of the level of PFAS in their drinking water regardless of the level.

30. Quantify any cost reductions to businesses, individuals, groups of individuals, or governmental units as a result of the proposed rules.

There are no known cost reductions associated directly with these rules.

31. Estimate the primary and direct benefits and any secondary or indirect benefits of the proposed rules. Please provide both quantitative and qualitative information, as well as your assumptions.

The primary benefits of this rules package are reducing the exposure to the PFAS chemicals regulated under the rules. Implementation of treatment will also remove other contaminants (other PFAS compounds, etc.) that will result in less exposure to contamination, thereby improving public health.

While estimating the cost to implement the new rules is relatively easy, the estimate of the benefits is not. It is generally difficult to monetize the benefits of drinking water standards, and this is especially true for PFAS chemicals. In particular, indirect costs such as reduced quality of life are particularly hard to capture. More study on the health benefits and impacts of PFAS exposure reduction and the economic benefit is required before a serious estimate can be made. There is likely a significant benefit to the reduction in exposure to PFAS chemicals given recent findings of the health effects. Health effects that have been identified include: lowering a woman's chance of getting pregnant, an increase in the chance of high blood pressure in pregnant women, an increase in the chance of thyroid disease, an increase in cholesterol levels, changes in immune response, and an increase in the chance of cancer, especially kidney and testicular cancers. In a general, qualitative measure, given the potential for direct health care treatment costs, loss of income, and associated indirect costs, limiting exposure to the seven PFAS chemicals for which these rules establish MCLs will likely result in significant avoided costs.

An additional consideration, and environmental benefit, of the rules is the preference given to GAC treatment of PFAS compounds. This treatment technology has the advantage of not only capturing the contamination but the potential for permanent destruction of PFAS compounds in the regeneration process. More study is needed to quantify the temperature at which PFAS chemicals are destroyed.

Additional benefits will be general improvement to water systems and quality, creation of jobs, and increased community goodwill through better service to customers.

32. Explain how the proposed rules will impact business growth and job creation (or elimination) in Michigan.

The proposed rules have the potential to increase demand on engineering firms and laboratories in the state. If water treatment plant modifications are required, the rules will also create some business growth in that sector. Ongoing treatment operation and maintenance may also increase job opportunities at PWSs around the state.

33. Identify any individuals or businesses who will be disproportionately affected by the rules as a result of their industrial sector, segment of the public, business size, or geographic location.

PFAS contamination tends to be found in more industrialized, urban areas leading to a higher compliance burden in those geographic locations.

34. Identify the sources the agency relied upon in compiling the regulatory impact statement, including the methodology utilized in determining the existence and extent of the impact of the proposed rules and a cost-benefit analysis of the proposed rules.

- Summary Report on the New Hampshire Department of Environmental Services Development of Maximum Contaminant Levels and Ambient Groundwater Quality Standards for Perfluorooctanesulfonic Acid (PFOS), Perfluorooctanoic Acid (PFOA), Perfluorononanoic Acid (PFNA), and Perfluorohexanesulfonic Acid (PFHxS). New Hampshire Department of Environmental Services, January 2019.
- Recommendation on Perfluorinated Compound Treatment Options for Drinking Water. New Jersey Drinking Water Quality Institute Treatment Subcommittee, June 2015.
- Health-Based Drinking Water Value Recommendations for PFAS in Michigan. Michigan Science Advisory Workgroup, Michigan PFAS Action Response Team, June 2019.

A. How were estimates made, and what were your assumptions? Include internal and external sources, published reports, information provided by associations or organizations, etc., which demonstrate a need for the proposed rules.

Estimates of sampling costs were made based on the statewide sampling effort under MPART. Treatment costs were made based on the number of supplies over the proposed MCLs at the time the estimate was made and the average cost of treatment based on a study by the State of New Hampshire.

35. Identify any reasonable alternatives to the proposed rules that would achieve the same or similar goals.

There are no reasonable alternatives. Possible alternatives include no establishment of any MCL or testing requirement that provides no public health protection, the requirement to install basic treatment for PFAS chemicals at all water supplies that is cost prohibitive, or a change in the MCLs that were based on the best data available.

A. Please include any statutory amendments that may be necessary to achieve such alternatives.

Changes in the MCLs would be required if additional science shows that is prudent.

36. Discuss the feasibility of establishing a regulatory program similar to that proposed in the rules that would operate through private market-based mechanisms. Please include a discussion of private market-based systems utilized by other states.

This is a federal law (SDWA) that must be implemented in Michigan. The state is choosing to add PFAS to its regulated contaminants; no other states have implemented a market-based system of regulation, and this does not seem feasible.

36. Discuss the feasibility of establishing a regulatory program similar to that proposed in the rules that would operate through private market-based mechanisms. Please include a discussion of private market-based systems utilized by other states.

Stakeholders had concerns about the levels at which the MCLs were set. The MCLs were set based on an expert panel that considered the latest scientific data available.

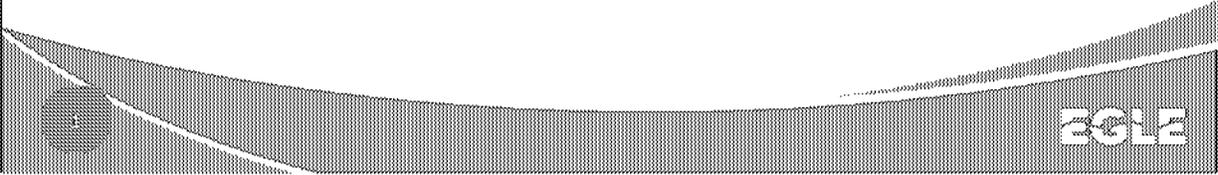
Many alternatives discussed dealt with changes to the timing and logistics of the new requirements, levels of the MCLs, testing protocols, sampling frequency to capture seasonal variations, applicability of the new rules, laboratory capacity concerns, reporting limit concerns, and public notification requirements. We wrote and modified the rules where these concerns and suggestions provided less ambiguity in the rules and provided better, more reasonable public health protection.

38. As required by MCL 24.245b(1)(c), please describe any instructions regarding the method of complying with the rules, if applicable.

Significant guidance material will be available to provide compliance assistance.

PFAS Rulemaking: Public Comment Summary

Eric Oswald, Director
Drinking Water and Environmental Health Division
Michigan Department of Environment, Great Lakes,
and Energy



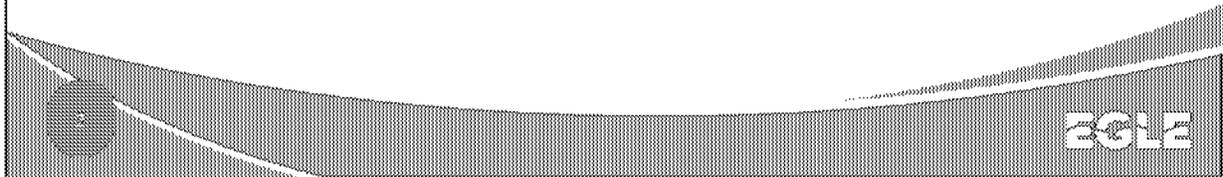
06/06/18

RECEIVED by MSC 3/29/2024 10:10:36 AM

Document received by the MI Court of Claims.

Public Comment Period: A Timeline

- December 19, 2019
 - Public Comment Period Officially Opened
 - Public Hearing Dates/Locations Announced
- January 8, 2020: Public Hearing #1, Grand Rapids, MI
- January 14, 2020: Public Hearing #2, Ann Arbor, MI
- January 16, 2020: Public Hearing #3, Roscommon, MI
- January 31, 2020
 - Public Comment Period Officially Closed
 - Deadline for Receipt of Official Public Comments



Thanks you for the opportunity to provide this summary of the PFAS rulemaking comment period.

44 days of public comment
3 public hearings

06/06/18

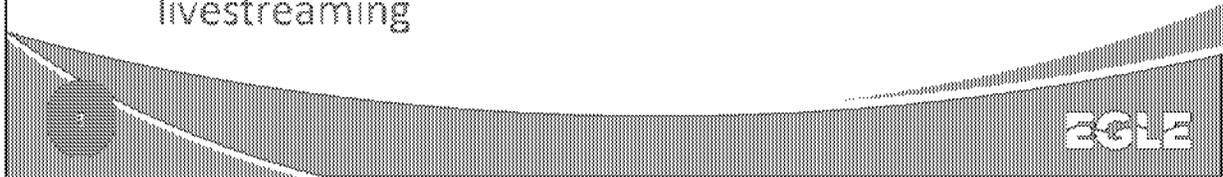
Public Comment Period (12/2019–1/2020)

Comments Received (Related to Rules)

- 3,334 total written comments
 - 3,315 via G.L.PTAS-RuleMakinz@Michigan.gov
 - 8 written comments via US Postal Service
 - 11 written comments via public hearings
- 82 oral comments via public hearings

Overall Engagement (Approximate)

- 307 in attendance at public hearings
- 130 unique IP addresses viewed public hearings via livestreaming



OVER 3,300 COMMENTS IN TOTAL

06/06/18

Public Comment Period (12/2019–1/2020)

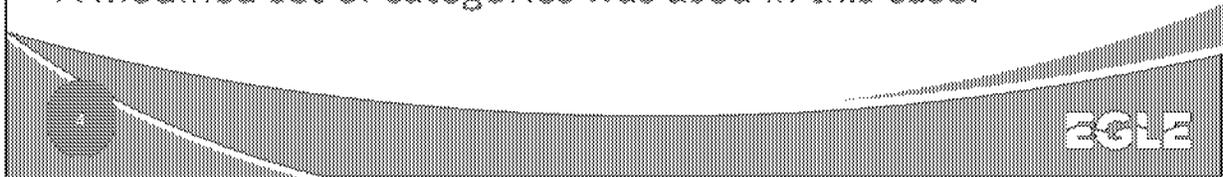
The model for comment breakdown by the Joint Committee on Administrative Rules (JCAR) Agency Report template identifies two categories:

- Persons submitting comments of support
- Persons submitting comments of opposition

For the current rule set, this model is not complete, due to:

- Persons submitting neutral comments represent a significant percentage of the total received.
- Commenters across all comment categories (*in favor, neutral, in opposition*) provided recommendations for improvement.

A modified set of categories was used in this case.



JCAR TEMPLATE HAS ONLY TWO CATEGORIES - IN FAVOR, IN OPPOSITION

PFAS COMMENTS WERE MORE NUANCED - SUPPORT BUT....

USED A MODIFIED SET OF 3 CATEGORIES - ADDED NUETRAL CATEGORY

06/06/18

Comment Categories (Overall)

I. Comments in Favor (2,584/75.6%)

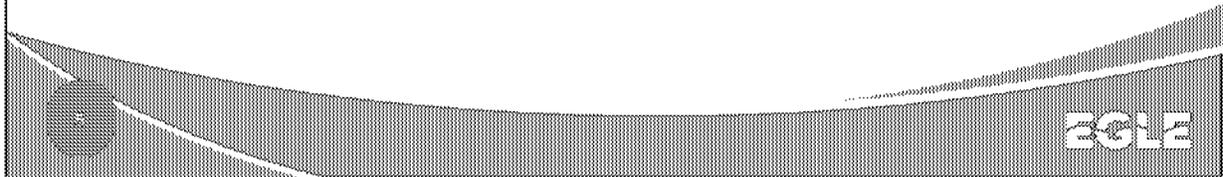
Language directly indicated overall support for the rulemaking effort. Comments in favor may include suggestions for improvement.

II. Neutral Comments (816/23.9%)

Language did not directly indicate positive or negative leaning. Neutral comments may include suggestions for improvement.

III. Comments in Opposition (16/0.5%)

Language directly indicated opposition to the rulemaking effort AND/OR proposed a different path for developing a PFAS standard. Comments in opposition may include suggestions for improvement.



COMMENTS IN FAVOR - ABOUT 2,600

NUETRAL COMMENTS - 800

COMMENTS IN OPPOSITION - 16

06/06/18

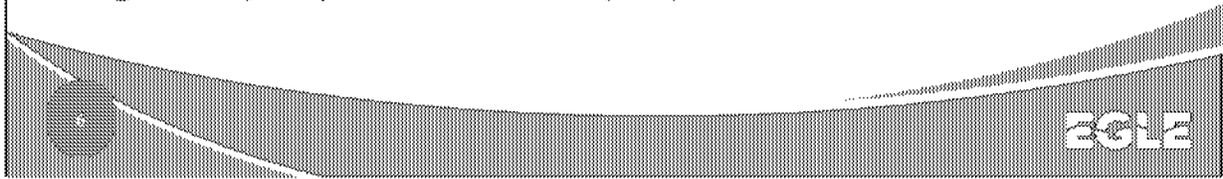
Comment Categories of Concern

26 *Categories of Concern* were identified by DWEHD staff reviewing comments, across those categorized as *in favor*, *neutral*, and *in opposition*.

- Seven *Categories of Concern* were common (those raised in > 2% of comments).
- The complete list of 26 categories is included in Appendix A of the Agency Report.

The Michigan PFAS Action Response Team (MPART) was asked to review the Science Advisory Work Group findings re: per- and polyfluoroalkyl substances (PFAS) Health Based Values (HBVs).

EGLE-DWEHD was asked to review comments related to the Regulatory Impact Statement (RIS).



WE CAME UP WITH 26 TOTAL CATEGORIES OF CONCERN WITH THE RULES BUT WILL ONLY GO OVER THE TOP 7

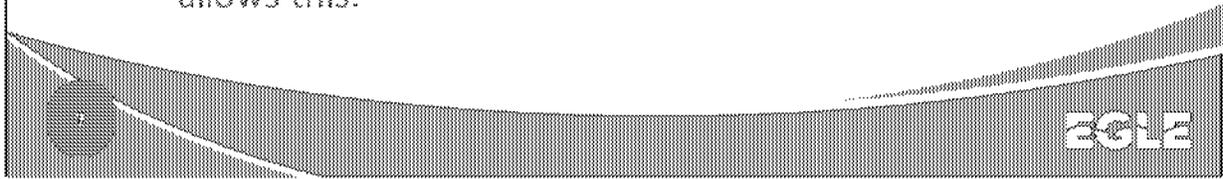
IMPORTANT TO NOTE THAT EGLE REVIEWED COMMENTS RELATED TO THE RULE ITSELF AND THE RIS

WE SENT COMMENTS SEPCIFICALLY CONCERNING THE SELECTION OF PFAS CHEMICALS AND THE HBVs TO MPART FOR REVIEW

06/06/18

1. EGLE must take into account all new data/science in determining the appropriate levels used in developing PFAS MCLs.

- The MPART Science Advisory Work Group (SAWG) undertook a methodical approach in identifying the 7 compounds.
- MPART and EGLE recognize that this group of emerging contaminants will require ongoing assessment, utilizing all available new information. The EGLE-DWEHD Emerging Contaminants Unit was formed in part to take on this type of challenge.
- Should any new information come to light requiring a re-assessment of the proposed MCLs, the rulemaking process allows this.



MOST POPULAR CONCERN WAS THE EGLE STAY CURRENT ON NEW SCIENCE

SAW USED METHODOICAL APPROACH TO REVIEWING CURRENT SCIENCE

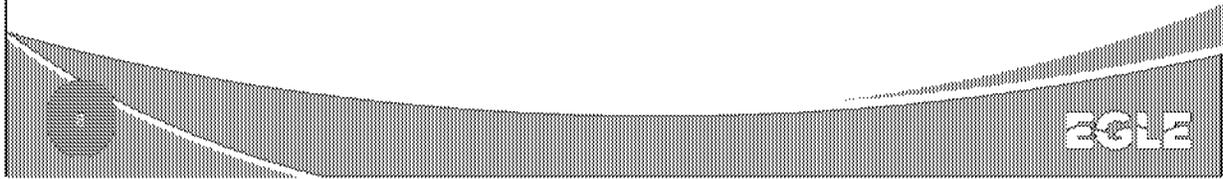
EGLE HAS STOOD UP A NEW UNIT TO ADDRESS THIS VERY CONCERN

DEVELOPED RULES IN VERY QUICK TIMEFRAME – SHOULD NEW SCENCE MANDATE A REVIEW WE ANTICIPATE BEING ABLE TO RESPOND QUICKLY – LIKELY WILL GO BACK TO MPART TO REVIEW SCIENCE

06/06/18

2. EGLE should consider utilizing a class-based approach in developing a PFAS MCL.

- Quantitative analytical techniques are currently useful in quantifying sets of known PFAS analytes.
- Semi-quantitative and qualitative analysis of PFAS analytes is available but must be paired with well-established quantitative methods to accurately assess the levels of PFAS analytes in drinking water.
- Orders-of-magnitude differences in HBVs for PFAS do not lend themselves to a single combined level.



EPA ANALYSIS ONLY COVERS A CERTAIN NUMBER OF PFAS CHEMICALS

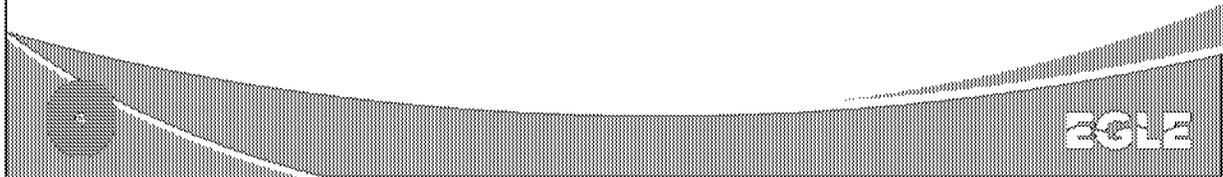
WE MUST USE ESTABLISHED METHODS

SAWG HBVS MAKE IT VERY DIFFICULT TO ESTABLISH CLASS STANDARDS DUE TO ORDER OF MAGNITUDE DIFFERENCES

06/06/18

3. Michigan must be/is a leader in developing PFAS MCLs.

- Michigan is one of a small number of states which have chosen to develop regulatory standards for PFAS in drinking water.
- This approach is proactive and not contingent on the development of a federal MCL, which will likely be a multi-year process.
- Michigan's statewide public water PFAS survey offers a unique tool in assessing the scope of PFAS in Michigan's drinking water.
- The statewide survey was the first of its kind, and has driven Michigan's development of PFAS MCLs, and is an approach since adopted in other states.



WE BELIEVE MICHIGAN IS A LEADER ACROSS ALL ASPECTS OF PFAS REGULATION

ONLY STATE TO REGULATE 7 PFAS CHEMICALS AND GENX COMPOUND

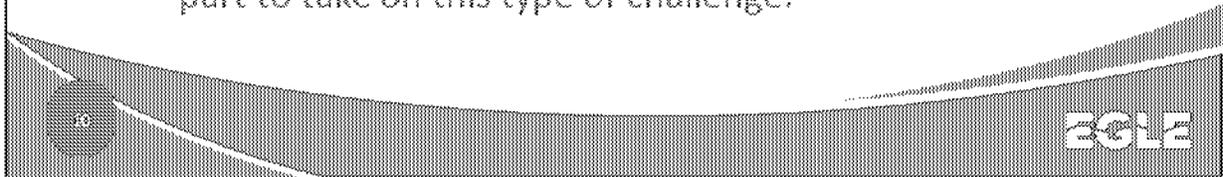
STATEWIDE SURVEY AND MPART EFFORTS DEMONSTRATE LEADERSHIP

EWG MAP

06/06/18

4. EGLE should include a combined PFAS MCL, including some or all of the seven compounds proposed.

- The MPART-SAWG concluded that there is not currently scientific consensus regarding which compounds should be grouped, and whether there is a basis for grouping, when developing HBVs.
- Orders-of-magnitude differences in HBVs for PFAS do not lend themselves to a single combined level.
- MPART and EGLE recognize that this group of contaminants of emerging concern will require ongoing assessment, utilizing all available new information. The EGLE-DWEHD Emerging Contaminants Unit was formed in part to take on this type of challenge.



SAW CONCLUSIONS THAT CURRENT SCIENCE DOES NOT SUPPORT THIS APPROACH

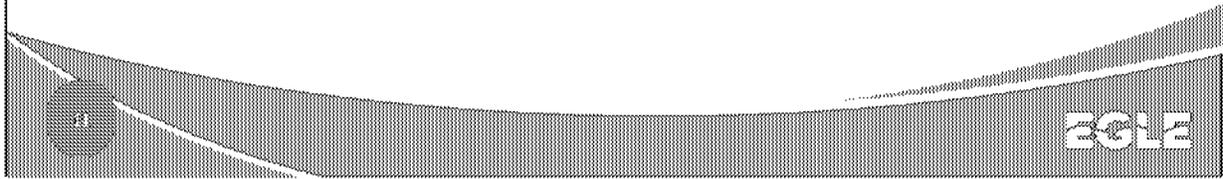
AGAIN, ORDERS OF MAGNITUDE DIFFERENCE WOULD MAKE THE DEFAULT REGULATION OF ALL PFAS IN THE SINGLE DIGIT PPTS LEVEL

WE WILL MONITOR THE EVOLVING SCIENCE

06/06/18

5. Michigan's MCLs must be at a level which is protective of its most vulnerable populations.

- The MPART-SAWG was formed with members representing the fields of epidemiology, toxicology, and risk assessment.
- HBVs were developed taking into account the bioaccumulative nature and developmental toxicity of PFAS compounds.
- The effect of PFAS compounds on Michigan's vulnerable populations was assessed, and the toxicity values were designed to be protective of all populations.



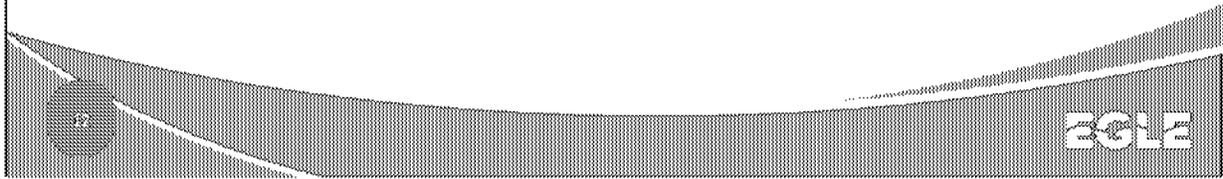
SAWG CHARGE WAS TO ACCOMPLISH THIS AND BE PROTECTIVE OF PUBLIC HEALTH

EFFECT ON VULNERABLE POPULATIONS WAS ASSESSED IN SETTING THE HBVs

06/06/18

6. Michigan's MCLs must be protective of public health.

- The MPART-SAWG was tasked with developing toxicology values for PFAS compounds specifically for the purpose of protecting public health.
- During rulemaking, the proposed MCLs were not adjusted from the HBVs provided by the MPART SAWG.



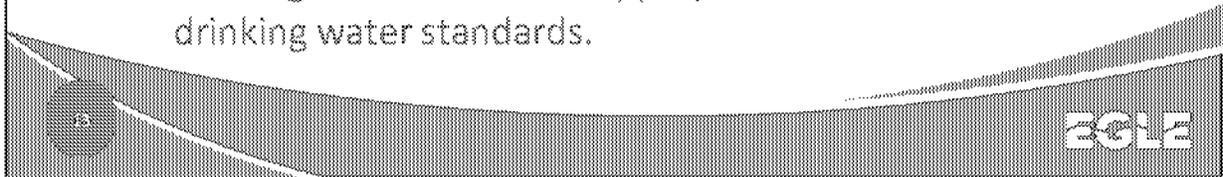
SAWG CHARGE WAS TO DO EXACTLY THIS

IMPORTANT THAT WE DID NOT DEVIATE FROM HBVs WHEN WE ESTABLISHED THE MCLs

06/06/18

7. EGLE must complete rule promulgation more quickly.

- The rule promulgation process for Michigan’s PFAS MCLs moved as quickly as feasible and rulemaking benchmarks have been met by EGLE in as expedient a manner as possible.
- Having begun in April 2019, and slated to be completed in Spring 2020, the process is on track to be far shorter than the typical multi-year rulemaking process.
- Some commenters noted that the risk of moving too rapidly through rulemaking should also be considered. Care must be taken to assure that the process remains thorough and establishes appropriate and enforceable drinking water standards.



WE ARE MOVING AT REGULATORY LIGHT SPEED

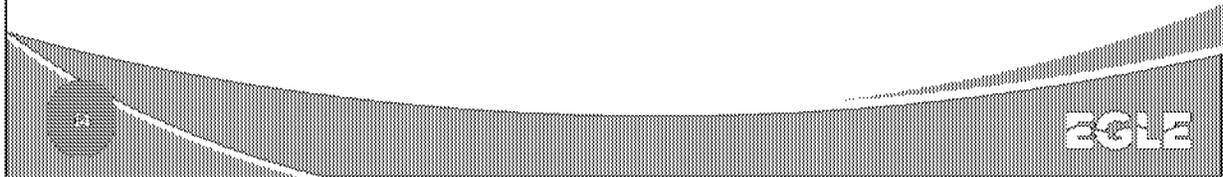
AWARE OF COMMENTS ON THE OTHER SIDE THAT WE ARE MOVING TOO QUICKLY

06/06/18

Comments re: Regulatory Impact Statement

One common theme among comments in opposition was to question the appropriateness of the RIS prepared by EGLE-DWEHD.

Having reviewed these comments, EGLE-DWEHD has deemed that nothing was presented that would change the existing RIS.



RIS GENERAL COMMENTS

Michigan Chemistry Council: underestimates the cost to small systems, disproportional share of the cost born by small systems. EGLE used a premium cost for small systems based on an actual cost of a system at Robinson Elementary school.

Varnum: Testing costs are expensive, treatment option are out of reach for small systems, Non-transient Non-community water systems unduly burdened. EGLE used a very conservative cost estimate for testing assuming all supplies would contract testing out. That is almost certainly not the case. The testing burden will ease over time as we anticipate many systems being reduced to annual. Costs for smaller systems are generally higher but were reflected in the cost estimate. EGLE anticipates state funding resources will be made available at smaller systems.

American Chemistry Council: Took issue with statement that problem will occur more frequently at larger systems. Stated that GAC was only effective for longer chain PFAS. RIS should address how treatment costs will affect households. Didn't consider any regulatory alternative such as using the EPA standards. EGLE acknowledges testing showed more exceedances at smaller systems. It is the treatment cost at larger systems that was the intent of the statement in the RIS; one large system could increase the overall state cost to comply by orders of magnitude. While EGLE acknowledges there is a challenge with GAC treating smaller chains, GAC was used for several reasons but the use of GAC in the RIS does not limit systems from considering any treatment option. Approval of treatment will be based on efficacy and system needs. EGLE was using the EPA standard of 70 ppt which was deemed not protective of public health and sensitive populations.

GHD: EGLE did not meet threshold requirement for "robust and defensible" cost estimate. GAC only effective for long chain PFAS. Took issue with New Jersey high end cost estimate; MI population is 7 times NJ's, cost at Plainfield was \$15 million. Did not adequately address O&M Cost. EGLE met the administrative rule requirements for the RIS which are not the same as the EPA standards. GAC is not the only allowable treatment option, see comment above. New Jersey estimate was applied to MI systems based on state-wide testing therefore the population difference is irrelevant. Plainfield's treatment system cost was excluded because it was not done in response to the new rules, the RIS specifically addresses costs incurred due to implementation of the new rules. As Plainfield acted under the EPA 70 ppt standard, that cost could not be attributed to the new rule set. O&M costs are an estimate based on NJ cost - acknowledged that they may not be accurate on either side.

Great Lakes Environmental Law Center: Asserts that EGLE is not required to consider cost to comply when promulgating a new rule. Asserts that EGLE did that when setting the MCLs. EGLE accomplished an RIS as required by the administrative rules procedures. Cost of compliance was considered when setting the MCLs based on the SAW's HBVs but ultimately the MCLs were not changed and the HBVs were adopted.

Michigan Manufacturing Association: EGLE RIS did not fully account for the cost of retrofitting plants, employee time and cost of disposal. EGLE employed actual cost estimates for systems in New Jersey and Michigan. Those costs covered the cost to retrofit equipment. Every potential case can not be reasonable estimated or anticipated- it is an estimate. Employee cost and disposal cost were considered as part of the O&M cost.

National Wildlife Foundation: EGLE should help with costs that are passed along to vulnerable communities. EGLE is providing cost assistance and will continue to advocate for this in the future.

PFAS Regulatory Coalition: Consider true costs and the developing nature of treatment technologies. Cost estimate should be more robust. Consider issues with disposal such as landfills and issues with incineration. RIS ignored impact of changes in 201 Standards. It is impossible to anticipate the development of new technologies in a cost estimate however it can generally be said that these new technologies will tend to reduce cost as more efficient and effective treatment and disposal methods are developed. Likewise, it is difficult to anticipate costs associated with landfills refusing to accept PFAS waste and incineration of GAC for disposal or for regeneration is an area that needs much more study. EGLE did not include costs incurred due to changes in 201 cleanup standards as they are not required to be considered under the RIS and they would be very difficult to almost impossible to anticipate. The Remediation and Redevelopment Division of EGLE will consider these costs in their processes.

06/06/18

RECEIVED by MSC 3/29/2024 10:10:36 AM

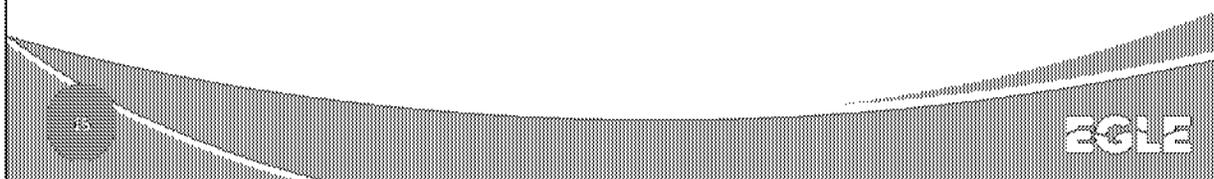
Document received by the MI Court of Claims.

Proposed Rule Changes

EGLE-DWEHD and public commenters both identified items within the rule language for which a change was necessary. These are as follows:

- The Chemical Abstracts Service (CAS) Registry Number for PFBS should read 375-73-5.
- The CAS Registry Number for PFHxS should read 355-46-4.

These have been corrected in the rule language.



06/06/18

Michigan Department of
Environment, Great Lakes, and Energy

800-662-9278
www.Michigan.gov/EGLE



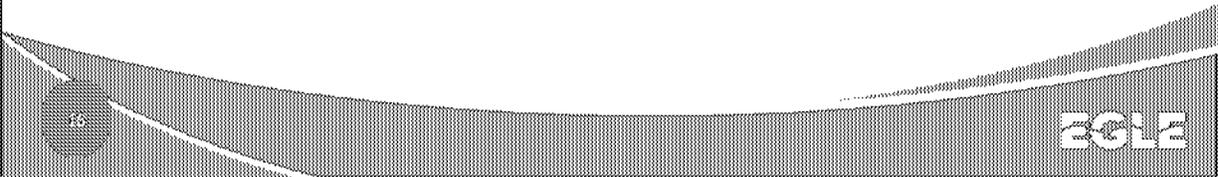
Sign up for email updates



Subscribe to our YouTube Channel



Follow us on Twitter @MichiganEGLE



06/06/18

RECEIVED by MSC 3/29/2024 10:10:36 AM

Document received by the MI Court of Claims.

ENVIRONMENTAL RULES REVIEW COMMITTEE (ERRC)**MINUTES****Thursday, February 27, 2020, 1:00 – 3:30 p.m.**

Michigan Department of Environment, Great Lakes, and Energy
 Constitution Hall, Lee Walker Conference Room, Atrium Level North
 525 West Allegan Street, Lansing, Michigan 48933

ERRC MEMBERS:**Voting Members Present:**

| | | |
|-----------------|--------------------------|--------------|
| Chuck Lippstreu | Daniel Frakes | Jeremy Orr |
| Helen Taylor | Dave Maness | Eric Pessell |
| Grant Trigger | Fadi Mourad | |
| Melissa Stults | Robert Nederhood (Chair) | |

Voting Members Absent:

| | |
|------------|----------------------|
| Jan Barlow | Shayna Schupan Barry |
|------------|----------------------|

Non-Voting Members:

| | |
|---|---|
| James Clift Michigan Department of Environment, Great Lakes, and Energy (EGLE) | Kirk Lapham Department of Natural Resources (DNR) |
| Jim Johnson Michigan Department of Agriculture and Rural Development (MDARD) | Deb MacKenzie-Taylor Department of Health and Human Services (DHHS) |

Clerk:

Dale Shaw

1. ERRC Roll Call

The meeting was called to order at 1:02 p.m. Clerk Dale Shaw called the roll. Chair Robert Nederhood noted that a quorum was present.

2. Introduction of New Committee Members

Chair Robert Nederhood introduced the following two new voting members to the ERRC:

- Charles Lippstreu representing statewide agriculture organizations. His term expires October 2021.

- Melissa Stults representing local governments. Her term expires October 2021.

3. Selection of a Vice-Chair for ERRC

Mark Fowler, Vice-Chair, resigned from the ERRC effective January 14, 2020. Chair Robert Nederhood requested volunteers for Vice-Chair at the January 30, 2020 meeting. Eric Pressel volunteered to be Vice-Chair.

Motion: Grant Trigger made a motion to approve Eric Pressel as Vice-Chair of the ERRC; Helen Taylor seconded the motion. The motion was passed by all members present.

4. Approval of Agenda

Motion: Dave Maness made a motion to approve the agenda as provided; Daniel Frakes seconded the motion. The motion was passed by all members present.

5. Approval of ERRC Minutes from January 30, 2020 Meeting

Motion: Fadi Mourad made a motion to approve the minutes as provided; Eric Pessell seconded the motion. The motion was passed by all members present.

6. Summary of Public Comments and Changes to the Final *Supplying Water to the Public Draft Rules (2019-035 EQ)*

Eric Oswald, Director, Drinking Water and Environmental Health Division, presented a summarization of the public comment period. The public comment period ran from 12/6/2019 to 1/31/2020.

- 3,334 written public comments were received related to the rules.
 - 3,315 were sent to the EGLE-PFAS-Rulemaking mailbox.
 - 8 were sent via U.S. Postal Service.
 - 11 were received at the public hearings.
- There were 82 oral comments received via public hearings.

The following are the comment categories EGLE received:

- Comments in Favor – 2,584 or 75.6%
Language directly indicated overall support for the rulemaking effort. Comments in favor may include suggestions for improvement.
- Neutral Comments – 816 or 23.9%
Language did not directly indicate positive or negative leaning. Neutral comments may include suggestions for improvement.
- Comments in Opposition – 16 or 0.5%
Language directly indicated opposition to the rulemaking effort and/or proposed a different path for developing a PFAS standard. Comments in opposition may include suggestions for improvement.

Eric Wildfang, Toxicology Unit Manager, Remediation and Redevelopment Division, reported to the ERRC that the Science Advisory Workgroup (SAWG) received and reviewed a subset of public comments the MPART Human Health Workgroup received during the comment period. SAWG was asked to consider if they believed any changes were warranted to their original assessment and offer advice on the points raised in the public comments. SAWG made the determination, after reviewing the points and discussing them on a conference call February 26, 2020, that they continue to believe that the Health-Based Values (HBVs) reflect the best use of the available scientific evidence at the time of their work and do not believe changes to their original recommendations are warranted.

The ERRC was provided time to ask EGLE staff any questions regarding the final *Supplying Water to the Public* Draft Rules (2019-035 EQ). Questions from the ERRC included the role of MPART and the SAWG in reviewing the public comments, and the secondary effects of the proposed rules on water quality and remediation regulations.

7. Public Comment

PII Michigan Farm Bureau, spoke regarding the costs of implementation of the rule for farms and agricultural processors. Requests more time for implementation, technical and financial assistance for smaller communities and farms.

PII Director, Michigan Chemistry Council, supports appropriate regulations. Their biggest concern is the short timeline of the rulemaking process of this rule, specifically the short process of the Science Advisory Workgroup to recommend the levels used in this rule.

PII, Michigan Manufacturers Association, wants to see more of a technical peer review and scientific evaluation of the rules; EGLE using settled science; show accounting for the costs for municipal water systems, citizens and employers; and ERRC to utilize more of the 120 days available to ensure an informed vote.

8. Deliberation on Final Draft Rules (2019-35 EG)

The ERRC members deliberated on the draft rules.

9. ERRC Vote on the Final Draft Rules (2019-35 EG)

The ERRC discussed ways on how communicate to JCAR any of their comments, concerns, and key points discussed as a committee. It was decided that Chair Robert Nederhood would draft a supplement to JCAR.

Motion: Jeremy Orr made a motion to approve the rules and to have the Chair work with EGLE to prepare a supplement describing the factors that went into the decision and ongoing concerns; Eric Pessell seconded the motion. The motion was passed by a majority. Two members abstained: Daniel Frakes and Grant Trigger.

10. Adjournment

Motion: Helen Taylor made a motion to adjourn the meeting at 3:20 p.m.; Melissa Stults seconded the motion. The motion was passed by all members present.

Prepared by:
Dale Shaw, Clerk
EGLE

March 6, 2020

Meeting minutes were APPROVED at the ERRC Meeting on December 17, 2020

State Budget Office
Office of Regulatory Reinvention
 111 S. Capitol Avenue; 8th Floor, Romney Building,
 Lansing, MI 48933
 Phone: (517) 335-8658 FAX: (517) 335-9512

RECEIVED by MSC 3/29/2024 10:10:36 AM

REQUEST FOR RULEMAKING (RFR)

Under the Administrative Procedures Act (APA), 1969 PA 306, the agency that has the statutory authority to promulgate rules must electronically file a RFR with the Office of Regulatory Reinvention (ORR) before initiating any changes or additions to the rules. Submit copy to the ORR at orr@michigan.gov.

1. Agency Information

| | |
|---|--|
| Agency name: | Department of Environmental Quality (DEQ) |
| Division/Bureau/Office: | Drinking Water and Municipal Assistance Division |
| Name, title, phone number, and e-mail of person completing this form: | Eric Oswald, Division Director, 517-643-2543, oswalde1@michigan.gov |

2. Rule Set Information

| | |
|--|---------------------------------|
| Title of proposed rule set: | Supplying Water to the Public |
| Rule number(s) or range of numbers: | R 325.10101 through R 325.12820 |
| Included in agency's annual regulatory plan as rule to be processed in current year? | Yes |

3. Estimated timetable for completion, or statutory deadline, if applicable:

| |
|--|
| The draft proposed rules and regulatory impact statement will be submitted to the Office of Regulatory Reinvention by October 1, 2019. |
|--|

4. Describe the general purpose of these rules, including any problem(s) the changes are intended to address:

| |
|--|
| To establish enforceable drinking water standards for per- and polyfluoroalkyl substances (PFAS) found during the 2018 sampling of Michigan's public drinking water supplies. While the U.S. Environmental Protection Agency has established an unenforceable lifetime health advisory level for total perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), many academia, health officials, and the Agency for Toxic Substances and Disease Registry (ASTDR) deem this advisory level is too high. In addition, the lack of an enforceable standard for PFOS and PFOA and other commonly found PFAS chemicals impairs the DEQ's ability to take enforceable actions to protect human health and the environment. |
|--|

5. Cite the specific rule promulgation authority (i.e. agency director, commission, board, etc., listing all applicable statutory references. If the rule(s) are mandated by any applicable constitutional or statutory provision, please explain.

| |
|--|
| Section 5 of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), MCL 325.1005. |
|--|

6. Describe the extent to which the rule(s) conflict with, duplicate, or exceed similar regulations, compliance requirements, or other standards adopted at the state, regional, or federal level. Include applicable public act and statutory references.

| |
|---|
| Act 399 currently contains numerous drinking water standards that are consistent with federal requirements. This requested rulemaking will add additional drinking water standards and related sampling and response requirements. These additional standards |
|---|

would be more stringent than regulations under the federal Safe Drinking Water Act (SDWA) which was originally passed by Congress in 1974 to protect public health by regulating the nation’s public drinking water supply. SDWA authorizes the U.S. Environmental Protection Agency to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. Title 40 of the Code of Federal Regulations (CFR), Part 141, National Primary Drinking Water Regulations, currently does not contain standards for PFAS.

7. Is the subject matter of the rule(s) currently contained in any guideline, manual, handbook, instructional bulletin, form with instructions, or operational memo?

No.

8. Explain whether the rule(s) will be promulgated under Sections 44 or 48 of the APA or the full rulemaking process:

Full rulemaking process.

9. Do the rule(s) incorporate the recommendations of any Advisory Rules Committee formed pursuant to Executive Order 2011-5? If yes, explain.

No.

10. Is there an applicable decision record as defined in Section 3(6) and required by Section 39(2) of the APA? If so, please attach the decision record.

No.

11. Reviewed by the following Departmental Regulatory Affairs Officer:

Dave Fiedler

↓ To be completed by the ORR ↓

Date RFR received: 3-26-2019

Based on the information in this RFR, the ORR concludes that there are sufficient policy and legal bases for approving the RFR.

| | |
|-------------------------------|-------------|
| ORR assigned rule set number: | 2019-035 EQ |
| Date of approval: | 3/28/19 |

Based on the information in this RFR, the ORR is not approving the RFR at this time.

| | |
|----------------------|--|
| Date of disapproval: | |
| Explanation: | |



Legal Division

Kevin H. Studebaker, Director

CERTIFICATE OF APPROVAL

On behalf of the Legislative Service Bureau, and as required by section 45 of the Administrative Procedures Act of 1969, 1969 PA 306, MCL 24.245, I have examined the proposed rules of the Department of Environment, Great Lakes, and Energy, dated March 16, 2020, amending R 325.10107, R 325.10116, R 325.10308b, R 325.10313, R 325.10401a, R 325.10405, and R 325.12701, and adding R 325.10604g, R 325.10717d, R 325.12708, and R 325.12710 of the Department's rules entitled "Supplying Water to the Public." I approve the rules as to form, classification, and arrangement.

Dated: March 16, 2020

LEGISLATIVE SERVICE BUREAU

By Elizabeth R. Edberg
Elizabeth R. Edberg,
Legal Counsel



STATE OF MICHIGAN

GRETCHEN WHITMER
GOVERNOR

DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS

ORLENE HAWKS
DIRECTOR

LEGAL CERTIFICATION OF RULES

I certify that I have examined the attached administrative rules, dated March 16, 2020, in which the Department of Environment, Great Lakes, and Energy proposes to modify a portion of the Michigan Administrative Code entitled "Supplying Water to the Public" by:

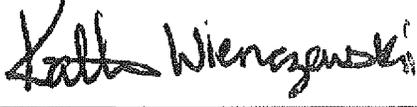
- ◆ Amending R 325.10107, R 325.10116, R 325.10308b, R 325.10313, R 325.10401a, R 325.10405, and R 325.12701.
- ◆ Adding R 325.10604g, R 325.10717d, R 325.12708, and R 325.12710.

The Legislative Service Bureau has approved the proposed rules as to form, classification, and arrangement.

I approve the rules as to legality pursuant to the Administrative Procedures Act, MCL 24.201 *et seq.* and Executive Order No. 2019-6. In certifying the rules as to legality, I have determined that they are within the scope of the authority of the agency, do not violate constitutional rights, and are in conformity with the requirements of the Administrative Procedures Act.

Dated: 3-16-2020

Michigan Office of Administrative Hearings and Rules

By: 
 Katie Wienczewski,
 Attorney

RECEIVED by MSC 3/29/2024 10:10:36 AM

**Michigan Office of Administrative Hearings and Rules
Administrative Rules Division (ARD)**

611 W. Ottawa Street
Lansing, MI 48909

Phone: 517-335-8658 Fax: 517-335-9512

**REGULATORY IMPACT STATEMENT
and COST-BENEFIT ANALYSIS (RIS)**

Agency Information:

Department name:

Environment, Great Lakes and Energy

Bureau name:

Drinking Water and Environmental Health Division

Name of person filling out RIS:

Candra Wilcox

Phone number of person filling out RIS:

517-284-5004

E-mail of person filling out RIS:

WilcoxC2@michigan.gov

Rule Set Information:

ARD assigned rule set number:

2019-35 EG

Title of proposed rule set:

Supplying Water to the Public

Comparison of Rule(s) to Federal/State/Association Standard:

1. Compare the proposed rules to parallel federal rules or standards set by a state or national licensing agency or accreditation association, if any exist.

The Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), currently contains numerous drinking water standards that are consistent with federal requirements. This requested rulemaking will add additional drinking water standards and related sampling and response requirements. These additional standards would be in addition to the regulations under the federal Safe Drinking Water Act (SDWA), which was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The SDWA authorizes the U.S.

Environmental Protection Agency to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. Title 40 of the Code of Federal Regulations (CFR), Part 141, National Primary Drinking Water Regulations, currently does not contain standards for per and poly-fluorinated substances (PFAS).

A. Are these rules required by state law or federal mandate?

These rules are not required by state law or federal mandate.

B. If these rules exceed a federal standard, please identify the federal standard or citation, describe why it is necessary that the proposed rules exceed the federal standard or law, and specify the costs and benefits arising out of the deviation.

There are no applicable federal standards for these chemicals.

2. Compare the proposed rules to standards in similarly situated states, based on geographic location, topography, natural resources, commonalities, or economic similarities.

Four other states have established maximum contaminant levels (MCLs) for several PFAS compounds. New Hampshire, New Jersey, New York, and Vermont are establishing regulations for the chemicals. Michigan's proposed levels are similar to standards being proposed by other states.

A. If the rules exceed standards in those states, please explain why and specify the costs and benefits arising out of the deviation.

MCL 24.245(3)

The standards in these rules are similar to standards being proposed by other states.

3. Identify any laws, rules, and other legal requirements that may duplicate, overlap, or conflict with the proposed rules.

No other rules or legal requirements pertain to establishing drinking water standards for public water supplies.

A. Explain how the rules have been coordinated, to the extent practicable, with other federal, state, and local laws applicable to the same activity or subject matter. This section should include a discussion of the efforts undertaken by the agency to avoid or minimize duplication.

Since there are not generic groundwater cleanup standards for PFNA, PFHxS, PFBS, PFHxA and HFPO-DA, the department may establish them following the process set forth in Natural Resource and Environmental Protection Act, 1994 PA 451, MCL 324.20120a(23).

4. If MCL 24.232(8) applies and the proposed rules are more stringent than the applicable federally mandated standard, a statement of specific facts that establish the clear and convincing need to adopt the more stringent rules and an explanation of the exceptional circumstances that necessitate the more stringent standards is required.

Because there are no existing applicable federal standards, MCL 24.232(8) does not apply. Further, in any event, there is a “clear and convincing need” for these rules given the prevalence of PFAS contamination within the state and its potential impact on drinking water. The state has conducted extensive sampling for 14 PFAS compounds at all community water systems and many non-transient non-community water systems to determine the extent of contamination. Through these efforts, a significant exposure was discovered in the city of Parchment which posed a significant on-going risk to the public. Through a voluntary effort with the City of Parchment and the City of Kalamazoo, the public was protected from further exposure. This sampling also identified a number of drinking water systems with levels of PFAS contaminants that could cause adverse health effects if not addressed. The new rules require on-going sampling and response to selected PFAS chemicals and represent a balanced approach to protecting public health and managing impact to water supplies.

5. If MCL 24.232(9) applies and the proposed rules are more stringent than the applicable federal standard, either the statute that specifically authorizes the more stringent rules or a statement of the specific facts that establish the clear and convincing need to adopt the more stringent rules and an explanation of the exceptional circumstances that necessitate the more stringent standards is required.

Because there are no existing federal standards, MCL 24.232(9) does not apply. Nonetheless, the Michigan Safe Drinking Water Act allows EGLE to promulgate rules setting standards for public water supplies, see MCL 325.1003.

6. Identify the behavior and frequency of behavior that the proposed rules are designed to alter.

The proposed rules are designed to alter the current practices of public water supplies (PWSs) in the state of Michigan in order to be more protective of public health by requiring certain water supplies to sample for seven PFAS chemicals. Supplies would be required to initially sample for seven regulated PFAS chemicals on a quarterly basis. Based on sampling results, sampling could be reduced. Supplies currently do not routinely sample for any PFAS chemicals.

A. Estimate the change in the frequency of the targeted behavior expected from the proposed rules.

The change is from no sampling to quarterly or annual sampling.

B. Describe the difference between current behavior/practice and desired behavior/practice.

The current practice is no testing for PFAS chemicals. The rules will require quarterly or annual testing and reporting for seven PFAS chemicals.

C. What is the desired outcome?

Improved public health by limiting exposure to PFAS chemicals. The rules will also broaden the understanding of where these chemicals are occurring in our drinking water systems.

7. Identify the harm resulting from the behavior that the proposed rules are designed to alter and the likelihood that the harm will occur in the absence of the rule.

Exposure to PFAS chemicals has been shown to cause numerous adverse health impacts. The Science Advisory Workgroup (SAW) assigned by the Michigan PFAS Action Response Team (MPART) identified seven PFAS contaminants of concern for which, in their professional judgement, there was enough scientific evidence to establish Health-Based Values (HBVs). HBVs establish a level of contamination below which there is not expected to be adverse health impacts. The Drinking Water and Environmental Health Division (DWEHD) took these HBVs and used them to create MCLs. Supplies will sample for these chemicals, and when a running annual average exceeds the MCL for any PFAS contaminant, they will be required to take action to reduce that level of contamination to below the appropriate MCL.

A. What is the rationale for changing the rules instead of leaving them as currently written?

The current rules provide no protection or monitoring for PFAS chemicals.

8. Describe how the proposed rules protect the health, safety, and welfare of Michigan citizens while promoting a regulatory environment in Michigan that is the least burdensome alternative for those required to comply.

The proposed rules protect public health by requiring the monitoring of selected PFAS chemicals, and in the event they exceed the established limit, a response to lower exposure below that limit. The rules require quarterly samples that are averaged over a year in order to address seasonal and source variations. The rules require a violation for exceedances of the MCL but does not stipulate a required strategy or timeline to return to compliance. Instead, the supply will likely enter into an Administrative Consent Order (ACO) with EGLE to establish timelines and other details for the response. This process ensures an approach that balances the need to protect public health with the fiscal and technical realities the supply is facing.

9. Describe any rules in the affected rule set that are obsolete or unnecessary and can be rescinded.

There are no components that are obsolete.

10. Please provide the fiscal impact on the agency (an estimate of the cost of rule imposition or potential savings for the agency promulgating the rule).

These rules will impose an increased fiscal impact on EGLE due to increased oversight and data handling. Although the proposed MCLs will be added to an existing monitoring program, the initial sampling requirement and training burden will be significant. Approximately 2,700 public water supplies will be subject to the new monitoring requirements. Quarterly sampling will generate almost 11,000 sample results and calculations that will need to be reviewed. We also anticipate approximately 22 supplies will be out of compliance based on prior testing. This will result in the need for increased oversight and review of ACOs and corrective action plans. Local health departments directly oversee approximately half of these supplies which will result in increased oversight responsibilities and costs primarily in processing sampling results and issuing enforcement communications. The bulk of the cost of the response, approving and overseeing corrective action, will be borne by EGLE as EGLE approves construction permits for treatment systems. It is important to note that the increase in oversight is mitigated by the fact that the new rules require sampling, analysis and compliance calculation in exactly the same way as existing rules resulting in a lower "learning curve" for local health departments in administering the new rules.

11. Describe whether or not an agency appropriation has been made or a funding source provided for any expenditures associated with the proposed rules.

The fiscal year 2020 budget includes funding for new FTEs for the drinking water program. It is anticipated that some of these additional FTEs will be utilized to administer the new rules.

12. Describe how the proposed rules are necessary and suitable to accomplish their purpose, in relationship to the burden(s) the rules place on individuals. Burdens may include fiscal or administrative burdens, or duplicative acts.

The new rules are necessary to protect human health from PFAS contamination that has been identified in PWSs. The burden of the new rules is lessened due to the fact that the MCLs have been added to an existing sampling requirement, meaning supplies will simply have to take more samples. Sampling for PFAS contamination, it should be noted, is more difficult due to the potential for cross-contamination and training will be required. The new rules will most likely result in some systems requiring modification/addition of their treatment process that will result in increased costs.

A. Despite the identified burden(s), identify how the requirements in the rules are still needed and reasonable compared to the burdens.

The rules are still needed to identify PFAS contamination in drinking water and to limit the exposure, through treatment or alternate sources, to the public.

13. Estimate any increase or decrease in revenues to other state or local governmental units (i.e. cities, counties, school districts) as a result of the rule. Estimate the cost increases or reductions for other state or local governmental units (i.e. cities, counties, school districts) as a result of the rule. Include the cost of equipment, supplies, labor, and increased administrative costs in both the initial imposition of the rule and any ongoing monitoring.

These rules will impose costs on local government units that own or operate a PWS, including most municipalities (community water supplies) along with some schools and other public entities that are on their own wells (non-transient noncommunity water supplies). There are approximately 1,400 community water supplies (CWSs) in the state, and 733 of them are owned by a local unit of government. There are approximately 1,300 non-transient noncommunity water supplies in the state, and 291 of them are owned publicly. These two categories make up the water supplies that will be impacted by this rule. The cost estimates below apply to all impacted water supplies, both private and public. In general, non-transient noncommunity water systems tend to be smaller while community water systems tend to be larger.

There are two significant drivers of cost to PWSs. The first is the cost of sampling and monitoring PFAS in the drinking water supplies. The second is the cost of installation and operation of treatment where supplies exceed the MCL.

The initial costs to all water supplies regulated by these rules will be the requirement to sample for PFAS on a quarterly basis. If all supplies sample quarterly for the first year, a total of 10,800 samples will be required. The average sample analysis has been approximately \$300 per sample for a total sampling cost of \$3.2 million. The cost to take samples, by contract, has also averaged \$300 per sample. Therefore, the additional cost to physically take the samples is approximately \$3.2 million. Supplies may reduce this cost if they elect to take their own samples. The total conservative estimate for the sampling effort is \$6.4 million for the first year the rules are in effect. Because some supplies will only be required to sample annually, and there are provisions for reduction in sampling if a track record for detections under a certain level can be established, this estimate is likely higher than the actual anticipated cost of sampling and analysis. Annual sampling and analysis costs after the first year should run lower than this estimate.

The other significant cost will be the installation of treatment. There are two options a water system can pursue to reduce the level of contamination in their finished water. The first is to switch to an alternate water source. Because this option is extremely variable from supply to supply, and indeed may not even be an option for some supplies, EGLE cannot reliably develop a cost estimate for that option. The second option is treatment. Recommended treatment is based on a study by the New Jersey Drinking Water Quality Institute that identified Granular Activated Carbon (GAC) as the preferred treatment option. The major costs of GAC include design, installation, and operation/maintenance. While a specific cost of design and installation vary by site, we can make a rough estimated based on a general cost per million gallons treated.

After several rounds of testing affected water supplies, we have identified 22 water systems that may likely be impacted by a requirement to install treatment due to an exceedance of the proposed MCLs. These 22 systems consist of both small systems and larger systems. Because smaller systems often pay a higher cost per gallon due to their size, we have estimated the cost separately for the larger community waster systems and the smaller non-community systems.

The larger, community systems are treating a total of 0.928 million gallons per day (MGD). To estimate the costs for these systems we were able to use a January 2019 report from the State of New Hampshire. New Hampshire identified a one-time treatment installation cost based on gallons treated per day. Their lowest cost estimate was \$2.90 per gallon, and their highest cost estimate was \$8.10 per gallon. To be conservative in our estimate, we have used the higher end of this range at \$8 per gallon treated per day. Based on this value, the estimated one-time installation cost of the new rules for the larger, community systems will be \$7.4 million (\$8 x 928,000).

The smaller, non-community systems treat a total of 79,000 gallons per day. A recent cost estimate for Robinson Elementary school was \$206,000 to treat a designed load of 4,500 gallons of water per day (\$46 per gallon treated per day). Projecting this value forward, to install treatment for 79,000 gallons of water it is estimated that it will cost \$3.6 million.

MCL 24.245(3)

Combining the estimated cost for treatment installation at the larger, community systems with the estimated cost for the smaller, non-community systems, the total estimated cost for all water systems where we currently know PFAS needs to be addressed is an estimated total of \$11 million.

14. Discuss any program, service, duty, or responsibility imposed upon any city, county, town, village, or school district by the rules.

Water supplies owned by governmental units will need to comply with all of the requirements of the new PFAS MCLs, including increased sampling and reporting. There are also expanded public notification requirements and follow up based on sampling results.

The following is a continuation of the response to Question 13 above:

There will also be a cost associated with operating and maintaining the treatment systems. Those costs are more difficult to estimate based on the unique water chemistry and existing treatment design associated with each water supply. Those variables will affect how a GAC solution is implemented and how often the GAC system media will need to be replaced. The New Hampshire study used a high annual estimate of \$0.35 per gallon, or \$0.000959 per gallon per day.

Based on that, the estimated annual operation and maintenance cost for the new rules is \$352,500 per year. There is no anticipated difference in operations and maintenance costs between large and small systems.

It is noted that several water systems have proactively responded to PFAS contamination which has resulted in costs that could have been incurred if those actions were taken after this rule went into effect. The City of Plainfield is installing GAC treatment in response to contamination which is not currently in excess of the proposed MCLs. The treatment installation is estimated to be approximately \$15 million. Additionally, the City of Ann Arbor has been conducting a treatment study and has been sampling for PFAS in a manner that exceeds the requirements of the new rule. The City of Parchment abandoned their public water system and connected to the City of Kalamazoo resulting in costs to both systems. While these costs are not directly related to the new rule it is important to acknowledge that some systems have already implemented actions to protect their communities that are not included in this cost estimate.

In conclusion, there are many costs to regulated supplies, including ancillary administrative costs. Again, this is the cost for all impacted water supplies in the state, both public and private, with the largest impact to medium and large municipalities.

A. Describe any actions that governmental units must take to be in compliance with the rules. This section should include items such as record keeping and reporting requirements or changing operational practices.

Municipalities that own/operate a PWS will be required to comply with the new rules and to sample, report, and respond to exceedance of the new MCLs.

15. Describe whether or not an appropriation to state or local governmental units has been made or a funding source provided for any additional expenditures associated with the proposed rules.

No identification of funding source or appropriation has taken place.

16. In general, what impact will the rules have on rural areas?

In general, rural areas will be less impacted by these rules than urban areas, since most contamination found to date occurs in larger systems. EGLE staff will be gearing up to provide additional direct assistance to small rural supplies if these rules are promulgated.

A. Describe the types of public or private interests in rural areas that will be affected by the rules.

Water supplies located in rural areas will be affected by the new rules.

17. Do the proposed rules have any impact on the environment? If yes, please explain.

A secondary goal of the selected preferred treatment method is the possibility that regeneration of the GAC media may physically destroy the PFAS contamination. Most other treatment options simply move the contamination from one media to another. If the spent GAC media is regenerated through incineration, it will physically destroy the PFAS contamination, breaking the cycle of media transfer and thereby improving the environment by ending the cycle and destroying the contamination. This benefit depends on the ultimate fate of spent GAC media. Some supplies may choose to dispose of the media in an appropriate landfill, therefore, this benefit may not apply.

18. Describe whether and how the agency considered exempting small businesses from the proposed rules.

No – EGLE did not consider exempting small businesses from the proposed rules.

19. If small businesses are not exempt, describe (a) the manner in which the agency reduced the economic impact of the proposed rules on small businesses, including a detailed recitation of the efforts of the agency to comply with the mandate to reduce the disproportionate impact of the rules upon small businesses as described below (in accordance with MCL 24.240(1)(a-d)), or (b) the reasons such a reduction was not lawful or feasible.

While small private water supplies will be required to comply, the impact should be minimized due to the low amount of water treated at these supplies. The state will offer technical support to these supplies as required.

A. Identify and estimate the number of small businesses affected by the proposed rules and the probable effect on small businesses.

There are approximately 650 privately-owned CWSs with populations under 10,000 and approximately 1,000 privately-owned non-transient noncommunity water supplies in Michigan. These two categories constitute the PWSs that are impacted by the proposed MCLs. These PWSs will be required to comply with the requirements of the rules, creating a financial and administrative burden.

B. Describe how the agency established differing compliance or reporting requirements or timetables for small businesses under the rules after projecting the required reporting, record-keeping, and other administrative costs.

While small private PWSs do have to comply with the proposed rules requirements, any exceedance of an MCL will be ultimately resolved through an ACO. The ACO will take into account economic factors in the supply's return to compliance while maintaining a balance to protect human health.

C. Describe how the agency consolidated or simplified the compliance and reporting requirements for small businesses and identify the skills necessary to comply with the reporting requirements.

EGLE incorporated the new requirements into an existing regulatory framework that PWSs are already familiar with, thereby simplifying compliance. EGLE is also working on a new database system that will allow laboratories to report monitoring results electronically, as well as accept electronic submittal of reports. This will significantly reduce the effort involved for all regulated supplies.

D. Describe how the agency established performance standards to replace design or operation standards required by the proposed rules.

MCLs are by their nature already performance-based. Although GAC is identified as a preferred treatment method, supplies are free to use any available treatment method that is proven to remove PFAS contamination to below the MCLs.

20. Identify any disproportionate impact the proposed rules may have on small businesses because of their size or geographic location.

Small businesses should be impacted less by this regulation since they treat a lower volume of water than municipalities due to their size and less urban location.

21. Identify the nature of any report and the estimated cost of its preparation by small businesses required to comply with the proposed rules.

There are no reports required by the new rules. Test results will be reported directly to regulators through standard means already in place for similar contaminants.

22. Analyze the costs of compliance for all small businesses affected by the proposed rules, including costs of equipment, supplies, labor, and increased administrative costs.

There are approximately 1,300 non-transient noncommunity water supplies in the state that EGLE will define as "small businesses." The sampling requirement for these supplies is estimated to be \$3.1 million annually (1,300 supplies sampling 4 times per year at a cost of \$600 per sample). The cost for smaller water supplies that will exceed the proposed MCLs to install treatment is estimated to be \$3.6 million with an annual maintenance cost of \$76 thousand.

23. Identify the nature and estimated cost of any legal, consulting, or accounting services that small businesses would incur in complying with the proposed rules.

MCL 24.245(3)

It is possible that a small private PWS will hire an engineering firm to help them with compliance with these rules, but the majority of these systems will be able to comply without third party assistance. EGLE will be placing considerable emphasis on providing compliance assistance to PWSs.

24. Estimate the ability of small businesses to absorb the costs without suffering economic harm and without adversely affecting competition in the marketplace.

Since the rules apply equally to all small private PWSs, there will not be an uneven distribution of burden between them. It is likely that some costs will be passed along to ratepayers who are using the drinking water supply.

25. Estimate the cost, if any, to the agency of administering or enforcing a rule that exempts or sets lesser standards for compliance by small businesses.

None – there will be equal oversight for all impacted by the rules.

26. Identify the impact on the public interest of exempting or setting lesser standards of compliance for small businesses.

Exempting small business or setting lesser standards would ignore the public health risk created by these chemicals and create two classes of drinking water customers in the state, those protected from PFAS exposure at a level determined to be protective by science, and second class customers exposed at a higher level. This would be unacceptable from a public health and environmental justice perspective.

27. Describe whether and how the agency has involved small businesses in the development of the proposed rules.

Several small businesses and/or those serving small private water supplies were involved in the stakeholder process. These include the Michigan Manufactured Housing Association and the Michigan Rural Water Association.

A. If small businesses were involved in the development of the rules, please identify the business(es).

No specific small businesses were involved in development of the rules.

28. Estimate the actual statewide compliance costs of the rule amendments on businesses or groups.

The businesses that will be most affected by these rules will be those with their own water supply. This includes approximately 650 CWSs. More than half of these are manufactured housing communities, and many of the rest are condominiums, apartment buildings, and other residential units. It also includes approximately 1,000 non-transient noncommunity water supplies – industries, small businesses, etc. – that are not hooked up to municipal water.

The compliance costs for all PWSs as presented in item #13 would apply to this group as follows. For annual monitoring this group of 1,650 water supplies would spend approximately \$4 million (1,650 supplies taking 4 samples per year at a cost of \$600 per sample. Of the 22 water systems identified in statewide testing to be exceeding the proposed MCLs, 9 can be classified as businesses (not a school or a church). Using the methodology in item 13, these supplies pump an average of 20,000 gallons per day. With an estimated cost of treatment of \$46 per gallon it is estimated that these supplies will spend \$920,000 to install treatment with an anticipated annual maintenance cost of \$7,000.

A. Identify the businesses or groups who will be directly affected by, bear the cost of, or directly benefit from the proposed rules.

Those directly affected include owners of private water systems, laboratories, engineering firms, companies that supply and install treatment, and companies that provide water system operations services.

B. What additional costs will be imposed on businesses and other groups as a result of these proposed rules (i.e. new equipment, supplies, labor, accounting, or recordkeeping)? Please identify the types and number of businesses and groups. Be sure to quantify how each entity will be affected.

Businesses that operate their own water supplies will be required to comply with the new rules. They will be required to sample their finished drinking water for PFAS (\$300 per sample if the business collects themselves or \$600 per sample if they hire a contractor to take the sample) and find alternate water or install treatment if their water exceeds the proposed MCLs. Sampling costs are estimated at \$4 million annually. Installation of treatment is estimated to be a one-time cost of \$920,000 with annual maintenance costs of \$7,000. Reporting cost increases are negligible as these supplies are already required to report monthly operations and testing – this rule would add one more item 4 times a year.

29. Estimate the actual statewide compliance costs of the proposed rules on individuals (regulated individuals or the public). Include the costs of education, training, application fees, examination fees, license fees, new equipment, supplies, labor, accounting, or recordkeeping.

There are no direct compliance costs to the public for this rule. There is a likelihood that PWSs will pass along to their customers at least some of the costs associated with compliance with these rules. Municipalities and other governmental bodies, in particular, will likely need to increase their utility rates to pay for their infrastructure upgrades and additional compliance costs. This will result in higher costs to homeowners, but it is very difficult to estimate this impact. It is important to note that drinking water has historically been the most affordable utility and will likely remain this way even with increases.

A. How many and what category of individuals will be affected by the rules?

Approximately 75% of Michigan residents get their drinking water from a PWS. Assuming 10 million people in the state, this equates to 7.5 million people that will be served drinking water that is regularly tested for PFAS chemicals.

B. What qualitative and quantitative impact do the proposed changes in rules have on these individuals?

The impact will be a general improvement in public health achieved through limiting PFAS exposure. The individuals will also have access to testing records so they will be aware of the level of PFAS in their drinking water regardless of the level.

30. Quantify any cost reductions to businesses, individuals, groups of individuals, or governmental units as a result of the proposed rules.

There are no known cost reductions associated directly with these rules.

31. Estimate the primary and direct benefits and any secondary or indirect benefits of the proposed rules. Please provide both quantitative and qualitative information, as well as your assumptions.

The primary benefits of this rules package are reducing the exposure to the PFAS chemicals regulated under the rules. Implementation of treatment will also remove other contaminants (other PFAS compounds, etc.) that will result in less exposure to contamination, thereby improving public health.

While estimating the cost to implement the new rules is relatively easy, the estimate of the benefits is not. It is generally difficult to monetize the benefits of drinking water standards, and this is especially true for PFAS chemicals. In particular, indirect costs such as reduced quality of life are particularly hard to capture. More study on the health benefits and impacts of PFAS exposure reduction and the economic benefit is required before a serious estimate can be made. There is likely a significant benefit to the reduction in exposure to PFAS chemicals given recent findings of the health effects. Health effects that have been identified include: lowering a woman's chance of getting pregnant, an increase in the chance of high blood pressure in pregnant women, an increase in the chance of thyroid disease, an increase in cholesterol levels, changes in immune response, and an increase in the chance of cancer, especially kidney and testicular cancers. In a general, qualitative measure, given the potential for direct health care treatment costs, loss of income, and associated indirect costs, limiting exposure to the seven PFAS chemicals for which these rules establish MCLs will likely result in significant avoided costs.

An additional consideration, and environmental benefit, of the rules is the preference given to GAC treatment of PFAS compounds. This treatment technology has the advantage of not only capturing the contamination but the potential for permanent destruction of PFAS compounds in the regeneration process. More study is needed to quantify the temperature at which PFAS chemicals are destroyed.

Additional benefits will be general improvement to water systems and quality, creation of jobs, and increased community goodwill through better service to customers.

32. Explain how the proposed rules will impact business growth and job creation (or elimination) in Michigan.

The proposed rules have the potential to increase demand on engineering firms and laboratories in the state. If water treatment plant modifications are required, the rules will also create some business growth in that sector. Ongoing treatment operation and maintenance may also increase job opportunities at PWSs around the state.

33. Identify any individuals or businesses who will be disproportionately affected by the rules as a result of their industrial sector, segment of the public, business size, or geographic location.

PFAS contamination tends to be found in more industrialized, urban areas leading to a higher compliance burden in those geographic locations.

34. Identify the sources the agency relied upon in compiling the regulatory impact statement, including the methodology utilized in determining the existence and extent of the impact of the proposed rules and a cost-benefit analysis of the proposed rules.

- Summary Report on the New Hampshire Department of Environmental Services Development of Maximum Contaminant Levels and Ambient Groundwater Quality Standards for Perfluorooctanesulfonic Acid (PFOS), Perfluorooctanoic Acid (PFOA), Perfluorononanoic Acid (PFNA), and Perfluorohexanesulfonic Acid (PFHxS). New Hampshire Department of Environmental Services, January 2019.
- Recommendation on Perfluorinated Compound Treatment Options for Drinking Water. New Jersey Drinking Water Quality Institute Treatment Subcommittee, June 2015.
- Health-Based Drinking Water Value Recommendations for PFAS in Michigan. Michigan Science Advisory Workgroup, Michigan PFAS Action Response Team, June 2019.

A. How were estimates made, and what were your assumptions? Include internal and external sources, published reports, information provided by associations or organizations, etc., which demonstrate a need for the proposed rules.

Estimates of sampling costs were made based on the statewide sampling effort under MPART. Treatment costs were made based on the number of supplies over the proposed MCLs at the time the estimate was made and the average cost of treatment based on a study by the State of New Hampshire.

35. Identify any reasonable alternatives to the proposed rules that would achieve the same or similar goals.

There are no reasonable alternatives. Possible alternatives include no establishment of any MCL or testing requirement that provides no public health protection, the requirement to install basic treatment for PFAS chemicals at all water supplies that is cost prohibitive, or a change in the MCLs that were based on the best data available.

A. Please include any statutory amendments that may be necessary to achieve such alternatives.

Changes in the MCLs would be required if additional science shows that is prudent.

36. Discuss the feasibility of establishing a regulatory program similar to that proposed in the rules that would operate through private market-based mechanisms. Please include a discussion of private market-based systems utilized by other states.

This is a federal law (SDWA) that must be implemented in Michigan. The state is choosing to add PFAS to its regulated contaminants; no other states have implemented a market-based system of regulation, and this does not seem feasible.

36. Discuss the feasibility of establishing a regulatory program similar to that proposed in the rules that would operate through private market-based mechanisms. Please include a discussion of private market-based systems utilized by other states.

Stakeholders had concerns about the levels at which the MCLs were set. The MCLs were set based on an expert panel that considered the latest scientific data available.

Many alternatives discussed dealt with changes to the timing and logistics of the new requirements, levels of the MCLs, testing protocols, sampling frequency to capture seasonal variations, applicability of the new rules, laboratory capacity concerns, reporting limit concerns, and public notification requirements. We wrote and modified the rules where these concerns and suggestions provided less ambiguity in the rules and provided better, more reasonable public health protection.

38. As required by MCL 24.245b(1)(c), please describe any instructions regarding the method of complying with the rules, if applicable.

Significant guidance material will be available to provide compliance assistance.

DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
 DRINKING WATER AND ENVIRONMENTAL HEALTH DIVISION
 SUPPLYING WATER TO THE PUBLIC

Filed with the secretary of state on

These rules take effect 7 days after filing with the secretary of state.

(By authority conferred on the department of environment, Great Lakes, and energy by section 5 of the safe drinking water act, 1976 PA 399, MCL 325.1005)

R 325.10107, R 325.10116, R 325.10308b, R 325.10313, R 325.10401a, R 325.10405, and R 325.12701 of the Michigan Administrative Code are amended, and R 325.10604g, R 325.10717d, R 325.12708, and R 325.12710 are added, as follows:

PART 1. GENERAL PROVISIONS

R 325.10107 Definitions; P, R.

Rule 107. As used in these rules:

- (a) "Permit" means a public water supply construction permit that is issued to a supplier of water by the department under section 4 of the act, MCL 325.1004.
- (b) "Person" means an individual, partnership, copartnership, cooperative, firm, company, public or private association or corporation, political subdivision, agency of the state, agency of the federal government, trust, estate, joint structure company, or any other legal entity, or their legal representative, agent, or assignee.
- (c) "PFAS" means per- and polyfluoroalkyl substances.
- (d) "Pitless adapter" means a device or assembly of parts that permits water to pass through the wall of a well casing or extension of a well casing and that provides access to the well and to the parts of the system within the well in a manner that prevents the entrance of contaminants into the well and the water produced.
- (e) "Plans and specifications" means drawings, data, and a true description or representation of an entire waterworks system or parts of the system as it exists or is to be constructed, and a statement of how a waterworks system must be operated.
- (f) "Plant intake" means the works or structures at the head of a conduit through which water is diverted from a source, for example, river or lake, into the treatment plant.
- (g) "Point-of-entry treatment device (POE)" means a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.
- (h) "Point-of-use treatment device (POU)" means a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that 1 tap.
- (i) "Political subdivision" means a city, village, township, charter township, county, district, authority, or portion or combination of any of the entities specified in this subdivision.

March 16, 2020

(j) "PQL" means the practical quantitation levels. The PQL is the lowest concentration that can be reliably achieved by well-operated laboratories within specified limits of precision and accuracy during routine laboratory operating conditions.

(k) "Presedimentation" means a preliminary treatment process used to remove gravel, sand, and other particulate material from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.

(l) "Production well" means a well that has been approved for use for a public water supply pursuant to part 8 of these rules.

(m) "Public hearing" means a hearing that is conducted by the director of the department on matters relating to the functions and responsibilities of the division and that seeks public input relevant to such functions and responsibilities.

(n) "Public water supply" or "public water system" means a waterworks system that provides water for drinking or household purposes to persons other than the supplier of the water, and does not include either of the following:

(i) A waterworks system that supplies water to only 1 living unit.

(ii) A waterworks system that consists solely of customer site piping.

(o) "Pumping water level" means the distance measured from an established datum at or above ground level to the water surface in a well being pumped at a known rate for a known period of time.

(p) "Rated treatment capacity" means 1 or any combination of the following capacities when water treatment is practiced:

(i) Rated capacity from an approved surface water supply, ground water supply under the direct influence of surface water, or complete treatment system as contained in R 325.11006.

(ii) Firm capacity from an approved ground water supply where firm capacity means the production capability of each respective component of the waterworks system with the largest well, pump, or treatment unit out of service.

(iii) Available capacity obtained under contract and capable of delivery from another approved public water supply.

(q) "Raw water" means water that is obtained from a source by a public water supply before the public water supply provides any treatment or distributes the water to its customers.

(r) "Regional administrator" means the EPA region V administrator.

(s) "Regulated VOCs" means a group of volatile organic chemicals for which state drinking water standards have been promulgated but does not include total trihalomethanes.

(t) "Removed from service" means physically disconnected from the waterworks system in a manner that would prevent the inadvertent use of the well and would require specific authorization from the public water supply to reconnect.

(u) "Repeat sample" means a sample that is collected and analyzed in response to a previous coliform-positive sample.

(v) "Resident" means an individual who owns or occupies a living unit.

(w) "Routine sample" means a water sample that is collected and analyzed to meet the monitoring requirements for total coliform, as outlined in the written sampling plan.

R 325.10116 Addresses.

Rule 116. The following are addresses and contact information of the department and other organizations referred to in these rules:

(a) Department of Environment, Great Lakes, and Energy, Drinking Water and Environmental Health Division, 525 West Allegan Street, Post Office Box 30817, Lansing, MI 48909-8311, Telephone 800-662-9278. Internet address: <http://www.michigan.gov/egle>.

(b) National Council on Radiation Protection and Measurements, 7910 Woodmont Avenue, Suite 400, Bethesda, Maryland 20814-3095, Telephone 301-657-2652. Internet address: <http://www.ncrponline.org/>.

(c) NSF International, P.O Box 130140, 789 North Dixboro Road, Ann Arbor, Michigan 48105, Telephone 734-769-8010 or 800-673-6275, email info@nsf.org, Internet address <http://www.nsf.org>.

(d) Superintendent of Documents, U.S. Government Publishing Office, P.O. Box 979050, St. Louis, MO 63197-9000, Telephone 202-512-1800. Internet address to purchase documents online is <http://bookstore.gpo.gov>.

PART 3. VARIANCES, EXEMPTIONS, AND TREATMENT TECHNOLOGIES

R 325.10308b Best available technology.

Rule 308b. (1) The department identifies the following as the best technology, treatment technique, or other means generally available for achieving compliance with the MCL:

(a) For organic contaminants in R 325.10604b, R325.10604d, and R 325.10604g the best available technologies, treatment techniques, or other means available for achieving compliance with the MCLs are granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OX), as listed in table 1 of this rule.

Table 1 Best available technologies for organic contaminants

| Contaminant | GAC | PTA | OX |
|----------------------------|-----|-----|----|
| Alachlor | x | | |
| Aldicarb | x | | |
| Aldicarb sulfone | x | | |
| Aldicarb sulfoxide | x | | |
| Atrazine | x | | |
| Benzene | x | x | |
| Benzo(a)pyrene | x | | |
| Carbofuran | x | | |
| Carbon tetrachloride | x | x | |
| Chlordane | x | | |
| Dalapon | x | | |
| 2,4 D | x | | |
| Di (2 ethylhexyl)adipate | x | x | |
| Di (2 ethylhexyl)phthalate | x | | |

| Contaminant | GAC | PTA | OX |
|--|----------------|-----|----|
| Dibromochloropropane (DBCP) | x | x | |
| o Dichlorobenzene | x | x | |
| para Dichlorobenzene | x | x | |
| 1,2 Dichloroethane | x | x | |
| 1,1 Dichloroethylene | x | x | |
| cis 1,2 Dichloroethylene | x | x | |
| trans 1,2 Dichloroethylene | x | x | |
| Dichloromethane | | x | |
| 1,2 Dichloropropane | x | x | |
| Dinoseb | x | | |
| Diquat | x | | |
| Endothall | x | | |
| Endrin | x | | |
| Ethylbenzene | x | x | |
| Ethylene Dibromide (EDB) | x | x | |
| Glyphosate | | | x |
| Heptachlor | x | | |
| Heptachlor epoxide | x | | |
| Hexachlorobenzene | x | | |
| Hexachlorocyclopentadiene | x | x | |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | x ¹ | | |
| Lindane | x | | |
| Methoxychlor | x | | |
| Monochlorobenzene | x | x | |
| Oxamyl (Vydate) | x | | |
| Pentachlorophenol | x | | |
| Perfluorobutanesulfonic acid (PFBS) | x ¹ | | |
| Perfluorohexanesulfonic acid (PFHxS) | x ¹ | | |
| Perfluorohexanoic acid (PFHxA) | x ¹ | | |
| Perfluorononanoic acid (PFNA) | x ¹ | | |
| Perfluorooctanesulfonic acid (PFOS) | x ¹ | | |
| Perfluorooctanoic acid (PFOA) | x ¹ | | |
| Picloram | x | | |
| Polychlorinated biphenyls(PCB) | x | | |
| Simazine | x | | |
| Styrene | x | x | |
| 2,3,7,8 TCDD (Dioxin) | x | | |
| Tetrachloroethylene | x | x | |
| Toluene | x | x | |
| Toxaphene | x | | |
| 2,4,5 TP (Silvex) | x | | |
| 1,2,4 Trichlorobenzene | x | x | |
| 1,1,1 Trichloroethane | x | x | |

| Contaminant | GAC | PTA | OX |
|-----------------------|-----|-----|----|
| 1,1,2 Trichloroethane | x | x | |
| Trichloroethylene | x | x | |
| Vinyl chloride | | x | |
| Xylene | x | x | |

¹Best available technology is GAC or an equally efficient technology.

(b) For inorganic contaminants in R 325.10604c, the best available technologies, treatment techniques, or other means available for achieving compliance with the MCLs are listed in table 2 of this rule. The affordable technology, treatment technique, or other means available to supplies serving 10,000 or fewer people for achieving compliance with the maximum contaminant level for arsenic are listed in table 3 of this rule.

Table 2 Best available technologies for inorganic contaminants

| Chemical name | Best available technologies |
|----------------------|--|
| Antimony | 2,7 |
| Arsenic ⁴ | 1,2, 5,6,7,9,11 ⁵ |
| Asbestos | 2,3,8 |
| Barium | 5,6,7,9 |
| Beryllium | 1,2,5,6,7 |
| Cadmium | 2,5,6,7 |
| Chromium | 2,5,6 ² ,7 |
| Cyanide | 5,7,10 |
| Mercury | 2 ¹ ,4,6 ¹ ,7 ¹ |
| Nickel | 5,6,7 |
| Nitrate | 5,7,9 |
| Nitrite | 5,7 |
| Selenium | 1,2 ³ ,6,7,9 |
| Thallium | 1,5 |

¹Best available technology only if influent Hg concentrations are 10 µg/l or less.

²Best available technology for chromium III only.

³Best available technology for selenium IV only.

⁴BATs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.

⁵To obtain high removals, iron to arsenic ratio must be at least 20:1.

Key to best available technologies in table:

1 = activated alumina

2 = coagulation/filtration (not BAT for supplies with fewer than 500 service connections)

3 = direct and diatomite filtration

4 = granular activated carbon

5 = ion exchange

6 = lime softening (not BAT for supplies than 500 service connections)

7 = reverse osmosis

- 8 = corrosion control
- 9 = electro dialysis
- 10 = alkaline chlorination (pH greater than or equal to 8.5)
- 11 = oxidation/filtration

Table 3 Small supplies compliance technologies (SSCTs) for arsenic¹

| Small supply compliance technology | Affordable for listed small supply categories. ² |
|---|---|
| Activated alumina (centralized) | All size categories. |
| Activated alumina (point-of-use) ³ | All size categories. |
| Coagulation/filtration | 501-3,300, 3,301-10,000. |
| Coagulation-assisted microfiltration | 501-3,300, 3,301-10,000. |
| Electrodialysis reversal | 501-3,300, 3,301-10,000. |
| Enhanced coagulation/filtration | All size categories. |
| Enhanced lime softening (pH more than 10.5) | All size categories. |
| Ion exchange | All size categories. |
| Lime softening | 501-3,300, 3,301-10,000. |
| Oxidation/filtration ⁴ | All size categories. |
| Reverse osmosis (centralized) | 501-3,300, 3,301-10,000. |
| Reverse osmosis (point-of-use) ³ | All size categories. |

¹ SSCTs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.

²Three categories of small supplies are: (i) those serving 25 or more, but fewer than 501, (ii) those serving more than 500, but fewer than 3,301, and (iii) those serving more than 3,300, but fewer than 10,001.

³POU must not be used to obtain a variance.

⁴To obtain high removals, iron to arsenic ratio must be at least 20:1.

(c) For radionuclide contaminants in R 325.10603, the best available technologies, treatment techniques, or other means available for achieving compliance with the MCLs are listed in table 4 for all size supplies. The affordable technology, treatment technique, or other means available for achieving compliance with the maximum contaminant level are listed in table 5 for supplies serving 10,000 or fewer people as categorized in table 6.

Table 4 Best available technologies for radionuclide contaminants

| Contaminant | Best available technologies. |
|---|--|
| Combined radium 226 and radium 228 | Ion exchange, reverse osmosis, lime softening. |
| Uranium | Ion exchange, reverse osmosis, lime softening, coagulation/filtration. |
| Gross alpha particle activity (excluding radon and uranium) | Reverse osmosis. |
| Beta particle and proton radioactivity | Ion exchange, reverse osmosis. |

Table 5 List of small supplies compliance technologies for radionuclides and limitations to use

| Unit Technologies | Limitations (see footnotes) | Operator skill level required * | Raw water quality range and considerations. |
|---|-----------------------------|---------------------------------|--|
| 1. Ion exchange | (a) | Intermediate | All ground waters. |
| 2. Reverse osmosis (RO) | (b) | Advanced | Surface waters usually require pre-filtration. |
| 3. Lime softening | (c) | Advanced | All waters. |
| 4. Green sand filtration | (d) | Basic | |
| 5. Co-precipitation and Barium sulfate | (e) | Intermediate to Advanced | Ground waters with suitable water quality. |
| 6. Electrodialysis/ electrodialysis reversal | Not applicable | Basic to intermediate | All ground waters. |
| 7. Pre-formed hydrous Manganese oxide filtration. | (f) | Intermediate | All ground waters. |
| 8. Activated alumina | (a), (g) | Advanced | All ground waters; competing anion concentrations may affect regeneration frequency. |
| 9. Enhanced coagulation/ filtration | (h) | Advanced | Can treat a wide range of water qualities. |

* An operator with a basic skill level has minimal experience in the water treatment field and can perform the necessary system operation and monitoring if provided with proper instruction. The operator is capable of reading and following explicit directions. An operator with an intermediate skill level understands the principles of water treatment and has a knowledge of the regulatory framework. The operator is capable of making system changes in response to source water fluctuations. An operator with an advanced skill level possesses a thorough understanding of the principles of system operation. The operator is knowledgeable in water treatment and regulatory requirements. The operator may, however, have advanced knowledge of only the particular treatment technology. The operator seeks information, remains informed, and reliably interprets and responds to water fluctuations and system intricacies.

Limitations Footnotes: Technologies for Radionuclides:

a. The regeneration solution contains high concentrations of the contaminant ions. Disposal options must be carefully considered before choosing this technology.

- b. Reject water disposal options must be carefully considered before choosing this technology.
- c. The combination of variable source water quality and the complexity of the water chemistry involved may make this technology too complex for small surface water systems.
- d. Removal efficiencies may vary depending on water quality.
- e. This technology may be very limited in application to small systems. Since the process requires static mixing, detention basins, and filtration, it is most applicable to systems with sufficiently high sulfate levels that already have a suitable filtration treatment train in place.
- f. This technology is most applicable to small systems that already have filtration in place.
- g. Handling of chemicals required during regeneration and pH adjustment may be too difficult for small systems without an adequately trained operator.
- h. Assumes modification to a coagulation/filtration process already in place.

Table 6 Compliance technologies by supply size category for radionuclide Requirements

| Contaminant | Compliance technologies* for supply size categories (population served) | | |
|---|---|---------------------|---------------------|
| | 25-500 | 501-3,300 | 3,301 – 10,000 |
| 1. Combined radium 226 and radium 228 | 1, 2, 3, 4, 5, 6, 7 | 1, 2, 3, 4, 5, 6, 7 | 1, 2, 3, 4, 5, 6, 7 |
| 2. Gross alpha particle activity | 2 | 2 | 2 |
| 3. Beta particle activity and photon activity | 1, 2 | 1, 2 | 1, 2 |
| 4. Uranium | 1, 8, 9 | 1, 2, 3, 8, 9 | 1, 2, 3, 8, 9 |

* Numbers correspond to those technologies listed in Table 5 of this rule.

(2) The department shall require community water supplies and nontransient, noncommunity water supplies to employ a treatment method identified in subrule (1) of this rule as a condition for granting a variance, except as provided in subrule (3) of this rule. If, after the treatment method is installed in the system, the supply cannot meet the MCL, then the supply is eligible for a variance under this part and section 20 of the act, MCL 325.1020.

(3) If a supply demonstrates through comprehensive engineering assessments, which may include pilot plant studies, that the treatment methods identified in subrule (1) of this rule may only achieve a de minimis reduction in contaminants, then the department may issue a schedule of compliance that requires the supply being granted the variance to examine other treatment methods as a condition of obtaining the variance.

(4) If the department determines that a treatment method identified in subrule (3) of this rule is technically feasible, then the department may require the supply to use that treatment method in connection with a compliance schedule issued under section 20 of

the act, MCL 325.1020. The department's determination must be based on studies by the supply and other relevant information.

(5) The department may require a community or noncommunity supply to use point-of-use devices, point-of-entry devices, or other means as a condition of granting a variance or an exemption from the requirements of R 325.10603, R 325.10604b, R 325.10604c, R 325.10604d, or R325.10604g to avoid an unreasonable risk to health. The department may require a public water supply to use point-of-use devices or other means, but not point-of-entry devices, as a condition for granting an exemption from corrosion control treatment requirements for lead and copper in R 325.10604f(2) and (3) to avoid an unreasonable risk to health. The department may require a public water supply to use point-of-entry devices as a condition for granting an exemption from the source water and lead service line replacement requirements for lead and copper under R 325.10604f(4) and (5) to avoid an unreasonable risk to health, provided the supply demonstrates that the device will not cause an increased corrosion of lead and copper bearing materials located between the device and the tap that may increase contaminant levels at the tap.

(6) Community or noncommunity water supplies that use point-of-use or point-of-entry devices under this rule shall meet the conditions in R 325.10313.

R 325.10313 Criteria for water supplies using POE, or POU, or both.

Rule 313. (1) Community and noncommunity water supplies shall not use point-of-use devices (POU) or point-of-entry devices (POE) except as required by the department under R 325.10308b or under all of the following provisions with department approval:

(a) Community water supplies may use POE to comply with the maximum contaminant level or treatment technique for organic, inorganic, and radiological contaminants.

(b) Noncommunity water supplies may use POU, or POE, or both, to comply with maximum contaminant levels or treatment techniques for organic and inorganic contaminants.

(c) An alternative source of water that meets state drinking water standards is not available.

(2) Supplies that use POU or POE, or both, shall meet all of the following requirements:

(a) The supply shall operate and maintain the POU, or POE, or both.

(b) Before POU, or POE, or both, are installed, the supply shall obtain department approval of a monitoring plan that ensures that the devices provide health protection equivalent to that provided by central water treatment. If the POU, or POE, or both, are being used to comply with maximum contaminant levels or treatment techniques, then "equivalent" means that the water must meet all state drinking water standards and must be of acceptable quality similar to water distributed by a well-operated central treatment plant. At a minimum, the monitoring plan must include all of the following:

(i) Contaminants and parameters to be analyzed.

(ii) Physical measurements and observations, such as total flow treated and mechanical condition of the treatment equipment.

(iii) Location of sampling sites.

(iv) Frequency of sampling. Approximately 10% of the treatment units must be sampled at regular intervals so that all the POE or POU are monitored at least as frequently as required in part 7 for a particular contaminant. For example, for a

contaminant that is required to be sampled every 3 years, 10% of the POE or POU must be monitored quarterly so that in 3 years time all of the POE or POU have been monitored. The department may approve an alternate frequency that better represents the rate of degradation of the POE or POU.

(c) Before POU, or POE, or both, are installed, the supply shall obtain department approval of a technology plan that ensures that effective technology is applied and that the microbiological safety of the water is maintained at all times. At a minimum, the technology plan must include all of the following:

(i) The POU, or POE, or both, must be equipped with mechanical warnings to ensure that customers are automatically notified of operational problems.

(ii) If a specific type of POU or POE has been independently certified to comply with the maximum contaminant level or treatment technique in accordance with the American National Standards Institute/National Sanitation Foundation standards 44, 53, 58, or 62, as adopted by reference in R 325.10112, then individual units of that type must be used to comply with the maximum contaminant level or treatment technique. A supply may use an alternate type of POU or POE if the supply demonstrates to the department, using pilot plant studies or other means, that the alternative POU or POE consistently complies with the maximum contaminant level or treatment technique and the department approves the use of the POU or POE.

(iii) The design and application of the POU, or POE, or both, must consider the potential for increasing concentrations of heterotrophic bacteria in water treated with activated carbon. Frequent backwashing, post-contactor disinfection, and heterotrophic plate count monitoring may ensure that the microbiological safety of the water is not compromised.

(d) The supply shall demonstrate that buildings connected to the system have sufficient POU, or POE, or both, that are properly installed, maintained, and monitored such that all customers are protected.

(e) If the POU, or POE, or both, are used to meet an MCL or treatment technique, then the supply shall replace or repair the POU or POE when the contaminant for which the device is intended to control is above the maximum contaminant level in a confirmed sample.

(3) Compliance with the maximum contaminant level must be determined based on the analytical results obtained at each POU or POE, also known as the "sampling point". The compliance determination must be made under R 325.10604b(2) for volatile organic contaminants, R 325.10604c(2) for inorganic contaminants, R 325.10604d(2) for synthetic organic chemicals, or R 325.10604g(2) for per- and polyfluoroalkyl substances.

(4) Supplies that violate the MCL shall notify the department under part 7 of these rules and shall notify the public under part 4 of these rules. The supply may limit the distribution of the public notice to only persons served by the POU or POE that is out of compliance.

PART 4. PUBLIC NOTIFICATION AND PUBLIC EDUCATION

R 325.10401a General public notification requirements.

Rule 401a. (1) Each community water supply, nontransient noncommunity water supply, or transient noncommunity water supply shall give notice for violations of the

maximum contaminant level (MCL), maximum residual disinfection level (MRDL), treatment technique (TT), monitoring requirements, testing procedures in these rules, and for other situations, as listed in the following provisions:

(a) Violations and other situations requiring public notice, including all of the following:

- (i) Failure to comply with an applicable maximum contaminant level (MCL) or maximum residual disinfectant level (MRDL).
- (ii) Failure to comply with a prescribed treatment technique (TT).
- (iii) Failure to perform water quality monitoring, as required by part 7 of these rules.
- (iv) Failure to comply with testing procedures as prescribed by part 6 of these rules.

(b) Variances and exemptions under part 3 of these rules, including both of the following:

- (i) Operation under a variance or an exemption.
- (ii) Failure to comply with the requirements of a schedule that has been set under a variance or exemption.

(c) Special public notices, including all of the following:

- (i) Occurrence of a waterborne disease outbreak or other waterborne emergency.
- (ii) Exceedance of the nitrate MCL by noncommunity water supplies, where granted permission by the department.
- (iii) Fluoride level above 2.0 mg/l as specified in R 325.10408a.
- (iv) Availability of unregulated contaminant monitoring data.
- (v) Other violations and situations that are determined by the department to require a public notice under this part and that are not already listed in table 1 of this rule. The tier assignment for each specific violation or situation requiring a public notice is identified in table 1 of this rule. Community and noncommunity water supplies are also considered "water supplies" or "supplies" in this rule, R 325.10402 to R 325.10407, and R 325.10408a to R 325.10409.

(2) Public notice requirements are divided into 3 tiers to take into account the seriousness of the violation or situation and of the potential adverse health effects that may be involved. The public notice requirements for each violation or situation listed in subrule (1) of this rule are determined by the tier to which the violation or situation is assigned. The definition of each tier is provided in the following provisions:

(a) Tier 1 public notice is required for violations and situations that have significant potential to have serious adverse effects on human health as a result of short term exposure.

(b) Tier 2 public notice is required for all other violations and situations that have potential to have serious adverse effects on human health.

(c) Tier 3 public notice is required for all other violations and situations not included in tier 1 and tier 2. The tier assignment for each specific violation or situation is identified in table 1 of this rule.

(3) Supplies shall provide public notice to the following:

(a) Each supply shall provide public notice to persons served by the supply as specified in this part. Supplies that sell or otherwise provide drinking water to other public water supplies, such as to consecutive supplies, shall give public notice to the consecutive supply. The consecutive supply shall provide public notice to the persons it serves.

(b) If a public water supply has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, then the department may grant permission, which must be in writing, to the supply to limit distribution of the public notice to only persons served by that portion of the system that is out of compliance. To be considered physically isolated, the supply shall show that the affected portion of the distribution system is separated from other parts of the distribution system with no interconnections. To be considered hydraulically isolated, the supply shall show that the design of the distribution system or the system operation, or both, created a situation where water in the affected portion is effectively isolated from the water in all other parts of the distribution system because of projected water flow patterns and water pressure zones.

(4) The supply, within 10 days of completing the public notification requirements under this part for the initial public notice and applicable repeat notices, shall submit to the department a certification that it fully complied with the public notification regulations. The supply shall include with this certification a representative copy of each type of notice distributed, published, posted, and made available to the persons served by the supply and to the media.

Table 1 Violations and other situations requiring public notice

| Contaminant | MCL/MRDL/TT violations ¹ | | Monitoring, testing, & reporting procedure violations | |
|--|-------------------------------------|---------------------------|---|--|
| | Tier of public notice required | Citation | Tier of public notice required | Citation |
| I. Violations of MCL, MRDL, treatment technique, monitoring and reporting, and testing procedure requirements: | | | | |
| A. Microbiological contaminants | | | | |
| Total coliform until March 31, 2016 | 2 | R 325.10602(1)(a) and (b) | 3 | R 325.10704 to R 325.10707a R 325.10702(2) R 325.10707b(4) |
| Total coliform (TT violations resulting from failure to perform assessments or corrective actions, monitoring violations, and reporting violations) beginning April 1, 2016 | 2 | R 325.10704j(2)(a) | 3 | R 325.10704j(3) R 325.10704j(4)(a) |
| Seasonal supply failure to follow department-approved start-up plan before serving water to the public or failure to provide certification to the department beginning April 1, 2016 | 2 | R 325.10704j(2)(b) | 3 | R 325.10704j(4)(c) |
| Fecal coliform/E. coli until March 31, 2016 | 1 | R 325.10602(1)(c) | 1, 3 ² | R 325.10704(3) R 325.10707b(4) |

| Contaminant | MCL/MRDL/TT violations ¹ | | Monitoring, testing, & reporting procedure violations | |
|--|-------------------------------------|---|---|---|
| | Tier of public notice required | Citation | Tier of public notice required | Citation |
| E. coli (MCL, monitoring, and reporting violations) beginning April 1, 2016 | 1 | R 325.10704j(1) | 3 | R 325.10704j(3)(b) R 325.10704j(4)(a) R 325.10704j(4)(b) |
| E. coli (TT violations resulting from failure to perform level 2 assessments or corrective action) beginning April 1, 2016 | 2 | R 325.10704j(2)(a) | n/a | n/a |
| Turbidity (for TT violations resulting from a single exceedance of maximum allowable turbidity level) | 2, 1 ³ | R 325.10611b | 3 | R 325.10605 R 325.10720(2)(a) and (b) |
| Violations, other than violations resulting from single exceedance of max. allowable turbidity level (TT) | 2 | R 325.10611, R 325.10611a, and R 325.10611b | 3 | R 325.10605 R 325.10720(2)(c) and (d) |
| Violations of disinfection profiling and benchmarking | N/A | N/A | 3 | R 325.10722 |
| Violations of filter backwash recycling provisions | 2 | R 325.10611c | 3 | R 325.11507 |
| Violations of enhanced treatment for cryptosporidium | 2 | R 325.10611e to R 325.10611m | 2, 3 | 40 CFR 141.701 to 141.705, as adopted by reference in R 325.10720b, R 325.10720c and R 325.10720d. Failure to collect 3 or more samples for Cryptosporidium analysis is a tier 2 violation requiring special notice as required in R 325.10408d. All other monitoring and testing procedure violations are tier 3. |
| Violations of rules for ground water supplies subject to R 325.10612 | 2 | R 325.10612b | 3 | R 325.10739(7) R 325.10739a(5) |
| B. Inorganic chemicals (IOC) | | | | |
| Antimony | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |

| Contaminant | MCL/MRDL/TT violations ¹ | | Monitoring, testing, & reporting procedure violations | |
|--|-------------------------------------|---|---|--|
| | Tier of public notice required | Citation | Tier of public notice required | Citation |
| Arsenic | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) R 325.10605 |
| Asbestos (fibers longer than 10 µm) | 2 | R 325.10604c(1) | 3 | R 325.10710(4), (6) |
| Barium | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Beryllium | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Cadmium | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Chromium (total) | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Cyanide (free) | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Fluoride | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Mercury (inorganic) | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Nitrate (as nitrogen) | 1 | R 325.10604c(1) | 1, 3 ⁴ | R 325.10710(3), (4), (7), and (9)(b) |
| Nitrite (as nitrogen) | 1 | R 325.10604c(1) | 1, 3 ⁴ | R 325.10710(3), (4), (8), and (9)(b) |
| Total nitrate and nitrite (as nitrogen) | 1 | R 325.10604c(1) | 3 | R 325.10710(4) |
| Selenium | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| Thallium | 2 | R 325.10604c(1) | 3 | R 325.10710(4) and (5) |
| C. Lead and copper (action level for lead is 0.015 mg/l through December 31, 2024 and 0.012 mg/l beginning January 1, 2025; action level for copper is 1.3 mg/l) | | | | |
| Lead and copper rule (TT) | 2 | R 325.10604f(1) – (5) R 325.10410(2) and (3) | 3 | R 325.10710a to R 325.10710c and R 325.10605 |
| D. Synthetic organic chemicals (SOC) | | | | |
| 2,4-D | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| 2,4,5-TP (silvex) | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Alachlor | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Atrazine | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Benzo(a)pyrene (PAHs) | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Carbofuran | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Chlordane | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Dalapon | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Di (2-ethylhexyl) adipate | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Di (2-ethylhexyl) phthalate | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Dibromochloropropane | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Dinoseb | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Dioxin (2,3,7,8-TCDD) | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Diquat | 2 | R 325.10604d(1) | 3 | R 325.10717 |

| Contaminant | MCL/MRDL/TT violations ¹ | | Monitoring, testing, & reporting procedure violations | |
|--|-------------------------------------|-----------------|---|--------------|
| | Tier of public notice required | Citation | Tier of public notice required | Citation |
| Endothall | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Endrin | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Ethylene dibromide | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Glyphosate | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Heptachlor | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Heptachlor epoxide | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Hexachlorobenzene | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Hexachlorocyclopentadiene | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Lindane | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Methoxychlor | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Oxamyl (vydate) | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Pentachlorophenol | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Picloram | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Polychlorinated biphenyls [PCBs] | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Simazine | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| Toxaphene | 2 | R 325.10604d(1) | 3 | R 325.10717 |
| E. Volatile organic chemicals (VOC) | | | | |
| Benzene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Carbon tetrachloride | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Chlorobenzene (monochloro-benzene) | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| O-dichlorobenzene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| P-dichlorobenzene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| 1,2-dichloroethane | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| 1,1-dichloroethylene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Cis-1,2-dichloroethylene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Trans-1,2-dichloroethylene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Dichloromethane | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| 1,2-dichloropropane | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Ethylbenzene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Styrene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Tetrachloro-ethylene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Toluene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| 1,2,4-trichlorobenzene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| 1,1,1-trichloroethane | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| 1,1,2-trichloroethane | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Trichloroethylene | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Vinyl chloride | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| Xylenes (total) | 2 | R 325.10604b(1) | 3 | R 325.10716 |
| F. per- and polyfluoroalkyl substances (PFAS) | | | | |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | 2 | R 325.10604g(1) | 3 | R 325.10717d |
| Perfluorobutane sulfonic acid (PFBS) | 2 | R 325.10604g(1) | 3 | R 325.10717d |
| Perfluorohexane sulfonic acid (PFHxS) | 2 | R 325.10604g(1) | 3 | R 325.10717d |

| Contaminant | MCL/MRDL/TT violations ¹ | | Monitoring, testing, & reporting procedure violations | |
|--|-------------------------------------|--------------------------------------|---|---|
| | Tier of public notice required | Citation | Tier of public notice required | Citation |
| Perfluorohexanoic acid (PFHxA) | 2 | R 325.10604g(1) | 3 | R 325.10717d |
| Perfluorononanoic acid (PFNA) | 2 | R 325.10604g(1) | 3 | R 325.10717d |
| Perfluorooctane sulfonic acid (PFOS) | 2 | R 325.10604g(1) | 3 | R 325.10717d |
| Perfluorooctanoic acid (PFOA) | 2 | R 325.10604g(1) | 3 | R 325.10717d |
| G. Radioactive contaminants | | | | |
| Beta/photon emitters | 2 | R 325.10603(2)(c) | 3 | R 325.10605 R 325.10725 R 325.10730 |
| Alpha emitters (gross alpha) | 2 | R 325.10603(2)(b) | 3 | R 325.10605 R 325.10725 R 325.10726 R 325.10728 R 325.10729 |
| Combined radium (226 & 228) | 2 | R 325.10603(2)(a) | 3 | R 325.10605 R 325.10725 R 325.10726 R 325.10728 R 325.10729 |
| Uranium (pCi/L) | 2 | R 325.10603(2)(d) | 3 | R 325.10605 R 325.10725 R 325.10726 R 325.10728 R 325.10729 |
| H. Disinfection byproducts (DBP), byproduct precursors, disinfectant residuals. Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBP). The department sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THM) and haloacetic acids (HAA). See R 325.10610 to R 325.10610d, and R 325.10719e to R 325.10719n for disinfection byproduct MCLs, disinfectant MRDLs, and related monitoring requirements. | | | | |
| Total trihalomethanes (TTHM) | 2 | R 325.10610(2) R 325.10610b(2)(a) | 3 | R 325.10610d, R 325.10719e(1) and (2)(a), and R 325.10719h to R 325.10719n |
| Haloacetic acids (HAA) | 2 | R 325.10610(2) R 325.10610b(2)(a) | 3 | R 325.10610d, R 325.10719e(1) and (2)(a), and R 325.10719h to R 325.10719n |
| Bromate | 2 | R 325.10610 R 325.10610b(2)(b) | 3 | R 325.10719e(1) and (2)(c) |
| Chloramine (MRDL) | 2 | R 325.10610a R 325.10610b(3)(a) | 3 | R 325.10719e(1) and (3) |
| Chlorine (MRDL) | 2 | R 325.10610a R 325.10610b(3)(a) | 3 | R 325.10719e(1) and (3) |

| Contaminant | MCL/MRDL/TT violations ¹ | | Monitoring, testing, & reporting procedure violations | |
|---|---|--|---|---------------------------------------|
| | Tier of public notice required | Citation | Tier of public notice required | Citation |
| Chlorite | 2 | R 325.10610 R 325.10610b(2)(c) | 3 | R 325.10719e(1) and (2)(b) |
| Chlorine dioxide (MRDL), where any 2 consecutive daily samples at entrance to distribution system only are above MRDL | 2 | R 325.10610a R 325.10610b(3)(b)(ii) | 2 *, 3 | R 325.10719e(1), (3)(b)(i) and (iii) |
| | * Failure to monitor for chlorine dioxide at the entrance to the distribution system the day after exceeding the MRDL at the entrance to the distribution system is a tier 2 violation. | | | |
| Chlorine dioxide (MRDL), where sample(s) in distribution system the next day are also above MRDL | 1 * | R 325.10610a R 325.10610b(3)(b)(i) | 1 | R 325.10719e(1), (3)(b)(ii) and (iii) |
| | * If any daily sample taken at the entrance to the distribution system exceeds the MRDL for chlorine dioxide and 1 or more samples taken in the distribution system the next day exceed the MRDL, tier 1 notification is required. Failure to take the required samples in the distribution system after the MRDL is exceeded at the entry point also triggers tier 1 notification. | | | |
| Control of DBP precursors—TOC (TT) | 2 | R 325.10610b(4) R 325.10610c | 3 | R 325.10719e(1) and (4) |
| Bench marking and disinfection profiling | N/A | N/A | 3 | R 325.10722 |
| Development of monitoring plan | N/A | N/A | 3 | R 325.10719e(5) |
| I. Other treatment techniques | | | | |
| Acrylamide (TT) | 2 | R 325.10604e | N/A | N/A |
| Epichlorohydrin (TT) | 2 | R 325.10604e | N/A | N/A |
| II. Other monitoring: | | | | |
| Unregulated contaminants | N/A | N/A | 3 | 40 CFR 141.40 ⁵ |
| Nickel | N/A | N/A | 3 | R 325.10710(4), (5), and (9) |
| III. Public notification for variances and exemptions: | | | | |
| Operation under a variance or exemption | 3 | R 325.10302 | N/A | N/A |
| Violation of conditions of a variance or exemption | 2 | R 325.10312 | N/A | N/A |
| IV. Other situations requiring public notification: | | | | |
| Fluoride level above 2.0 mg/l | 3 | R 325.10408a(1) | N/A | N/A |
| Exceedance of nitrate MCL for noncommunity supplies, as allowed by the department | 1 | R 325.10604c(3) | N/A | N/A |
| Availability of unregulated contaminant monitoring data | 3 | R 325.10407 | N/A | N/A |
| Waterborne disease outbreak | 1 | R 325.10734(4) | N/A | N/A |
| Source water sample positive for fecal indicator: E.coli, enterococci, or coliphage | 1 | R 325.10739(6) | N/A | N/A |
| | 1 or 2 or 3 * | N/A | N/A | N/A |

| Contaminant | MCL/MRDL/TT violations ¹ | | Monitoring, testing, & reporting procedure violations | |
|---|---|----------|---|----------|
| | Tier of public notice required | Citation | Tier of public notice required | Citation |
| Other waterborne emergencies and other situations as determined by the department | * Waterborne emergencies require a tier 1 public notice. The department may place other situations in any tier it determines appropriate, based on threat to public health. | | | |

¹MCL - Maximum contaminant level, MRDL - maximum residual disinfectant level, TT - treatment technique.

²Failure to test for fecal coliform or E. coli is a tier 1 violation if testing is not done after any repeat sample tests positive for coliform. All other total coliform monitoring and testing procedure violations are tier 3.

³Supplies with treatment technique violations involving a single exceedance of a maximum turbidity limit under R 325.10611b(1) are required to initiate consultation with the department within 24 hours after learning of the violation. Based on this consultation, the department may subsequently decide to elevate the violation to tier 1. If a supply is unable to make contact with the department in the 24-hour period, the violation is automatically elevated to tier 1.

⁴Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL is a tier 1 violation. Other monitoring violations for nitrate are tier 3.

⁵40 CFR 141.40, which pertains to unregulated contaminant monitoring, is contained in Title 40 CFR parts 136 to 149 and is available for purchase for \$67.00 from the superintendent of documents at the address in R 325.10116. The material is available for inspection from the offices of the department at the address in R 325.10116(a) or available on the internet at <http://www.ecfr.gov/>.

R 325.10405 Content of public notice.

Rule 405. (1) If a community or noncommunity water supply that is subject to R 325.10401a has a violation or situation requiring public notification, then each public notice must include all of the following elements:

- (a) A description of the violation or situation, including the contaminant or contaminants of concern, and, as applicable, the contaminant level or levels.
- (b) When the violation or situation occurred.
- (c) The potential adverse health effects from the violation or situation, including the standard language under subrule (4)(a) or (b) of this rule, whichever is applicable.
- (d) The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in their drinking water.
- (e) If alternative water supplies should be used.

- (f) What actions consumers should take, including when they should seek medical help, if known.
 - (g) What the supply is doing to correct the violation or situation.
 - (h) When the supply expects to return to compliance or resolve the situation.
 - (i) The name, business address, and phone number of the supply or designee of the supply as a source of additional information concerning the notice.
 - (j) A statement to encourage the notice recipient to distribute the public notice to other persons served, using the standard language under subrule (4)(c) of this rule, where applicable.
- (2) All of the following elements must be included in the public notice for public water supplies operating under a variance or exemption:
- (a) If a public water supply has been granted a variance or an exemption, then the public notice must contain all of the following elements:
 - (i) An explanation of the reasons for the variance or exemption.
 - (ii) The date on which the variance or exemption was issued.
 - (iii) A brief status report on the steps the supply is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance or exemption.
 - (iv) A notice of opportunities for public input in the review of the variance or exemption.
 - (b) If a public water supply violates the conditions of a variance or exemption, then the public notice must contain the 10 elements listed in subrule (1) of this rule.
- (3) The public notice must be presented in the following manner:
- (a) Each public notice required by this part must meet all of the following criteria:
 - (i) Must be displayed in a conspicuous way when printed or posted.
 - (ii) Must not contain overly technical language or very small print.
 - (iii) Must not be formatted in a way that defeats the purpose of the notice.
 - (iv) Must not contain language that nullifies the purpose of the notice.
 - (b) In communities where more than 10% of the consumers are non-English speaking consumers, the public notice must contain information in the appropriate language or languages regarding the importance of the notice or contain a telephone number or address where persons served may contact the supply to obtain a translated copy of the notice or to request assistance in the appropriate language.
- (4) The supply shall include the following standard language in the public notice:
- (a) The supply shall include in each public notice the health effects language specified in table 1 of this rule corresponding to each MCL, MRDL, and treatment technique violation listed in table 1 of R 325.10401a, and for each violation of a condition of a variance or exemption.
 - (b) The supply shall include the following language in the notice, including the language necessary to fill in the blanks, for all monitoring and testing procedure violations listed in table 1 of R 325.10401a: "We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During [compliance period], we 'did not monitor or test' or 'did not complete all monitoring or testing' for [contaminant or contaminants], and therefore cannot be sure of the quality of your drinking water during that time."

(c) The supply shall include in the notice the following language, where applicable, to encourage the distribution of the public notice to all persons served: "Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail."

Table 1 Regulated contaminants

Key

AL=Action level

MCL=Maximum contaminant level

MCLG=Maximum contaminant level goal

mfl=Million fibers per liter

MRDL=Maximum residual disinfectant level

MRDLG=Maximum residual disinfectant level goal

mrem/year=Millirems per year (a measure of radiation absorbed by the body)

N/A=Not applicable

NTU=Nephelometric turbidity units (a measure of water clarity)

pci/l=Picocuries per liter (a measure of radioactivity)

ppm=Parts per million, or milligrams per liter (mg/l)

ppb=Parts per billion, or micrograms per liter ($\mu\text{g/l}$)

ppt=Parts per trillion, or nanograms per liter

ppq=Parts per quadrillion, or picograms per liter

TT=Treatment technique

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | 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 until March 31, 2016 | MCL: For water supplies analyzing 40 or more samples per month, not more than 5.0% of the monthly samples may be positive for total coliform. For supplies analyzing fewer than 40 samples per month, not more than 1 sample per month may be positive for total coliform. | | zero | zero | 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, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems. |
| Total coliform bacteria beginning April 1, 2016. This row applies to Consumer Confidence Reporting. | TT | No conversion necessary | 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. |
| Fecal coliform and E. coli until March 31, 2016 | zero | No conversion necessary | zero | zero | Human and animal fecal waste | Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term 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. |
| E. coli beginning April 1, 2016 | MCL: Routine and repeat samples are total coliform-positive and either is E. coli-positive or supply fails to take all required repeat samples following E. coli-positive routine sample or supply fails to analyze total coliform-positive repeat sample for E. coli | | zero | zero | Human and animal fecal waste | 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. |

9/2024 10:10:36 AM

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--|---|---------------------------------|------------------|-------------------|---------------------------------|---|
| Coliform Assessment or Corrective Action Violations, or both, beginning April 1, 2016. This row applies to public notification. For Consumer Confidence Reporting, see R 325.10413(12)(g) (i). | N/A | No conversion necessary | TT | N/A | N/A | 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 SUPPLY MUST USE 1 OF THE FOLLOWING APPLICABLE SENTENCES:] We failed to conduct the required assessment. We failed to correct all identified sanitary defects that were found during the assessment(s). |
| E. coli Assessment or Corrective Action Violations, or both, beginning April 1, 2106. This row applies to public notification. For Consumer Confidence Reporting, see R 325.10413(12)(g) (ii). | N/A | No conversion necessary | TT | N/A | N/A | 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 violated the standard for E. coli, 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 SUPPLY MUST USE 1 OF THE FOLLOWING APPLICABLE SENTENCES:] We failed to conduct the required assessment. We failed to correct all identified sanitary defects that were found during the assessment that we conducted. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|---|--|---------------------------------|------------------|---------------------------------------|--------------------------------------|---|
| Seasonal Supply Treatment Technique Violations of the Total Coliform Rule beginning April 1, 2016. | N/A | No conversion necessary | TT | N/A | N/A | When this violation includes the failure to monitor for total coliforms or E. coli prior to serving water to the public, the mandatory language found at R 325.10405(4)(b) must be used. When this violation includes failure to complete other actions, the appropriate public notice elements found in R 325.10405(1) must be used. |
| Fecal indicator under groundwater requirements in R 325.10612 et. al: - E.coli - enterococci or - coliphage) | TT | No conversion necessary | TT | E.coli: zero Others: 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 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. |
| Violations of rules for ground water supplies subject to R 325.10612 | TT | No conversion necessary | TT | N/A | N/A | Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches. |
| Turbidity (ntu) | TT | No conversion necessary | TT | N/A | Soil runoff | Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. |
| Other microbiological contaminants | | | | | | |
| Giardia lamblia, viruses, heterotrophic plate count (HPC) bacteria, legionella, cryptosporidium | TT* | No conversion necessary | TT* | zero | Naturally present in the environment | Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. |
| Inorganic contaminants | * The treatment technique violations that involve turbidity exceedances may use health effects language for turbidity instead. | | | | | |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--|---|---------------------------------|------------------|-------------------|---|---|
| Antimony (ppb) | 0.006 | 1000 | 6 | 6 | Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder | Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar. |
| Arsenic (ppb) | 0.010 | 1000 | 10 | 0 | Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes | Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer. |
| Asbestos [fibers longer than 10 μ m] (mfl) | 7 mfl | No conversion necessary | 7 | 7 | Decay of asbestos cement water mains; erosion of natural deposits | Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps. |
| Barium (ppm) | 2 | No conversion necessary | 2 | 2 | Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits | Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure. |
| Beryllium (ppb) | 0.004 | 1000 | 4 | 4 | Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries | Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions. |
| Cadmium (ppb) | 0.005 | 1000 | 5 | 5 | Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints | Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage. |
| Chromium [total] (ppb) | 0.1 | 1000 | 100 | 100 | Discharge from steel and pulp mills; erosion of natural deposits | Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|---|---|---------------------------------|------------------|-------------------|--|--|
| Cyanide [free] (ppb) | 0.2 | 1000 | 200 | 200 | Discharge from steel/metal factories; discharge from plastic and fertilizer factories | Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid. |
| Fluoride (ppm) | 4.0 | No conversion necessary | 4.0 | 4.0 | Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories | Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than 9 years old. Mottling, also known as dental fluorosis, may include brown staining or pitting of the teeth, or both, and occurs only in developing teeth before they erupt from the gums. |
| Mercury [inorganic] (ppb) | 0.002 | 1000 | 2 | 2 | Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland | Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage. |
| Nitrate [as nitrogen] (ppm) | 10 | No conversion necessary | 10 | 10 | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits | Infants below the age of 6 months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. |
| Nitrite [as nitrogen] (ppm) | 1 | No conversion necessary | 1 | 1 | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits | Infants below the age of 6 months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. |
| Total nitrate and nitrite [as nitrogen] (ppm) | 10 | No conversion necessary | 10 | 10 | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits | Infants below the age of 6 months who drink water containing nitrate and nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--|---|---------------------------------|--|-------------------|---|---|
| Selenium (ppb) | 0.05 | 1000 | 50 | 50 | Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines | Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation. |
| Thallium (ppb) | 0.002 | 1000 | 2 | 0.5 | Leaching from ore-processing sites; discharge from electronics, glass, and drug factories | Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver. |
| Lead and copper | | | | | | |
| Lead (ppb) | AL=0.015 through December 31, 2024; AL=0.012 beginning January 1, 2025. | 1000 | AL=15 through December 31, 2024; AL=12 beginning January 1, 2025. (TT) | zero | Lead services lines, corrosion of household plumbing including fittings and fixtures; erosion of natural deposits | Infants and children who drink water containing lead could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. |
| Copper (ppm) | AL=1.3 | No conversion necessary | AL=1.3 (TT) | 1.3 | Corrosion of household plumbing systems; erosion of natural deposits | Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor. |
| Synthetic organic contaminants including pesticides and herbicides | | | | | | |
| 2,4-D (ppb) | 0.07 | 1000 | 70 | 70 | Runoff from herbicide used on row crops | Some people who drink water containing the weed killer 2,4-d well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--------------------------------|---|---------------------------------|------------------|-------------------|---|--|
| 2,4,5-TP [silvex] (ppb) | 0.05 | 1000 | 50 | 50 | Residue of banned herbicide | Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems. |
| Alachlor (ppb) | 0.002 | 1000 | 2 | zero | Runoff from herbicide used on row crops | Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer. |
| Atrazine (ppb) | 0.003 | 1000 | 3 | 3 | Runoff from herbicide used on row crops | Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties. |
| Benzo(a)pyrene [PAHs] (ppt) | 0.0002 | 1,000,000 | 200 | zero | Leaching from linings of water storage tanks and distribution lines | Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer. |
| Carbofuran (ppb) | 0.04 | 1000 | 40 | 40 | Leaching of soil fumigant used on rice and alfalfa | Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood or nervous or reproductive systems. |
| Chlordane (ppb) | 0.002 | 1000 | 2 | zero | Residue of banned termiticide | Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer. |
| Dalapon (ppb) | 0.2 | 1000 | 200 | 200 | Runoff from herbicide used on rights of way | Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes. |
| Di(2-ethylhexyl) adipate (ppb) | 0.4 | 1000 | 400 | 400 | Discharge from chemical factories | Some people who drink water containing di (2-ethylhexyl) adipate well in excess of the MCL over many years could experience toxic effects such as weight loss, liver enlargement, or possible reproductive difficulties. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|-----------------------------------|---|---------------------------------|------------------|-------------------|---|---|
| Di(2-ethylhexyl) phthalate (ppb) | 0.006 | 1000 | 6 | zero | Discharge from rubber and chemical factories | Some people who drink water containing di (2-ethylhexyl) phthalate well in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer. |
| Dibromochloropropane [DBCP] (ppt) | 0.0002 | 1,000,000 | 200 | zero | Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards | Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer. |
| Dinoseb (ppb) | 0.007 | 1000 | 7 | 7 | Runoff from herbicide used on soybeans and vegetables | Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties. |
| Dioxin [2,3,7,8-TCDD] (ppq) | 0.00000003 | 1,000,000,000 | 30 | zero | Emissions from waste incineration and other combustion; discharge from chemical factories | Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer. |
| Diquat (ppb) | 0.02 | 1000 | 20 | 20 | Runoff from herbicide use | Some people who drink water containing diquat in excess of the MCL over many years could get cataracts. |
| Endothall (ppb) | 0.1 | 1000 | 100 | 100 | Runoff from herbicide use | Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines. |
| Endrin (ppb) | 0.002 | 1000 | 2 | 2 | Residue of banned insecticide | Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems. |
| Ethylene dibromide (ppt) | 0.00005 | 1,000,000 | 50 | zero | Discharge from petroleum refineries | Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer. |
| Glyphosate (ppb) | 0.7 | 1000 | 700 | 700 | Runoff from herbicide use | Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|---------------------------------|---|---------------------------------|------------------|-------------------|---|---|
| Heptachlor (ppt) | 0.0004 | 1,000,000 | 400 | zero | Residue of banned pesticide | Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer. |
| Heptachlor epoxide (ppt) | 0.0002 | 1,000,000 | 200 | zero | Breakdown of heptachlor | Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer. |
| Hexachlorobenzene (ppb) | 0.001 | 1000 | 1 | zero | Discharge from metal refineries and agricultural chemical factories | Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer. |
| Hexachlorocyclopentadiene (ppb) | 0.05 | 1000 | 50 | 50 | Discharge from chemical factories | Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach. |
| Lindane (ppt) | 0.0002 | 1,000,000 | 200 | 200 | Runoff/leaching from insecticide used on cattle, lumber, gardens | Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver. |
| Methoxychlor (ppb) | 0.04 | 1000 | 40 | 40 | Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock | Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties. |
| Oxamyl [vydate] (ppb) | 0.2 | 1000 | 200 | 200 | Runoff/leaching from insecticide used on apples, potatoes, and tomatoes | Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects. |
| Pentachlorophenol (ppb) | 0.001 | 1000 | 1 | zero | Discharge from wood preserving factories | Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--|---|---------------------------------|------------------|-------------------|---|---|
| Picloram (ppb) | 0.5 | 1000 | 500 | 500 | Herbicide runoff | Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver. |
| Polychlorinated biphenyls [PCBs] (ppt) | 0.0005 | 1,000,000 | 500 | zero | Runoff from landfills; discharge of waste chemicals | Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer. |
| Simazine (ppb) | 0.004 | 1000 | 4 | 4 | Herbicide runoff | Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood. |
| Toxaphene (ppb) | 0.003 | 1000 | 3 | zero | Runoff/leaching from insecticide used on cotton and cattle | Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer. |
| Per- and polyfluoroalkyl substances (PFAS) | | | | | | |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) (ppt) | 370 ppt (ng/l) | No conversion necessary | 370 | N/A | Discharge and waste from industrial facilities utilizing the Gen X chemical process | Some people who drink water containing HFPO-DA in excess of the MCL could experience problems with their liver. Some fetuses of pregnant women and infants born to mothers who drink water containing HFPO-DA in excess of the MCL may experience developmental effects. |
| Perfluorobutane sulfonic acid (PFBS) (ppt) | 420 ppt (ng/l) | No conversion necessary | 420 | N/A | Discharge and waste from industrial facilities; stain-resistant treatments | Some infants born to mothers who drink water containing PFBS in excess of the MCL may experience decreased thyroid hormone levels. |
| Perfluorohexane sulfonic acid (PFHxS) (ppt) | 51 ppt (ng/l) | No conversion necessary | 51 | N/A | Firefighting foam; discharge and waste from industrial facilities | Some people who drink water containing PFHxS in excess of the MCL could experience problems with their thyroid, liver, and cholesterol levels. |
| Perfluorohexanoic acid (PFHxA) (ppt) | 400,000 ppt (ng/l) | No conversion necessary | 400,000 | N/A | Firefighting foam; discharge and waste from industrial facilities | Some people who drink water containing PFHxA in excess of the MCL could experience problems with their liver and kidneys. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--|---|---------------------------------|------------------|-------------------|---|---|
| Perfluorononanoic acid (PFNA) (ppt) | 6 ppt (ng/l) | No conversion necessary | 6 | N/A | Discharge and waste from industrial facilities; breakdown of precursor compounds | Some fetuses of pregnant women and infants born to mothers who drink water containing PFNA in excess of the MCL may experience developmental delays and decreased body weight gain. |
| Perfluorooctane sulfonic acid (PFOS) (ppt) | 16 ppt (ng/l) | No conversion necessary | 16 | N/A | Firefighting foam; discharge from electroplating facilities; discharge and waste from industrial facilities | Some fetuses of pregnant women and infants born to mothers who drink water containing PFOS in excess of the MCL may experience developmental delays and decreased body weight gain. |
| Perfluorooctanoic acid (PFOA) (ppt) | 8 ppt (ng/l) | No conversion necessary | 8 | N/A | Discharge and waste from industrial facilities; stain-resistant treatments | Some fetuses of pregnant women and infants born to mothers who drink water containing PFOA in excess of the MCL may experience neurodevelopmental effects and skeletal effects. |
| Volatile organic contaminants | | | | | | |
| Benzene (ppb) | 0.005 | 1000 | 5 | zero | Discharge from factories; leaching from gas storage tanks and landfills | Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer. |
| Carbon tetrachloride (ppb) | 0.005 | 1000 | 5 | zero | Discharge from chemical plants and other industrial activities | Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer. |
| Chlorobenzene (ppb) | 0.1 | 1000 | 100 | 100 | Discharge from chemical and agricultural chemical factories | Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys. |
| O-dichlorobenzene (ppb) | 0.6 | 1000 | 600 | 600 | Discharge from industrial chemical factories | Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems. |
| P-dichlorobenzene (ppb) | 0.075 | 1000 | 75 | 75 | Discharge from industrial chemical factories | Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|----------------------------------|---|---------------------------------|------------------|-------------------|--|---|
| 1,2-dichloroethane (ppb) | 0.005 | 1000 | 5 | zero | Discharge from industrial chemical factories | Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer. |
| 1,1-dichloroethylene (ppb) | 0.007 | 1000 | 7 | 7 | Discharge from industrial chemical factories | Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver. |
| Cis-1,2-dichloroethylene (ppb) | 0.07 | 1000 | 70 | 70 | Discharge from industrial chemical factories | Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver. |
| Trans-1,2-dichloroethylene (ppb) | 0.1 | 1000 | 100 | 100 | Discharge from industrial chemical factories | Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver. |
| Dichloromethane (ppb) | 0.005 | 1000 | 5 | zero | Discharge from pharmaceutical and chemical factories | Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer. |
| 1,2-dichloropropane (ppb) | 0.005 | 1000 | 5 | zero | Discharge from industrial chemical factories | Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer. |
| Ethylbenzene (ppb) | 0.7 | 1000 | 700 | 700 | Discharge from petroleum refineries | Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys. |
| Styrene (ppb) | 0.1 | 1000 | 100 | 100 | Discharge from rubber and plastic factories; leaching from landfills | Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system. |
| Tetrachloro-ethylene (ppb) | 0.005 | 1000 | 5 | zero | Discharge from factories and dry cleaners | Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer. |
| Toluene (ppm) | 1 | No conversion necessary | 1 | 1 | Discharge from petroleum factories | Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--------------------------------------|---|---------------------------------|------------------|-------------------|---|--|
| 1,2,4-trichlorobenzene (ppb) | 0.07 | 1000 | 70 | 70 | Discharge from textile-finishing factories | Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands. |
| 1,1,1-trichloroethane (ppb) | 0.2 | 1000 | 200 | 200 | Discharge from metal degreasing sites and other factories | Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system. |
| 1,1,2-trichloroethane (ppb) | 0.005 | 1000 | 5 | 3 | Discharge from industrial chemical factories | Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems. |
| Trichloroethylene (ppb) | 0.005 | 1000 | 5 | zero | Discharge from metal degreasing sites and other factories | Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer. |
| Vinyl chloride (ppb) | 0.002 | 1000 | 2 | zero | Leaching from PVC piping; discharge from plastics factories | Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer. |
| Xylenes [total] (ppm) | 10 | No conversion necessary | 10 | 10 | Discharge from petroleum factories; discharge from chemical factories | Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system. |
| Radioactive contaminants | | | | | | |
| Beta/photon emitters (mrem/yr) | 4 mrem/yr | No conversion necessary | 4 | zero | Decay of natural and man-made deposits | Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta particle and photon radioactivity in excess of the MCL over many years may have an increased risk of getting cancer. |
| Alpha emitters [gross alpha] (pci/l) | 15 pCi/L | No conversion necessary | 15 | zero | Erosion of natural deposits | Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--|---|---------------------------------|------------------|-------------------|---|--|
| Combined radium [226 & 228] (pci/l) | 5 pCi/L | No conversion necessary | 5 | zero | Erosion of natural deposits | Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer. |
| Uranium (pCi/L) | 30 ug/L | No conversion necessary | 30 | zero | Erosion of natural deposits | Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity. |
| Disinfection byproducts (DBP), byproduct precursors, and disinfectant residuals: where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBP). The department sets standards for controlling the levels of disinfectants and DBP in drinking water, including trihalomethanes (THM) and haloacetic acids (HAA). See R 325.10610 to R 325.10610d and R 325.10719e to R 325.10719n for disinfection byproduct MCLs, disinfectant MRDLs, and related monitoring requirements. | | | | | | |
| Total trihalomethanes [TTHM] (ppb) | 0.080* | 1000 | 80* | N/A | By-product of drinking water disinfection | Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer. |
| | * The MCL for total trihalomethanes is the sum of the concentrations of the individual trihalomethanes. | | | | | |
| Haloacetic acids (HAAs) (ppb) | 0.060* | 1000 | 60* | N/A | By-product of drinking water disinfection | Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer. |
| | * The MCL for haloacetic acids is the sum of the concentrations of the individual haloacetic acids. | | | | | |
| Bromate (ppb) | 0.010 | 1000 | 10 | zero | By-product of drinking water disinfection | Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer. |
| Chloramines (ppm) | MRDL = 4 | No conversion necessary | MRDL = 4 | MRDLG = 4 | Water additive used to control microbes | Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia. |
| Chlorine (ppm) | MRDL = 4 | No conversion necessary | MRDL = 4 | MRDLG = 4 | Water additive used to control microbes | Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort. |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--|---|---------------------------------|------------------|-------------------|---|--|
| Chlorite (ppm) | 1 | No conversion necessary | 1 | 0.8 | By-product of drinking water disinfection | Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia. |
| Chlorine dioxide (ppb) | MRDL = 0.8 | 1000 | MRDL = 800 | MRDLG = 800 | Water additive used to control microbes | Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. |
| | Add the following only to public notification where any 2 consecutive daily samples taken at the entrance to the distribution system are above the MRDL: "The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, not within the distribution system which delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers." | | | | | |
| | Add the following only to public notification where 1 or more distribution system samples are above the MRDL: "The chlorine dioxide violations reported today include exceedances of the drinking water standard within the distribution system which delivers water to consumers. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short-term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure." | | | | | |
| Total organic carbon [TOC - control of DBP precursors] (ppm) | TT | No conversion necessary | TT | None | Naturally present in the environment | Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THM) and haloacetic acids (HAA). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer. |
| Other treatment techniques | | | | | | |

| Contaminant in CCR units | Traditional MCL in mg/l, except where noted | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water | Health effects language |
|--------------------------|---|---------------------------------|------------------|-------------------|---|---|
| Acrylamide | TT | No conversion necessary | TT | zero | Added to water during sewage/ wastewater treatment | Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer. |
| Epichlorohydrin | TT | No conversion necessary | TT | zero | Discharge from industrial chemical factories; an impurity of some water treatment chemicals | Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer. |

PART 6. STATE DRINKING WATER STANDARDS AND ANALYTICAL METHODS

R 325.10604g MCLs for per- and polyfluoroalkyl substances.

Rule 604g. (1) The maximum contaminant levels and effective dates for per- and polyfluoroalkyl substances in table 1 of this rule apply to community and nontransient noncommunity water supplies.

Table 1 MCLs for per and polyfluoroalkyl substances

| Contaminant | Maximum Contaminant Level in ng/l | Effective Date |
|--|-----------------------------------|-------------------------------|
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | 370 | [effective date of this rule] |
| Perfluorobutane sulfonic acid (PFBS) | 420 | [effective date of this rule] |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | [effective date of this rule] |
| Perfluorohexanoic acid (PFHxA) | 400,000 | [effective date of this rule] |
| Perfluorononanoic acid (PFNA) | 6 | [effective date of this rule] |
| Perfluorooctane sulfonic acid (PFOS) | 16 | [effective date of this rule] |
| Perfluorooctanoic acid (PFOA) | 8 | [effective date of this rule] |

(2) Compliance with the MCLs in table 1 of this rule must be determined based on the analytical results obtained at each sampling point. If 1 sampling point is in violation of an MCL, then the supply is in violation of the MCL. All of the following provisions apply:

(a) For supplies monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point.

(b) Supplies monitoring annually whose sample result exceeds an MCL in table 1 of this rule shall begin quarterly sampling. Compliance with the MCL must be based on the running annual average. For the purpose of calculating the running annual average, the initial exceedance must be the result for the first quarter. If the department requires a confirmation sample under R 325.10717d(12), then the average of the initial exceedance and the confirmation sample must be the result for the first quarter, unless the department determines a sample should be excluded per R 325.10717d(12). The supply shall not be in violation of the MCL until it has completed 1 year of quarterly sampling.

(c) If any sample result causes the running annual average to exceed the MCL at any sampling point, then the supply is out of compliance with the MCL immediately.

(d) If a supply fails to collect the required number of samples, then compliance must be based on the total number of samples collected.

(e) If a sample result is less than the reporting limit, then zero must be used to calculate the annual average.

PART 7. SURVEILLANCE, INSPECTION, AND MONITORING

R 325.10717d Collection and analysis of samples for per- and polyfluoroalkyl substances.

Rule 717d. (1) Suppliers of community and nontransient noncommunity water supplies shall collect samples and cause analyses to be made under this rule for per- and polyfluoroalkyl substances to determine compliance with the state drinking water standards in R 325.10604g. Each supplier shall monitor at the time designated by the department.

(2) For transient noncommunity and type III public water supplies, the department may require samples to be collected and analyzed at prescribed frequencies for per- and polyfluoroalkyl substances.

(3) A groundwater supplier shall take at least 1 sample at every entry point to the distribution system that is representative of each well after treatment, also known as sampling point. Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(4) A surface water supplier, or combined surface water and ground water, shall take at least 1 sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment, also known as sampling point. Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(5) If a system draws water from more than 1 source and the sources are combined before distribution, then the supplier shall sample at an entry point to the distribution system during periods of normal operating conditions when water that is representative of all sources is being used.

(6) An existing supplier with one or more samples taken at each sampling point described in subrules (3), (4), or (5) of this rule as part of the State of Michigan's 2018/2019 Statewide PFAS Survey shall conduct initial sampling as follows:

(a) A supplier with one or more sample results greater than 50% of the MCL for a contaminant listed in rule 10604g shall collect samples from each sampling point beginning the first full quarter following the effective date of this rule.

(b) A supplier with no detection or a detection less than or equal to 50% of the MCL for a contaminant listed in rule 10604g shall collect at least 1 sample from each sampling point within 6 months of the effective date of this rule.

(7) An existing supplier without sampling conducted under subrule (6) of this rule, shall collect samples beginning the first full quarter following the effective date of this rule.

(8) A new community or nontransient noncommunity water supply shall collect samples beginning the first full quarter following the initiation of operations.

(9) If the results of samples collected under subrules (6), (7), or (8) of this rule are below the reporting limits specified in R 325.12708, the department may allow the water supply to monitor annually.

(10) If a contaminant in R 325.10604g is detected above the reporting limit in any sample, then all of the following provisions apply:

(a) Each supply shall monitor quarterly at each sampling point that resulted in a detection. The department may decrease the quarterly monitoring requirement specified in this subrule if it has determined that the supply is reliably and consistently below the MCL. A groundwater supplier shall take not fewer than 2 quarterly samples and a surface water supplier shall take not fewer than 4 quarterly samples before this determination.

(b) After the department determines that the supply is reliably and consistently below the MCL, the department may allow the supply to monitor annually.

(11) A supplier that violates R 325.10604g shall monitor quarterly. If not fewer than 4 quarterly samples show that the supply is in compliance and the department determines the supply is reliably and consistently below the MCL, then the department may allow the supply to monitor annually.

(12) The department may require confirmation sampling for positive or negative results. If confirmation sampling is required, then the results must be averaged with the first sampling result and the average must be used for the compliance determination. The department may exclude results of obvious sampling errors from this calculation.

(13) The department may increase the required monitoring to detect variations within the system.

(14) All new supplies or supplies that use a new source of water shall demonstrate compliance with the MCLs before serving water to the public. The supply shall also comply with the initial sampling frequencies specified by the department.

PART 27. LABORATORY CERTIFICATION

R 325.12701 Purpose.

Rule 2701. An analytical result that is used to determine compliance with a state drinking water standard established in part 6 must be the result of an analysis performed by a department or EPA certified laboratory, except that measurements for alkalinity, bromide, calcium, daily chlorite samples at the entrance to the distribution system, conductivity, magnesium, orthophosphate, pH, residual disinfectant concentration, silica, specific ultraviolet absorbance, temperature, chloride, sulfate, and turbidity may be performed by personnel acceptable to the department. This part sets forth requirements established by the federal act for laboratory certification.

R 325.12708 Certification for PFAS analyses.

Rule 2708. To qualify for certification to conduct analyses for the PFASs in table 1 of R 325.10604g, a laboratory must be in compliance with the following provisions:

(a) Samples must be collected and analyzed in accordance with EPA method 537.1 or other methods as approved by the department.

(b) The minimum reporting limit must be 2 ng/l.

(c) Analytical results must be reported to the nearest ng/l.

(d) The laboratory must analyze performance evaluation samples that include the PFASs in table 1 of this rule and are acquired from a third party proficiency test provider approved by the department at least once per year.

(e) For each regulated PFAS contaminant included in the performance evaluation sample, the laboratory must achieve quantitative results on the analyses that are within the acceptance limits listed in table 1 of this rule.

Table 1 Acceptance limits

| Contaminant | Chemical Abstract Services Registry Number | Acceptance Limits (percent) |
|--|--|-----------------------------|
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | 13252-13-6 | ± 30% (GV) ¹ |
| Perfluorobutane sulfonic acid (PFBS) | 375-73-5 | ± 30% (GV) ¹ |
| Perfluorohexane sulfonic acid (PFHxS) | 355-46-4 | ± 30% (GV) ¹ |
| Perfluorohexanoic acid (PFHxA) | 307-24-4 | ± 30% (GV) ¹ |
| Perfluorononanoic acid (PFNA) | 375-95-1 | ± 30% (GV) ¹ |
| Perfluorooctane sulfonic acid (PFOS) | 1763-23-1 | ± 30% (GV) ¹ |
| Perfluorooctanoic acid (PFOA) | 335-67-1 | ± 30% (GV) ¹ |

¹Gravimetric value

R 325.12710 Suspension or revocation of certification.

Rule 2710. (1) If the department determines that a laboratory certified under the act and these rules is not operating in an approved manner, is reporting results that do not meet state laboratory certification requirements, or is operating in a manner that may cause a hazard to the public health, the department may move to suspend or revoke the certification of the laboratory pursuant to the administrative procedures act of 1969, 1969 PA 306, MCL 24.201 to 24.328.

(2) Reasons for suspension of a laboratory's certification, in part or whole, or the denial of an initial certification request include, but are not limited to the following:

- (a) Failure to pay certification fees.
- (b) Failure to pass a laboratory inspection.
- (c) Failure to meet proficiency test requirements.
- (d) Failure to respond to a laboratory inspection report within the allotted timeframe.
- (e) Persistent failure to report compliance data to the public water system or the state drinking water program in a timely manner, thereby preventing timely compliance determination with federal or state regulations and endangering public health.
- (f) Failure to correct deficiencies noted in an on-site inspection report.
- (g) Refusal to participate in an on-site inspection conducted by the certifying agency.
- (h) Failure to make records pertaining to the analysis of regulated drinking water contaminants available for review or copying by the laboratory certification program.

(3) Suspension of a laboratory's certification remains in effect until the laboratory provides documentation that the reason or reasons for the suspension have been corrected.

(4) Reasons for revocation of a laboratory's certification include but are not limited to:

- (a) Falsification of the certification application or certification renewal application.
- (b) Fraud or other criminal activity.
- (c) Falsification of records or analytical results.
- (d) Reporting results not meeting the federal act, the act and administrative rules promulgated thereunder, or method requirements.
- (e) Reporting proficiency test data from another laboratory as its own.
- (f) Using analytical methodology not listed on the laboratory's certification letter for reporting regulated drinking water contaminants.
- (g) A written notification from the laboratory that it is voluntarily relinquishing certification.

Michigan Office of Administrative Hearings and Rules

611 W. Ottawa Street

Lansing, MI 48909

Phone: 517-335-8658 Fax: 517-335-9512

**AGENCY REPORT TO THE
JOINT COMMITTEE ON ADMINISTRATIVE RULES (JCAR)**

1. Agency Information

Agency name:

Environment, Great Lakes and Energy

Division/Bureau/Office:

Drinking Water and Environmental Health Division

Name of person completing this form:

Kris Philip

Phone number of person completing this form:

(517) 284-6518

E-mail of person completing this form:

PHILIPK@michigan.gov

Name of Department Regulatory Affairs Officer reviewing this form:

David Fiedler

2. Rule Set Information

MOAHR assigned rule set number:

2019-35 EG

Title of proposed rule set:

Supplying Water to the Public

3. Purpose for the proposed rules and background:

To establish enforceable drinking water standards for per- and polyfluoroalkyl substances (PFAS) found during the 2018 sampling of Michigan's public drinking water supplies. While the U.S. Environmental Protection Agency has established an unenforceable lifetime health advisory level for total perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), many academia, health officials, and the Agency for Toxic Substances and Disease Registry (ASTDR) deem this advisory level is too high. In addition, the lack of an enforceable standard for PFOS and PFOA and other commonly found PFAS chemicals impairs the DEQ's ability to take enforceable actions to protect human health and the environment.

4. Summary of proposed rules:

MCL 24.242 and 24.245

Agency Report to JCAR-Page 2

Additional public hearings will be held on January 14, 2020 at 5:00 p.m. to 8:00 p.m., at Washtenaw Community College, Morris Lawrence Building, Towsley Auditorium, 4800 East Huron River Drive, Ann Arbor, Michigan and on January 16, 2020 at 5:00 p.m. to 8:00 p.m., at the Ralph A. Macmullan (RAM) Conference Center, Au Sable Classroom, 104 Conservation Drive, Roscommon, Michigan.

The proposed rule set (2019-35 EG) will amend the current rules to provide provisions that reduce exposure to several per- and polyfluoroalkyl substances (PFAS) in drinking water. The provisions include establishment of drinking water standards, sampling requirements, public notification requirements, and laboratory certification criteria.

5. List names of newspapers in which the notice of public hearing was published and publication dates:

The Ann Arbor News – December 12, 2019; The Grand Rapids Press – December 12, 2019; and The Marquette Mining Journal – December 12, 2019.

6. Date of publication of rules and notice of public hearing in Michigan Register:

1/1/2020

7. Date, time, and location of public hearing:

1/8/2020 05:00 PM at Grand Valley State University, L.V. Eberhard Center - Room EC 215 , 301 West Fulton, Grand Rapids, MI 49504

8. Provide the link the agency used to post the regulatory impact statement and cost-benefit analysis on its website:

https://dtmb.state.mi.us/ARS_Public/Transaction/RFRTransaction?TransactionID=29

9. List of the name and title of agency representative(s) attending public hearing:

MCL 24.242 and 24.245

Agency Report to JCAR-Page 3

Grand Rapids, January 8, 2020

Department of Environment, Great Lakes, and Energy (EGLE) staff: Eric Oswald, George Krisztian, Ian Smith, Kris Philip, Ariel Zoldan, Eric Wildfang, Dave Fiedler, Dale Shaw, Jim Ostrowski (Hearings Officer), Anita Singh, Matt Tomlinson, Steve Sliver, Scott Dean, Ninah Sasy, Tom Berdinski, Luke Dehtiar, and Ernie Sarkipato.

Department of Health and Human Services (DHHS) staff: Laura Gossiaux, Deb MacKenzie-Taylor, and Rosa Jaiman.

Ann Arbor, January 14, 2020

EGLE staff: Eric Oswald, George Krisztian, Ian Smith, Kris Philip, Ariel Zoldan, Eric Wildfang, Dave Fiedler, Dale Shaw, Jim Ostrowski (Hearings Officer), Matt Tomlinson, Scott Dean, Ann Tavalire, and Kris Donaldson.

DHHS staff: Lisa Fischer, Steve Crider, Sue Manente, Paula Detweiler, and Tom Franke.

Roscommon, January 16, 2020

EGLE staff: Eric Oswald, Ian Smith, Kris Philip, Eric Wildfang, Dave Fiedler, Dale Shaw, Jim Ostrowski (Hearings Officer), Anita Singh, Steve Sliver, Carla Davidson, and Joe Reinke.

DHHS staff: Sue Manente, Sessa Kallakuri, and Bill Farrell.

10. Persons submitting comments of support:

MCL 24.242 and 24.245

Agency Report to JCAR-Page 4

Grand Rapids, January 8, 2020

A.J Birkbeck; Andrew Blok; Concerned Citizens for Responsible Remediation; Corinne Carey; Eric Pieh; Greater Grand Rapids Sierra Club Committee; Kim Conner; Larry Campbell; Lynn McIntosh; Michigan League of Conservation Voters; MPART's Citizen Advisory workgroup; Natural Resources Defense Council; Neighbors for Neighborhood; Renae Mata; Robert Allen; Sandy Wynn-Stelt; Scott Harvey; Shannon Donley; Sue Popma; Theresa Chaplin; Theresa Emshwiller; Tip of the Mitt Watershed Council; West Michigan Environmental Action Council; Winnie Brinks, Senator of 29th District Grand Rapids; Wolverine Community Advisory Group; and Wyoming Laboratory Manager Utilities Department.

Ann Arbor, January 14, 2020

Aaron Pelo, Aide for State Representative Yousef Rabhi of Ann Arbor; Andrew Wotan; Charles Carpenter; Clean Water Action; Denise Cantu; Diana Wright; Dr. Elaine Chottiner; Ecology Center; Environment Michigan; Fred Iles; Huron Watershed Council; Jeff Hayner; Jennifer Davis; John Buhl; John Machowicz; Kathy Smith; Keith Lee; Kevin Fisher; Lisa Capozza; Michigan Environmental Caucus; Michigan Environmental Council; Michigan League of Conservation Voters; Michigan Residents Against ET Rover; Michigan Sierra Club; Need our Water Oscoda; PDiesha Myles; Renee Gregory; Rita Loch-Caruso; Scio Residents for Safe Water; Senator Jeff Irwin, 18th District; Sierra Club; Stacy Taylor; Vince Caruso; Washtenaw 350.org; Washtenaw County Commission; Western Wayne Hazardous Incident Response Team; William Creal; Wolf Pack; and Ypsilanti Township.

Roscommon, January 16, 2020

Aiden Backstrom; Alexis Ruemenapp; Cathy Wusterbarth; Chuck Leady; Elyssa Steward; Greg Cole; Hank Bailey; Houghton Lake Wastewater Treatment Plant; Jason Trautz; Jesse Osmer, legislative director for State Representative Sue Allor; John Delistle; John Morris; Lillian Schell; Liz DeLisle; Mark Janeczko; Michigan Manufacturers Association; Natural Resources Defense Council; Need Our Water in Oscoda; Oscoda Township; Sean Overheul; and We Are the Evidence.

Written Comments: Andrew Fishbeck; Ann Poznanski; Armas Soorus; Au Sable River Watershed Committee; Camp Grayling JMTC Restoration Advisory Board; Christine Reay; Consumers Energy; Council of Michigan Foundations; Crystal Cunningham; Dave Dempsey; David Winn; Debbie Dingell; Derrick Golla; Donna Lasinski; Eric Piehl; For Love Of Water; Great Lakes Environmental Law Center; Healthy Food Action; Huron Pines; Jamie Fleming; Joe Jakubowski; John Sarver; Kenneth Scott Harvey; Kirsten Lietz; krista lilley; Kristeb Turick; Larry Scheer; Laura Rubin; Little Traverse Bay Bands of Odawa Indians; Lynn McIntosh; Mark Swan; Martha Vermeulen; Mary Ellen Howard; Matthew Nossal; Michelle Hamilton; Michigan Chapter of the Izaak Walton League; Michigan Environmental Council; Michigan Farm Bureau; Mike McIntosh; Nancee M.; National Resources Defense Council; National Wildlife Federation, Great Lakes Regional Center; Norrie Zaret; Patricia Baldwin; Peggy Sooz; Penelope Minhinnick-Burns; Peter Albertson; Plainfield Charter Township; Richard Rediske; Sam Inglot; Sharon McGladdery; Susan Rock; Susan Shink; Susan Thiel; talkingcloth; Tesha Galla; The Ecology Center; The Huron River Watershed Council; The Michigan Municipal League; Tip of the Mitt Watershed Council; Virginia L DeHaan; William and Carol Parker; William Creal.

11. Persons submitting comments of opposition:

MCL 24.242 and 24.245

Agency Report to JCAR-Page 5

Written Comments: 3M; barbarast2; Georgia Griffin; GHD; Grand Rapids Area Chamber of Commerce; Laurie Hoag; Marguerite Clevenger; MI Air MI Health; Michigan Chemistry Council; Rex Vaughn; The Chemical Products and Technology Division of the American Chemistry Council; The Michigan Manufacturers Association; The PFAS Regulatory Coalition; Varnum Attorneys at Law.

12. Identify any changes made to the proposed rules based on comments received during the public comment period:

| | Name & Organization | Comments made at public hearing | Written Comments | Agency Rationale for change | Rule number & citation changed |
|---|--|--|--|------------------------------------|---|
| 1 | Oday Salim, Natural Wildlife Federation, Great Lakes Regional Center | | For Perfluorobutane sulfonic acid, the CAS number should be 375-73-5. For Perfluorohexane sulfonic acid, the CAS number should be 355-46-4. | Factual Correction | R 325.12708 (e), Table 1 |
| 2 | Brian Steglitz, City of Ann Arbor, Water Treatment Services | | It has come to my attention that the CASRN numbers for two of the proposed PFAS to be regulated may be incorrect. The city requests that EGLE review the CASRN numbers for each of the seven PFAS proposed for regulation to ensure the CASRNs are correct in the final rule. I believe that the ones in error are PFBS and PFHxS. | Factual Correction | R 325.12708 (e), Table 1 |

MCL 24.242 and 24.245

13.Date report completed:

3/9/2020

RECEIVED by MSC 3/29/2024 10:10:36 AM

MCL 24.242 and 24.245



Powered by the Michigan Press Association

AFFIDAVIT OF PUBLICATION

827 N. Washington Ave. Lansing, MI 48906
517.372.2424 solutions@mediaplacementone.com



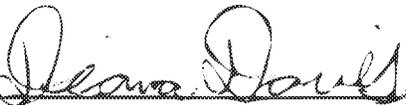
Advertiser: Michigan Department of Environment, Great Lakes, and Energy

Date of order: December 5, 2019

This is to certify that the Public Notice scheduled to run in the newspaper listed ran as the placement details below and proof of publication is attached.

Newspaper Name: **Ann Arbor News**

| Run Date | Ad Size | Caption/Position/Special Instructions |
|----------|-------------|---|
| 12/12/19 | 3 col. x 9" | Public Hearing Notice- EGLE- Daily insertion Cost- 3 col. X 9" B&W ad |

Signed by  (MP1/MANSI Representative)

Date: December 12, 2019

Notary Public:

Signed by  (Notary Public)

Date: December 12, 2019

JAMES R. TARRANT
NOTARY PUBLIC – STATE OF MICHIGAN
COUNTY OF VAN BUREN
My commission expires April 12, 2023
Acting in the County of Ingham

PLYMOUTH TOWNSHIP

It takes a dining room

Christmas village has grown so large over the years the owners keep it up year-round

McKenna Ross mrross@mlive.com

Nestled in the mountains, a castle overlooks this picturesque village.

Children play in the schoolyard. Further down an evergreen-lined cobblestone road, the church, bakery and haberdashery overlook the bay where the Britannia is heading to shore.

And it's all in one couple's dining room. For almost 30 years, Plymouth Township residents Arline and John Greacen have developed their Dickens' Village collection. The miniature Christmas decorations have gotten so expansive, detailed and storied that they keep it up year-round.

In some ways, the couple believes the village is a landmark in their neighborhood. Friends bring visiting family members to see it, and Halloween trick-or-treaters will stick their heads inside after they receive a candy bar.

About 100 structures, 300 trees and a display that starts about 8 feet from the wall of the couple's front room make up Arline's Dickens' Village — its official name, according to a sign John carved and hung over the room.

In true holiday spirit, most of the mini structures were gifts.

It started in 1990, when Arline's mother gave her three buildings, all from "A Christmas Carol." The Charles Dickens-inspired village grew from there. The past 10 years, it's been too large to put away. New buildings haven't been added for about three years.

"When I look at it, I remember which buildings Arline's mom gave us to get started," John Greacen said. "I remember there's a building with Santa Claus on the roof that my father gave her. My boss at my last employer gave us a building one time."

The added detail in the village, though, makes Arline's Dickens' Village unique. Cotton flows out of the chimneys mimicking smoke. Arline Greacen created mountains by hot-wire sculpting Styrofoam into bluff shapes and painting five shades of brown. Traditional Dickens' Village figurines were too tall for their houses, so the Greacens sought smaller toys to fill around town.

"There isn't a day where I don't stop and look at it several times because there's so much intricate detail," John Greacen said. "I'm still fascinated by it though we've had it for nearly three decades. You can't absorb the detail



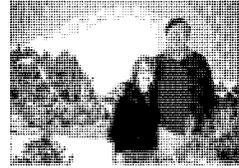
The Christmas village at the Greacen home in Plymouth Township is large enough to fill the couple's dining room, and it has become so special to them that they keep it up all year long. Photos by Jacob Hamilton, MLive.com

without stopping, and I have a long attention span." The couple said they couldn't put a price tag on the display; it wasn't something they had previously considered. New collectibles on the Department 56 website, which sells the branded items, range from \$60 to \$220. The replica village isn't about solely collecting for the Greacens, though. It's about the hard work they have put into its cultivation and the loved ones who cared along the way. "There's kind of a warm feeling that I get from it," John Greacen said. "If I had gone on eBay and someone had passed away and they were selling the whole kit-and-caboodle, it wouldn't be the same. Arline's enthusiasm when she was building this, it warmed my heart to see her get so

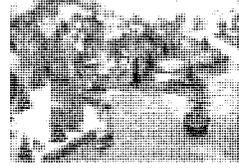
"I'm still fascinated by it though we've had it for nearly three decades. You can't absorb the detail without stopping (to look at everything)."

John Greacen, about his and his wife's Christmas village display

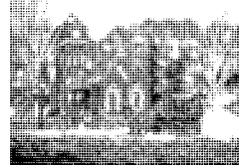
excited about all that." As far as continuing their Dickens' Village collection, the couple is hesitant to add more. "We'd like to, but ...," Arline Greacen said. "We're kind of running out of space," John Greacen finished.



Arline and John Greacen stand with the Christmas village they collected and built over the past 30 years in their Plymouth Township home.



Above and below, the Greacens' Christmas village is on display Dec. 5 in their home in Plymouth Township.



Cedar Woods
Assisted Living & Memory Care

Let Our Home Be Yours

Providing quality & compassionate care to residents as a whole

Welcoming, Comforting, Clean and Healthy Community

Historical home for residents who suffer from Dementia, Alzheimer's or other neurological disorders

• NO Long-Term Contracts
• Flexible stay available!
• Affordable

SPECIAL OFFER

★ MENTION THIS AD AND SAVE THOUSANDS ON MOVE-IN COSTS ★

CALL NOW 734.699.2900

14401 L-24, S. Service Dr.
Belleville, MI 48111

cedarwoodsllc.com

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Drinking Water and Environmental Health Division

SUPPLYING WATER TO THE PUBLIC
Rule Set 2019-35 EG

NOTICE OF PUBLIC HEARING

| | | |
|---|---|---|
| Wednesday, January 8, 2020 Grand Valley State University LV Eberhard Center 301 Fulton St. W, Grand Rapids Room EC 215, 5:00 – 8:00 p.m. | Tuesday, January 14, 2020 Washtenaw Community College Morris Lawrence Building 4800 E Huron River Dr, Ann Arbor Towley Auditorium, 5:00 – 8:00 p.m. | Thursday, January 16, 2020 Washtenaw Community College Ralph A. MacMullan (RAM) Conference Center 104 Conservation Dr, Rossconon Au Sable Classroom, 5:00 – 8:00 p.m. |
|---|---|---|

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Drinking Water and Environmental Health Division, will hold three public hearings on the dates and at the locations listed above from 5:00 to 8:00 p.m. The hearings will be held to receive public comments on proposed changes to the rules titled Supplying Water to the Public.

The proposed rule set (2019-35 EG) will amend the current rules to provide provisions that reduce exposure to several per- and polyfluoroalkyl substances (PFAS) in drinking water. The provisions include establishment of drinking water standards, sampling requirements, public notification requirements, and laboratory certification criteria.

These rules are promulgated by authority conferred on the Director of EGLE by Section 5 of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), identified as R 325.10101 through R 325.12820. These rules will take effect 7 days after filing with the Secretary of State.

The rules (2019-35 EG) are published on the Michigan Office of Administrative Hearings and Rules' Web site at Michigan.gov/MDAHR. Click on "Administrative Rules," "Pending Rules Activity," and then "Pending Rule Changes." Sort by Department – Bureau and scroll to Rule Set # 2019-35 EG and click on "Draft Rule Language." The rules will also be published in the January 1, 2020 issue of the *Michigan Register*.

Any interested person is invited to attend and present their views. It is requested that all statements be submitted in writing for the hearing record. Anyone unable to attend may submit comments in writing to the following mailing or e-mail address by 5:00 p.m. on Friday, January 31, 2020. Copies of the draft rules may also be obtained by mail or electronic transmission by submitting a request to the following address:

Drinking Water and Environmental Health Division
 Michigan Department of Environment, Great Lakes, and Energy
 Attention: Suzann Ruch
 PO Box 30817
 Lansing, Michigan 48909-8311
 Phone: 517-284-6544
 Fax: 517-241-1328
 E-Mail: EGLE-PFAS.RuleMakina@Michigan.gov

All hearing sites are accessible, including handicap parking. People with disabilities requiring additional accommodations in order to participate in the hearing (such as information in alternative formats) should contact the Drinking Water and Environmental Health Division at 517-284-6544 at least 10 days prior to the hearing date. Information at this meeting will be presented by speakers and printed handouts.

RECEIVED by MSC 3/29/2024 10:10:36 AM



Powered by the Michigan Press Association

AFFIDAVIT OF PUBLICATION

827 N. Washington Ave. Lansing, MI 48906
517.372.2424 solutions@mediaplacementone.com



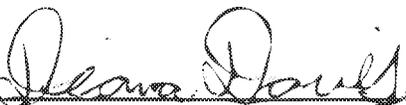
Advertiser: Michigan Department of Environment, Great Lakes, and Energy

Date of order: December 5, 2019

This is to certify that the Public Notice scheduled to run in the newspaper listed ran as the placement details below and proof of publication is attached.

Newspaper Name: Grand Rapids Press

| Run Date | Ad Size | Caption/Position/Special Instructions |
|----------|-------------|---|
| 12/12/19 | 3 col. x 9" | Public Hearing Notice- EGLE- Daily insertion Cost- 3 col. X 9" B&W ad |

Signed by  (MP1/MANSI Representative)

Date: December 12, 2019

Notary Public:

Signed by  (Notary Public)

Date: December 12, 2019

JAMES R. TARRANT
NOTARY PUBLIC – STATE OF MICHIGAN
COUNTY OF VAN BUREN
My commission expires April 12, 2023
Acting in the County of Ingham

GRAND RAPIDS

GRCC targets public works, clean energy training

Monica Scott msscott2@mlive.com

After hearing from cities and community organizations, Grand Rapids Community College is starting a training program in 2020 targeting jobs related to water, public works, clean energy and river restoration projects.

Julie Parks, executive director for GRCC Workforce Training, said the college is being responsive to the demand for employees in those focus areas.

She said training will include the repair and maintenance of municipal water and wastewater systems, pipe and green infrastructure, water testing, hazardous materials removal and safety certifications.

GRCC is teaming up with the cities of Grand Rapids and Kentwood, the nonprofit Grand Rapids Whitewater, the Grand Rapids Chamber of Commerce and the Grand Rapids Downtown Development Authority's Whitewater Project team on the West Michigan Clean Water and Environmental Certifications Program.

"Area water systems depend on maintenance and restoration, but the workforce with these skills is aging, and there's no current pipeline to bring in new talent," Parks said.

JP Morgan Chase provided GRCC a two-year, \$150,000 grant for the training. Parks said the financial services firm has long been supportive of college initiatives.

Parks said the grant will keep the cost of student training down to \$25. She said training could be 40 hours or as much as 300 hours.

James Hurt, public services director for the city of Grand Rapids, said he and his colleagues in the Midwest branch, Michigan Chapter of the American Public Works Association have been discussing the creation of a talent pipeline for nearly two years.

He said they have worked with GRCC on training through its Public Works Academy and hope to recruit more students through the new training program.

Hurt said the city is looking for people new to public works and existing employees interested in learning new skills.

"Fifty percent of employees will be eligible to retire in the next five to 10 years," he said.

"It will be a drain on our institutional knowledge. We are looking to find qualified individuals."

Parks said the training can be pathway to a career with a good salary and benefits. She

"GRCC has strong partnerships with area municipalities' workforce development work. This grant will help that collaboration grow, preparing the region for the changes planned for the Grand River, and the continued importance of prepared workforce to meet these needs."

GRCC President Bill Pink

said hourly wages in the various categories generally range from \$15 to \$18 per hour to start out.

For example, Hurt said an entry level maintenance assistant earns \$16.03 per hour.

"GRCC has strong partnerships with area municipalities' workforce development work," GRCC President Bill Pink said. "This grant will help that collaboration grow, preparing the region for the changes planned for the Grand River, and the continued importance of prepared workforce to meet these needs."

An employer advisory team will help GRCC develop a curriculum, which will incorporate national credentials for stormwater and green infrastructure training.

Neighborhood and nonprofit groups such as the Urban League of Greater Grand Rapids and the West Michigan Hispanic Center will help connect unemployed or underemployed residents to the program to help ensure a diverse pool of students.

Those interested in learning more, should email workforcetraining@grcc.edu or call 616-234-3800.

GIVE YOUR FAMILY THE GIFT OF MUSIC

GRAND PIANOS Starting at \$4,900

Digital Pianos Year End Close-outs Save up to 40%

Several Pre-Owned Pianos in Inventory

0 DOWN 0 INTEREST/15mos

Free Workshops

MUSIC IS FOREVER

KEYBOARD WORLD

2300 28th ST SE | at Breton Rd
Grand Rapids MI 49508 **616.249.9000**
www.keyboardworld.net

PLAN NOW. PLAY LATER IN THE CARIBBEAN.

Let's Vacation

DELTA VACATIONS

Dolphin Vacations
2850 Thornhills Avenue SE, Suite B
Grand Rapids, MI 49546

Dolphin Vacations A Division of **PROFESSIONAL TRAVEL, INC.**

© 2018 Delta Vacations DV31990

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
Drinking Water and Environmental Health Division

SUPPLYING WATER TO THE PUBLIC
Rule Set 2019-35 EG

NOTICE OF PUBLIC HEARING

| | | |
|---|---|--|
| Wednesday, January 8, 2020 Grand Valley State University LV Eberhard Center 301 Fulton St. W, Grand Rapids Room EC 215, 5:00 – 8:00 p.m. | Tuesday, January 14, 2020 Washtenaw Community College Morris Lawrence Building 4600 E Huron River Dr, Ann Arbor Towstley Auditorium, 5:00 – 8:00 p.m. | Thursday, January 16, 2020 Ralph A. MacMullan (RAM) Conference Center 104 Conservation Dr, Roscommon Au Sable Classroom, 5:00 – 8:00 p.m. |
|---|---|--|

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Drinking Water and Environmental Health Division, will hold three public hearings on the dates and at the locations listed above from 5:00 to 8:00 p.m. The hearings will be held to receive public comments on proposed changes to the rules titled Supplying Water to the Public.

The proposed rule set (2019-35 EG) will amend the current rules to provide provisions that reduce exposure to several per- and polyfluoroalkyl substances (PFAS) in drinking water. The provisions include establishment of drinking water standards, sampling requirements, public notification requirements, and laboratory certification criteria.

These rules are promulgated by authority conferred on the Director of EGLE by Section 5 of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), identified as R 325.10101 through R 325.12820. These rules will take effect 7 days after filing with the Secretary of State.

The rules (2019-35 EG) are published on the Michigan Office of Administrative Hearings and Rules' Web site at Michigan.gov/MOAH. Click on "Administrative Rules," "Pending Rules Activity" and then "Pending Rule Changes." Sort by Department – Bureau and scroll to Rule Set # 2019-35 EG and click on "Draft Rule Language." The rules will also be published in the January 1, 2020 issue of the *Michigan Register*.

Any interested person is invited to attend and present their views. It is requested that all statements be submitted in writing for the hearing record. Anyone unable to attend may submit comments in writing to the following mailing or e-mail address by 5:00 p.m. on Friday, January 31, 2020. Copies of the draft rules may also be obtained by mail or electronic transmission by submitting a request to the following address:

Drinking Water and Environmental Health Division
Michigan Department of Environment, Great Lakes, and Energy
Attention: Suzann Ruch
PO Box 30817
Lansing, Michigan 48909-8311
Phone: 517-294-8544
Fax: 517-241-1328
E-Mail: EGLE-PFAS-RuleMking@Michigan.gov

All hearing sites are accessible, including handicap parking. People with disabilities requiring additional accommodations in order to participate in the hearing (such as information in alternative formats) should contact the Drinking Water and Environmental Health Division at 517-294-8544 at least 10 days prior to the hearing date. Information at this meeting will be presented by speakers and printed handouts.

RECEIVED by MSC 3/29/2024 10:10:36 AM



Powered by the Michigan Press Association

AFFIDAVIT OF PUBLICATION

827 N. Washington Ave. Lansing, MI 48906
517.372.2424 solutions@mediaplacementone.com



Advertiser: Michigan Department of Environment, Great Lakes, and Energy

Date of order: December 5, 2019

This is to certify that the Public Notice scheduled to run in the newspaper listed ran as the placement details below and proof of publication is attached.

Newspaper Name: Marquette Mining Journal

| Run Date | Ad Size | Caption/Position/Special Instructions |
|----------|-------------|---|
| 12/12/19 | 3 col. x 9" | Public Hearing Notice- EGLE- Daily insertion Cost- 3 col. X 9" B&W ad |

Signed by (MP1/MANSI Representative)

Date: December 12, 2019

Notary Public:

Signed by (Notary Public)

Date: December 12, 2019

JAMES R. TARRANT
NOTARY PUBLIC – STATE OF MICHIGAN
COUNTY OF VAN BUREN
My commission expires April 12, 2023
Acting in the County of Ingham

State / Nation / World

RECEIVED by MSC 3/29/2024 10:10:36 AM



Family of volcano victim Hayden Marshall-Inman, walks from a meeting with Police Minister Stuart Nash and officials in Whakatane, New Zealand, today. The volcano on White Island has continued venting steam and mud, delaying plans by authorities to recover the bodies of victims from the volcano site. Authorities believe there are eight bodies that remain on the island following Monday's eruption. (AP photo)

Team to try to retrieve bodies despite the risk

WHAKATANE, New Zealand (AP) — A team of eight New Zealand military specialists will land on a small volcanic island just after first light Friday to attempt to retrieve the bodies of eight victims of an eruption that claimed eight other lives.

New Zealand police said today the recovery attempt will go ahead even though scientists believe another eruption is possible on White Island. Steam and mud are emitting from its active vents and volcanic tremors are rising, volcanologists said.

Police, military, volcano experts and others will monitor the recovery attempt from the HMNZS Wellington, which will be stationed nearby, authorities said.

Police Deputy Commissioner Mike Clement told reporters the recovery operation is "not without risk."

"They will go onto the island and they will make every effort to recover all of the bodies," Clement said at a news conference.

The continuing volcanic activity has delayed the recovery of the last victims since Monday's deadly eruption, which occurred as 47 tourists were exploring the island. In addition to the bodies left on the island, eight other people were killed and dozens were severely burned by the blast of scalding steam and ash.

Police have cited the need to preserve evidence that would help identify the victims as a reason to take a methodical approach, but the decision to commit to a faster recovery attempt appeared to have been partly motivated by weather forecasts.

Rain mixing with the heavy volcanic ash lying on the island could encase the bodies in a cement-like substance, making recovery more difficult.

"My concerns remain the weather, the direction of the wind, the sea state because they all bring risk and add complexity," Clement said.

New Zealand medical staff were working around the clock to treat the injured survivors in hospital burn units.

The enormity of the task was clear when Dr. Peter Watson, a chief medical officer, said at a news conference that extra skin has been ordered from American skin banks. Hospital personnel anticipated needing an extra 120 square meters (1,300 square feet) of skin for grafting onto the patients, Watson said.

Volcanologist Nico Fournier warned earlier that White Island remained "highly" volatile. The GeoNet seismic monitoring agency has maintained the island's volcanic alert level at 2, noting there's been no eruption since Monday. On the scale, 2 signifies unrest while 3 signifies a major eruption.

White Island is the tip of a mostly undersea volcano that's about 50 kilometers (30 miles) off New Zealand's North Island and has been visited by thousands of tourists each year.

He said the committee should consider whether the evidence shows that Trump committed these acts, if they rise to the level of impeachable high crimes and misdemeanors and what the consequences are if they fail to act.

Judiciary panel takes first steps toward impeachment vote

WASHINGTON (AP) — The House Judiciary Committee has taken the first steps toward voting on articles of impeachment against President Donald Trump, beginning a marathon two-day session to consider the historic charges with a lively prime-time hearing at the Capitol.



NADLER

Democrats and Republicans used the otherwise procedural meeting Wednesday evening to deliver sharp, pointed and, at times, personal arguments for and against impeachment. Both sides appealed to Americans' sense of history.

The committee is considering two articles of impeachment introduced by Democrats. They charge Trump with abuse of power for asking Ukraine to investigate Joe Biden while withholding aid as leverage, and obstruction of Congress for stonewalling the House's investigation.

Today, the committee will likely vote to send the articles to the full House, which is expected to vote next week.

Democrats are unified. They have agreed to the language, which spans only nine pages and says that Trump acted "corruptly" and "betrayed the nation" when he asked Ukraine to investigate Joe Biden and the 2016 U.S. election.

House Judiciary Committee Chairman Jerrold Nadler opened the hearing by making a final argument for impeachment and urging his Republican colleagues to reconsider.

He said the committee should consider whether the evidence shows that Trump committed these acts, if they rise to the level of impeachable high crimes and misdemeanors and what the consequences are if they fail to act.

"When his time has passed, when his grip on our politics is gone, when our country returns, as surely it will, to calmer times and stronger leadership, history will look back on our actions here today," Nadler said.

"How would you be remembered?"

Michigan is poised to legalize sports, online gambling

By DAVID EGGERT Associated Press

LANSING — Michigan's Legislature voted Wednesday to legalize sports betting and internet gambling, expanding options for gamblers in a state with three commercial casinos in Detroit and two dozen tribal casinos elsewhere.

The bills reflect a compromise with Gov. Gretchen Whitmer after lawmakers agreed to a higher tax on i-gambling than was initially proposed. Michigan will become the 20th state to authorize sports wagers and the fifth to allow casino-style games to be played online.

A look at the development: **WHEN MAY SPORTS BETTING BEGIN?**

Casinos will need a license from state regulators who will be writing rules. Some lawmakers had hoped sports wagering could start by the Super Bowl, in early February. Sen. Curtis Hertel Jr., an East Lansing Democrat, doubted it could begin by then but said the NCAA basketball tournament, which starts in mid-March, is a realistic goal. It may take longer to set up mobile sports betting and online games. A spokeswoman for the Michigan Gaming Control Board declined to comment until the bills are on the governor's desk.

WHY ALLOW IT?

Supporters said gamblers already are betting on sports and gambling online through illegal bookies or non-U.S. websites. "Frankly you don't even know if you're getting your money back if you win," Hertel said. Legalizing sports and i-gambling will protect consumers and generate new tax revenue for local and state governments, they said. "Providing a legal and safe and regulated option that actually brings in money for the state is a good thing. I trust people to make decisions with their own lives," Hertel said.

HOW MUCH REVENUE?

Casinos that open physical or online sports books will pay an 8.4% tax on receipts after winnings are paid out. Those offering online games like poker will pay a tax of between 20% and 28%, depending on their amount of adjusted gross receipts. Projecting i-gambling revenues is difficult because of the potential "substitution effect" — people who play the Lottery online migrating to poker and other internet games offered by the casinos — and a range of other complicating factors. The nonpartisan Senate Fiscal Agency projects that if gambling activity rises by 5%, it would generate nearly \$1.8 billion in new taxes or similar tribal revenues.

WHO BENEFITS?

Much of that money, up to \$1.4 billion,



Michael Hernandez uses a kiosk to place sports wagers at Ameristar Casino in East Chicago, Ind., Sept. 1. (Kate Wilk/The Times via AP)

would go to the state's school aid fund, which covers public schools. That would equate to nearly \$10 per student. Some revenue, \$4 million a year, would be earmarked to a state fund that compensates first responders for lost wages and medical benefits if they get cancer from fighting fires.

CRITICISM

While the main bills won overwhelming approval on Wednesday, 35-3 in the Senate and 16-12 and 100-8 in the House, there were some detractors. Sen. Ed McBroom, a Ypsilanti Republican, said gambling is a vice that "preys on the most vulnerable in our society by promising something for nothing.... The purpose of legalized and organized gambling is the industrialized mass extraction of people's money."

AGE

Only those age 21 and older could participate.

IN-GAME BETTING

Michigan will allow in-game sports bets — the outcome of a drive in football, what the next hitter will do in baseball — not just wagers placed before an athletic game starts. In-play wagers would be based on official data supplied by sports leagues, unless a casino can show regulators that a sports governing body will not provide a feed on "commercially reasonable terms." Rep. Brandt Iden, an Oshtemo Township Republican, called the in-game option a "key part" of the legislation.

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
Drinking Water and Environmental Health Division

SUPPLYING WATER TO THE PUBLIC
Rule Set 2019-35 EG

NOTICE OF PUBLIC HEARING

| | | |
|---|---|--|
| Wednesday, January 8, 2020 Grand Valley State University LV Eberhard Center 301 Fulton St. W, Grand Rapids Room EC 215, 5:00 – 8:00 p.m. | Tuesday, January 14, 2020 Washtenaw Community College Morris Lawrence Building 4800 E Huron River Dr, Ann Arbor Towles Auditorium, 5:00 – 8:00 p.m. | Thursday, January 16, 2020 Ralph A. MacMullan (RAM) Conference Center 104 Conservation Dr. Roscommon Au Sable Classroom, 5:00 – 8:00 p.m. |
|---|---|--|

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Drinking Water and Environmental Health Division, will hold three public hearings on the dates and at the locations listed above from 5:00 to 8:00 p.m. The hearings will be held to receive public comments on proposed changes to the rules titled Supplying Water to the Public.

The proposed rule set (2019-35 EG) will amend the current rules to provide provisions that reduce exposure to several per- and polyfluorinated substances (PFAS) in drinking water. The provisions include establishment of drinking water standards, sampling requirements, public notification requirements, and laboratory certification criteria.

These rules are promulgated by authority conferred on the Director of EGLE by Section 5 of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), identified as R 325.10101 through R 325.12820. These rules will take effect 7 days after filing with the Secretary of State.

The rules (2019-35 EG) are published on the Michigan Office of Administrative Hearings and Rules' Web site at Michigan.gov/MOAH. Click on "Administrative Rules," "Pending Rules Activity" and then "Pending Rule Changes." Sort by Department – Bureau and scroll to Rule Set # 2019-35 EG and click on "Draft Rule Language." The rules will also be published in the January 1, 2020 issue of the Michigan Register.

Any interested person is invited to attend and present their views. It is requested that all statements to be submitted for the hearing record. Anyone unable to attend may submit comments in writing to the following mailing or e-mail address by 5:00 p.m. on Friday, January 31, 2020. Copies of the draft rules may also be obtained by mail or electronic transmission by submitting a request to the following address:

Drinking Water and Environmental Health Division
Michigan Department of Environment, Great Lakes, and Energy
Attention: Suzanne Ruch
PO Box 30817
Lansing, Michigan 48909-9311
Phone: 517-284-6544
Fax: 517-241-1328
E-Mail: EGLE-PFAS-RuleMaking@Michigan.gov

All hearing sites are accessible, including handicap parking. People with disabilities requesting additional accommodations in order to participate in the hearing (such as information in alternative formats) should contact the Drinking Water and Environmental Health Division at 517-284-6544 at least 10 days prior to the hearing date. Information at this meeting will be presented by speakers and printed handouts.

SECOND THURSDAY CREATIVITY SERIES
Thursday, December 12
6:30-7:30 p.m.
Join us for a jolly time with **"ALL ABOARD: THE POLAR EXPRESS"** themed crafts, creative snacks, live music.
Enjoy Culture's frozen custard sundae bar.
This event is FREE admission for all thanks to sponsorship.

The UP Children's Museum
OPEN 7 DAYS A WEEK!
123 W. Baraga Ave., Marquette
mu@upchildrensmuseum.org • 226-3911

St. Mark's Fine Jewelry
CELEBRATING 30 YEARS!
1000 W. Grand Ave., Grand Rapids
226-3911

Nango's PILATES
Dine Local
1100 W. Grand Ave., Grand Rapids
226-7707

City of Negaunee PUBLIC HEARING
Planning Commission
Adding Marihuana Establishments to Industrial
12/17/2019
Negaunee Senior Center 6pm

Saukly's Candies
FINE CHOCOLATE SELECTIONS
CHOCOLATE NOVELTIES
YOOPEE BARS
JELLY BELLIES
YOOPEE TRAIL MIX
CUSTOM GIFT BASKETS & CRATES

NEW! SHOP ONLINE SAUKLYSCANDIES.COM
The Jandron Retail Center Mon-Fri 10-7
10000 E. Grand Ave., Grand Rapids, MI 49512
Phone: 226-3986
Saturday 10-6
Sunday 12-6

SHOP LOCAL!

March 23, 2020

Via E-Mail

Joint Committee on Administrative Rules
Boji Tower - 3rd Floor
124 West Allegan St.
P. O. Box 30036
Lansing, MI 48909-7536
JCAR@legislature.mi.gov

Re: Draft Proposed Rule Set 2019-35 EG (Supplying Water to the Public)

Dear Committee Members:

On behalf of the Environmental Rules Review Committee (“ERRC”), I am writing this letter to provide the Joint Committee on Administrative Rules (the “Committee”) with additional context regarding the ERRC’s review of draft proposed rules 2019-35 EG (the “Rules”), which have been submitted to the Committee. As you may know, the ERRC was created pursuant to Public Act 267 of 2018 (the “Act”), with a mandate to oversee all rulemaking of the Michigan Department of Environment, Great Lakes, and Energy (“EGLE”). The ERRC is comprised of four ex-officio department heads and 12 members, appointed by the Governor, who represent different industries and organizations outlined in statute.

The ERRC approved the draft proposed rules at its February 27, 2020 meeting, concluding that the Rules met the five criteria set forth in Section 66(4) of the Act. However, notwithstanding its approval of the Rules, the ERRC raised several questions and concerns regarding the Rules and their interpretation and implementation. This letter describes several of those questions and concerns, at a high level, for the Committee’s consideration.

1. EGLE should proactively offer guidance to the regulated community as the Rules are implemented. As drafted, the Rules create ambiguity with respect to certain regulations which are ancillary to drinking water, including Part 201 clean-up criteria and regulations of biosolids, compost and soils. The ERRC reviewed the impact the new MCLs in the Rules could have on other criteria for management of biosolids, compost, and relocated soils from construction projects. The current EGLE published and enforced standards for soils protective of drinking water are .24 ppb for PFOS and 59 ppb for PFOA. Standard practices of EGLE have resulted in changes to the soil and groundwater cleanup standards under Part 201 which would change the PFAS soils criteria based on the new MCLs. Specific issues discussed by the ERRC included the following:

- The City of Ann Arbor has reported an average of about 1.3 ppb of PFOA in 3 compost samples which would be in excess of the generic soil protective of groundwater criteria of 20X the proposed drinking water MCL of 8 ppt – or now .16 ppb in soils/compost if the soil criteria were changed. First EGLE stated that they do not intend to change any standards until they complete a review of the fate and transport of PFAS in compost (and soils). EGLE staff further explained that they focus on the concentration of PFAS in the mixture of soils and compost after the compost is applied and mixed into the soil (in gardens or flower beds for example). That dilution of the PFAS by dispersion (mixing in soils) is expected to reduce concentrations to levels that would not be of concern. The expectation is - if applied and used appropriately there should not

be an unacceptable exposure to surface water or groundwater from the reuse of compost with that level of PFAS present in the Ann Arbor compost. Sites that make compost will require attention to make sure the composting site and compost materials are properly managed.

- Although Rule 299.22 requires that soils not contain PFAS at levels that would “pose a threat of aquifer contamination” and adopts new MCLs as applicable groundwater criteria, EGLE stated that it does not intend to change any current criteria or use a generic 20x value to set revised criteria until EGLE completes a review of PFAS fate and transport and better understands the basis for establishing appropriate screening levels for PFAS in biosolids, compost and soils in general. EGLE staff also stated that they have not calculated soil-water partitioning coefficients yet and that a change in criteria would require a promulgation process. EGLE is concerned about a rush to change standards (like some other states have done) and that EGLE intends to develop a model used to set screening levels in biosolids – and by reference other materials such as compost and soils.
- EGLE does not intend to send violation notices to compost operations or owners of property on which biosolids have been applied. EGLE does not want to establish properties as a “facility” until the fate and transport issues are better understood.
- EGLE stated they could not imagine anyone attempting a generic cleanup at present, and instead, property owners should be working with EGLE to apply site specific risk assessment principles to manage PFAS. The goal is for EGLE to work with the regulated community on these cleanup plans in order to get the best site-specific decisions.

EGLE leadership acknowledged these issues at the ERRC’s February 27 meeting, but stated that protecting drinking water was the highest priority, and assured the ERRC that the collateral impact of any of the Rules will be worked through promptly by EGLE staff. EGLE should work with the regulated community to provide clarity and guidance around EGLE’s positions on these areas of regulation impacted by the Rules.

2. The role of MPART and the Science Advisory Workgroup. The written public comments submitted in response to the Rules included multiple technical reports that exhaustively analyzed the report of the MPART Science Advisory Workgroup. The Science Advisory Workgroup had recommended health-based values for various PFAS compounds. Following adoption of those recommendations by MPART, the health-based values ultimately became the MCLs set forth in the Rules. Following the public comment period, EGLE shared those reports with both the MPART Human Health Workgroup and the Science Advisory Workgroup. The ERRC believes that it is important that the record show that both the MPART Human Health Workgroup and the Science Advisory Workgroup reviewed the public comments relating to the health-based values and concluded that the Science Advisory Workgroup’s original conclusions were appropriate and protective of public health. The ERRC encourages MPART or the Science Advisory Workgroup to provide more detailed written responses to those public comments.

3. EGLE’s commitment to updating the Rules based on evolving science. Many of the public comments recommended that, in light of the rapidly evolving science around the human health effects of PFAS compounds, the Rules be modified to add a requirement that EGLE review the Rules in two years and revise them as necessary to reflect the then-current science. EGLE declined to include any type of sunset provision in the Rules. However, EGLE assured the ERRC that the Rules, the developing science around PFAS compounds, and the regulatory approaches taken by other states and the federal government will be reviewed on a continuous basis by MPART’s Human Health Workgroup, which is led by Steve Sliver and meets on a monthly basis. That group will recommend necessary changes to the Rules as the science clarifies the human health effects of these compounds.

Thank you in advance for your consideration of this letter. Please don't hesitate to contact me at nederhoodr1@michigan.gov or 313-384-8058 with any questions.

Regards,

A handwritten signature in blue ink that reads "Rob Nederhood". The signature is fluid and cursive, with the first name "Rob" and last name "Nederhood" clearly legible.

Rob Nederhood
Chairman
Environmental Rules Review Committee

cc: Environmental Rules Review Committee

Michigan Office of Administrative Hearings and Rules

Administrative Rules Division (ARD)

611 W. Ottawa Street

Lansing, MI 48909

Phone: 517-335-8658 Fax: 517-335-9512

**REGULATORY IMPACT STATEMENT
and COST-BENEFIT ANALYSIS (RIS)**

Agency Information:

Department name:

Environment, Great Lakes and Energy

Bureau name:

Remediation and Redevelopment Division

Name of person filling out RIS:

Kevin Schrems

Phone number of person filling out RIS:

517-275-1180

E-mail of person filling out RIS:

schremsk@michigan.gov

Rule Set Information:

ARD assigned rule set number:

2020-130 EQ

Title of proposed rule set:

Cleanup Criteria Requirements for Response Activity

Comparison of Rule(s) to Federal/State/Association Standard

1. Compare the proposed rules to parallel federal rules or standards set by a state or national licensing agency or accreditation association, if any exist.

There are no parallel promulgated federal rules for cleanup criterion to make a comparison. Several states have developed compliance requirements, screening levels, or other adopted standards for per- and polyfluoroalkyl substances (PFAS).

A. Are these rules required by state law or federal mandate?

No, there is not a state or federal mandate. This rule builds on the rules promulgated by the Department of Environment, Great Lakes, and Energy (EGLE) and approved by the Environmental Rules Review Committee (ERRC) in 2020 that established PFAS standards for safe water at public water supplies. This proposed rule will ensure that the drinking water of all Michigan citizens, whether from a public water supply or for a private well, are equally protected.

Section 20104(1) of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), authorizes EGLE to promulgate rules. Michigan Compiled Laws (MCL) 324.20120a(17) mandates that the department shall promulgate all generic cleanup criteria and target detection limits as rules except in those circumstances where generic cleanup criteria are determined by MCL 324.20120a(5) and (23) and MCL 324.20120e(1)(a). Consistent with MCL 324.20120a(5) and Rule 299.6(11) EGLE replaced the existing generic cleanup criteria for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS) with the State Drinking Water Standards (SDWS), otherwise known as maximum contaminant levels, that were promulgated on August 3, 2020. These criteria are effective and legally enforceable by operation of law. MCL 324.20120a(23) requires that new generic cleanup criteria for Perfluorononanoic Acid (PFNA), Perfluorohexane Sulfonic Acid (PFHxS), Perfluorobutanesulfonic Acid (PFBS), Perfluorohexanoic Acid (PFHxA), and Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) that are published pursuant to this subsection take effect and are legally enforceable when published by the department if the department also initiates rulemaking to promulgate rules for the new criteria within 30 days.

B. If these rules exceed a federal standard, please identify the federal standard or citation, describe why it is necessary that the proposed rules exceed the federal standard or law, and specify the costs and benefits arising out of the deviation.

These rules do not exceed a federal standard.

2. Compare the proposed rules to standards in similarly situated states, based on geographic location, topography, natural resources, commonalities, or economic similarities.

The proposed rules' generic cleanup criteria for groundwater used for drinking water for PFAS were compared to groundwater or drinking water standards for PFAS of other U.S. Environmental Protection Agency Region 5 states. Minnesota [PFHxS] has values for drinking water or groundwater protection that are lower than the proposed generic cleanup criteria for groundwater used for drinking water for PFAS. (Source: January 2021 Interstate Technology Regulatory Council).

A. If the rules exceed standards in those states, please explain why and specify the costs and benefits arising out of the deviation.

This rule builds on the rules promulgated by EGLE and approved by the ERRC in 2020 that established PFAS standards for safe water at public water supplies. This proposed rule will ensure that the drinking water of all Michigan citizens, whether from a public water supply or for a private well, are equally protected. Currently nearly 3 million people obtain their drinking water from a private well. Individuals using these wells are not currently protected from PFAS contamination to the same degree that citizens who obtain their water from a public water supply are protected.

This rule also creates regulatory certainty for individuals that cause or are impacted by PFAS contamination in groundwater used for drinking water. Michigan uses the generic cleanup criteria to determine "facility" status. Determining facility status is the threshold for all responsibilities and requirements of the cleanup program. Michigan's generic cleanup criteria also provides a party responsible for addressing a contaminant with an initial screening tool to determine if response activities or other actions should be taken at a contaminated site. A responsible party can use these generic cleanup criteria as their cleanup levels to achieve "no further action." A responsible party also has the ability to use site-specific criteria based on a site-specific risk assessment in lieu of the generic cleanup criteria.

3. Identify any laws, rules, and other legal requirements that may duplicate, overlap, or conflict with the proposed rules.

The proposed rules do not duplicate, overlap, or conflict with any other laws, rules, or legal requirements.

A. Explain how the rules have been coordinated, to the extent practicable, with other federal, state, and local laws applicable to the same activity or subject matter. This section should include a discussion of the efforts undertaken by the agency to avoid or minimize duplication.

In accordance with the procedures established in Part 201, the generic criteria proposed in these regulations are identical to the SDWS promulgated on August 3, 2020, pursuant to the Supplying Water to the Public rules (R 325.10101 – R 325.12820) and Section 5 of the Safe Drinking Water Act, 1976 PA 399, as amended (MCL 325.1005). This ensures that all drinking water in Michigan is protected equally.

The following NREPA standards will apply to PFAS contamination governed by Part 201; Part 213, Leaking Underground Storage Tanks; Part 111, Hazardous Waste Management; Part 31, Water Resources Protection (groundwater discharge remediation); and Part 115, Solid Waste Management. This applicability creates consistency across all EGLE cleanup programs and ensures that all drinking water in the state is adequately and equitably protected.

4. If MCL 24.232(8) applies and the proposed rules are more stringent than the applicable federally mandated standard, provide a statement of specific facts that establish the clear and convincing need to adopt the more stringent rules.

MCL 24.232(8) does not apply as there are no federally mandated cleanup standards or criteria for PFAS in the groundwater. In any event, there is a “clear and convincing need” for these rules given the prevalence of PFAS contamination within the state and its potential impact on individual water supply wells that rely on groundwater as a drinking water source. The state and other entities have conducted extensive sampling for PFAS and have identified at least 154 sites where groundwater is impacted by the release of PFAS into the environment. This presents an ongoing risk to public health, safety, and welfare and the environment.

5. If MCL 24.232(9) applies and the proposed rules are more stringent than the applicable federal standard, provide either the Michigan statute that specifically authorizes the more stringent rules OR a statement of the specific facts that establish the clear and convincing need to adopt the more stringent rules.

MCL 24.232(9) does not apply as there are no applicable federal cleanup standards or criteria for PFAS in the groundwater.

Purpose and Objectives of the Rule(s)

6. Identify the behavior and frequency of behavior that the proposed rules are designed to alter.

These rules will provide the basis for identifying hazardous levels of PFAS in the environment and will assist responsible parties and the public with the information necessary to take actions that protect the public from unhealthy exposure to these hazardous substances.

A. Estimate the change in the frequency of the targeted behavior expected from the proposed rules.

This proposed rule would apply to any property where groundwater has been contaminated by PFAS above the state’s generic criteria for groundwater used for drinking water. EGLE does not have the data necessary to identify the number of locations potentially affected by groundwater contaminated with these PFAS, because there is not always a statutory obligation to report the discovery of PFAS contamination to the department.

To date, 154 locations have been identified where groundwater contaminated with PFAS is present above enforceable generic cleanup criteria for groundwater used for drinking water for PFOA and PFOS. The department has also identified locations where concentrations of PFNA, PFHxS, PFBS, PFHxA, and HFPO-DA have been detected above their respective criteria in addition to PFOA and PFOS. Since the same treatment technology can be used to address all seven PFAS, the department does not anticipate that additional actions would be required above and beyond those already required by the presence of PFOA and PFOS contamination.

B. Describe the difference between current behavior/practice and desired behavior/practice.

On December 15, 2020, EGLE published the proposed generic cleanup criteria for groundwater used for drinking water for PFNA, PFHxS, PFBS, PFHxA, and HFPO DA pursuant to MCL 324.20120a(23). This proposed rule codifies these generic cleanup criteria pursuant to MCL 324.20120a(5). Completing this step as required by Part 201, Michigan will be able to ensure that all drinking water, irrespective of source, is protected from PFAS equally.

C. What is the desired outcome?

This proposed rule will protect Michigan citizens from potential health impacts caused by PFAS contamination. It equally protects all Michigan citizens' drinking water from PFAS contamination regardless if a person's source of drinking water is a regulated municipal water supply system or an individual water supply well that relies on groundwater.

7. Identify the harm resulting from the behavior that the proposed rules are designed to alter and the likelihood that the harm will occur in the absence of the rule.

Exposure to PFAS chemicals has been shown to cause numerous adverse health impacts. The Science Advisory Workgroup (SAW) assigned by the Michigan PFAS Action Response Team (MPART) identified seven PFAS contaminants of concern for which, in their professional judgement, there was enough scientific evidence to establish Health-Based Values (HBVs). HBVs establish a level of contamination below which there is not expected to be adverse health impacts. The generic criteria established in this proposed rule are consistent with these HBV and the SDWS established in 2020. This rule ensures that all drinking water in the state is protected, regardless of whether the drinking water comes from a public water supply or a private well.

A. What is the rationale for changing the rules instead of leaving them as currently written?

MCL 324.20120a(23) requires the department to initiate rulemaking to promulgate rules for any criteria that are established for a hazardous substance that does not have any generic criteria. Part 201 also defines that the generic criteria for groundwater used for drinking water have the same value as a SDWS established in accordance with the SDWA.

8. Describe how the proposed rules protect the health, safety, and welfare of Michigan citizens while promoting a regulatory environment in Michigan that is the least burdensome alternative for those required to comply.

The fundamental objective of the Remediation and Redevelopment Division (RRD) programs is to manage risks from environmental contamination in a manner that is protective of public health, safety, and welfare and the environment. The proposed promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS is designed to meet this objective. The use of the proposed generic cleanup criteria for groundwater used for drinking water for PFAS to support risk management decisions provides a less burdensome alternative than the development of site-specific criteria or conducting a site-specific risk assessment. Most response activity relying upon generic cleanup criteria can be self-implemented by liable parties or potential owners of contaminated properties, reducing transaction costs. Development of site-specific criteria or reliance on a site-specific risk assessment requires EGLE involvement in review and approval to ensure the protection of public health, safety, and welfare and the environment, increasing the expenditure of time and money for the development of site-specific criteria and subsequent interactions. Statutory risk management options do not require remediation (cleanup, removal, treatment, etc.) using the generic cleanup criteria. The statutory alternatives offer flexibility to the regulated community to select response activity necessary to safely manage the risk associated with the contamination.

The proposed generic cleanup criteria for groundwater used for drinking water for PFAS also allows the least burdensome alternative to determine a property is a "facility" for property transactions. The proposed generic cleanup criteria for groundwater used for drinking water for PFAS allows a more accurate evaluation of the risk represented by the contamination for a purchaser without requiring the development of site-specific criteria or a site-specific environmental assessment. Purchasers of properties can limit their liability for cleanup of past environmental concerns based upon generic cleanup criteria. Financial institutions rely on the generic cleanup criteria to evaluate whether properties are "facilities" that give rise to environmental response obligations at properties for which they may acquire an interest or provide loan funds. Brownfield financial incentives, such as grants, loans, and tax increment financing, are available to properties meeting the definition of a "facility." Brownfield redevelopment incentives promote the reuse of contaminated properties in a manner that is protective of public health, safety, and welfare and the environment.

9. Describe any rules in the affected rule set that are obsolete or unnecessary and can be rescinded.

This rule package does not propose to rescind rules that are obsolete or unnecessary.

Fiscal Impact on the Agency

Fiscal impact is an increase or decrease in expenditures from the current level of expenditures, i.e. hiring additional staff, higher contract costs, programming costs, changes in reimbursements rates, etc. over and above what is currently expended for that function. It does not include more intangible costs for benefits, such as opportunity costs, the value of time saved or lost, etc., unless those issues result in a measurable impact on expenditures.

10. Please provide the fiscal impact on the agency (an estimate of the cost of rule imposition or potential savings for the agency promulgating the rule).

The proposed promulgation of generic cleanup criteria for groundwater used for drinking water for these PFAS result in minimal change to the existing fiscal impact to EGLE. EGLE costs for training, training materials, and outreach for rule implementation are expected to be minimal. The proposed rules will be implemented using existing resources.

11. Describe whether or not an agency appropriation has been made or a funding source provided for any expenditures associated with the proposed rules.

There have been no agency appropriations or funding sources provided for any expenditures directly related to these proposed rules.

12. Describe how the proposed rules are necessary and suitable to accomplish their purpose, in relationship to the burden(s) the rules place on individuals. Burdens may include fiscal or administrative burdens, or duplicative acts.

Failure to establish these standards puts public health at risk. These standards are necessary to protect the public from the risk of drinking groundwater contaminated by PFAS.

The promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS, by itself, does not impose any burden on an individual. However, if an individual is responsible for a site of PFAS contamination, then it is not unreasonable to expect that there will be costs to address the pollutants that they are responsible for to ensure citizens are not harmed by the contamination. To the same extent when the state undertakes cleanup actions at orphan sites it will be subject to these same expectations in order to protect public health.

Compliance obligations are embodied in the remedial action or corrective action requirements of the statutes that rely upon the generic cleanup criteria. Any fiscal or administrative burdens associated with these rules would be incurred in the same manner as those necessary to comply with statutory obligations to address the release of any hazardous substance.

A. Despite the identified burden(s), identify how the requirements in the rules are still needed and reasonable compared to the burdens.

Failure to establish these rules will leave roughly 3 million Michiganders who rely on a private well for their drinking water without the assurances that their drinking water will be safe from PFAS contamination. These citizens deserve the same protections that Michigan provides to the 7 million citizens who are connected to a public water supply.

Impact on Other State or Local Governmental Units

13. Estimate any increase or decrease in revenues to other state or local governmental units (i.e. cities, counties, school districts) as a result of the rule. Estimate the cost increases or reductions for other state or local governmental units (i.e. cities, counties, school districts) as a result of the rule. Include the cost of equipment, supplies, labor, and increased administrative costs in both the initial imposition of the rule and any ongoing monitoring.

While it is possible that a local government unit may be responsible for causing a release of PFAS that affects groundwater, it is more likely that they are impacted by a release caused by another party. Many communities are currently struggling to pay for water supply lines that will allow residents who have a contaminated well to get a safe alternative for water. Michigan has some communities where key development opportunities are stopped because a site has PFAS-contaminated groundwater. The burden that PFAS contamination has placed on Michigan communities is real and significant.

The generic cleanup criteria rules facilitate property transactions to occur and, therefore, enable the redevelopment and reuse of previously contaminated, vacant properties. Redevelopment of abandoned properties has been documented to increase the property values of the surrounding neighborhood, adding to the increase of local tax revenue.

If a local government was responsible for the release and, as a result, is subject to state statutes governing the cleanup of contamination, the costs associated with the cleanup would vary location to location depending on a number of factors – the proximity of wells used for drinking water supply, the ability to contain and properly manage the release, the volume and concentration of the pollutant in the groundwater, etc. Because of this variability, EGLE is unable to quantify any significant impact on gross revenues to other state or local governmental units as a result of the promulgation of the generic cleanup criteria for groundwater used for drinking water for these PFAS.

14. Discuss any program, service, duty, or responsibility imposed upon any city, county, town, village, or school district by the rules.

The proposed promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS, by itself, does not impose any new programs, services, duties, or responsibilities upon any city, county, town, village, or school district simply due to their rural location. Where a city, county, town, village, or school district is the owner or operator responsible for a site of PFAS contamination, there may be costs of compliance associated with these rules that would be incurred in the same manner as those necessary to comply with statutory obligations to address the release of any hazardous substance.

A. Describe any actions that governmental units must take to be in compliance with the rules. This section should include items such as record keeping and reporting requirements or changing operational practices.

These proposed rules do not establish any new compliance requirements. Existing statutes, including Parts 201, 213, 111, 31, and 115, dictate the administrative and technical requirements associated with addressing a contaminated facility.

15. Describe whether or not an appropriation to state or local governmental units has been made or a funding source provided for any additional expenditures associated with the proposed rules.

An appropriation to state or local governmental units has not been made or a funding source provided for any additional expenditures that are directly related to these proposed rules. However, to date, Michigan has provided over \$150 million for statewide PFAS response efforts and financial assistance to local governments to help them pay for PFAS contamination impacting their communities.

Rural Impact

16. In general, what impact will the rules have on rural areas?

The presence of PFAS in the environment poses a risk to public health and the environment no matter where PFAS comes to be located. Rural areas may have a higher percentage of people who rely on individual water supply wells that use groundwater as a drinking water source.

These proposed rules will ensure that the drinking water of all Michigan citizens, whether from a public water supply or from a private well, are equally protected. The proposed rules for the generic cleanup criteria for groundwater used for drinking water for PFAS will allow for appropriate risk management decisions with respect to sites of environmental contamination in rural areas that are necessary to protect public health and the environment.

A. Describe the types of public or private interests in rural areas that will be affected by the rules.

Citizens in rural Michigan will be assured that their drinking water is being protected from PFAS contamination to the same degree that citizens who get their drinking water from a public water supply are having their drinking water protected.

If an entity in rural Michigan is responsible for addressing a release of PFAS to groundwater used for drinking water, the proposed rules do not result in additional costs simply due to the rural location. It is possible that the cost to address a release of PFAS in a rural area could have some additional costs because rural areas often have a higher percentage of the population that rely on individual water supply wells as a drinking water source.

Environmental Impact

17. Do the proposed rules have any impact on the environment? If yes, please explain.

The fundamental objective of the RRD programs is to manage risks from environmental contamination in a manner that is protective of public health and the environment. Groundwater contaminated by PFAS can transport PFAS to nearby surface waters, which can adversely affect environmental health and quality. While these rules are focused on the prevention of public health impacts to humans caused by drinking PFAS-contaminated groundwater, any cleanup activities resulting from providing their protection will undoubtedly benefit the environment as well.

Small Business Impact Statement

18. Describe whether and how the agency considered exempting small businesses from the proposed rules.

Exempting small businesses from the proposed rules was not appropriate for this rule. The proposed PFAS generic cleanup criteria for groundwater used for drinking water apply to all businesses, regardless of size. While EGLE can work with small businesses to identify reasonable solutions for addressing PFAS, the level of protection provided to citizens exposed to PFAS should not be adjusted based on the size of the facility responsible for the contamination.

19. If small businesses are not exempt, describe (a) the manner in which the agency reduced the economic impact of the proposed rules on small businesses, including a detailed recitation of the efforts of the agency to comply with the mandate to reduce the disproportionate impact of the rules upon small businesses as described below (in accordance with MCL 24.240(1)(a-d)), or (b) the reasons such a reduction was not lawful or feasible.

There is no provision for addressing a small business' compliance obligations differently within the statutes since there is no relationship between the size of a business, the environmental contamination related to a business, and the risk to public health, safety, and welfare and the environment. However, EGLE routinely uses enforcement discretion with regards to the financial viability of a particular business and do a formal assessment of a person's ability to pay for the necessary remedial actions or corrective actions when pursuing compliance and enforcement alternatives.

A. Identify and estimate the number of small businesses affected by the proposed rules and the probable effect on small businesses.

EGLE does not have the necessary data to estimate the number of small businesses responsible for the PFAS contamination because there is not always a statutory obligation to report the discovery of PFAS contamination to the department. In addition, any person can self-implement actions necessary to address the risks associated with PFAS contamination without department approval.

B. Describe how the agency established differing compliance or reporting requirements or timetables for small businesses under the rules after projecting the required reporting, record-keeping, and other administrative costs.

EGLE did not establish differing compliance or reporting requirements or timetables specific to small businesses. The proposed promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS, by itself, does not impose any additional compliance or reporting obligations. The obligations to address the release of any hazardous substance to the environment are embodied in the remedial action or corrective action requirements of the statutes that rely upon the generic cleanup criteria. The proposed promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS does not impact the requirements for reporting and recordkeeping under any of the programs' statutory provisions.

C. Describe how the agency consolidated or simplified the compliance and reporting requirements for small businesses and identify the skills necessary to comply with the reporting requirements.

The proposed promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS does not contain any additional reporting requirements.

D. Describe how the agency established performance standards to replace design or operation standards required by the proposed rules.

The proposed revision and promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS does not include design and operating standards.

20. Identify any disproportionate impact the proposed rules may have on small businesses because of their size or geographic location.

The proposed promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS will not impact small businesses specifically because of their size or location. The impact of these rules is proportional to the nature and extent of the release of PFAS to the environment and the actions necessary to protect public health, safety, and welfare and the environment. This is true for the release of any hazardous substance regardless of who is responsible.

21. Identify the nature of any report and the estimated cost of its preparation by small businesses required to comply with the proposed rules.

The proposed promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS, by itself, does not impose any obligation for a small business to prepare a report for submission to the agency.

22. Analyze the costs of compliance for all small businesses affected by the proposed rules, including costs of equipment, supplies, labor, and increased administrative costs.

The proposed promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS, by itself, does not impose any compliance obligations. The cost of compliance, including costs of equipment, supplies, labor, and increased administrative costs with respect to the implementation of remedial or corrective action relying on the proposed rules, would be incurred in the same manner as those costs to comply with statutory obligations to address the release of any hazardous substance.

The cost to a business to comply with statutory obligations resulting from the contamination at a site are dependent on the type and level of contamination present at a site, the amount and quality of environmental data already known about a site, the type of use of the site, as well as the response activities selected for managing the risks presented by the environmental contamination.

23. Identify the nature and estimated cost of any legal, consulting, or accounting services that small businesses would incur in complying with the proposed rules.

The proposed promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS, by itself, does not impose any compliance obligations. The cost of any legal, consulting, or accounting services would be incurred in the same manner as those costs to comply with statutory obligations to address the release of any hazardous substance.

As previously stated, the cost to a business to comply with statutory obligations resulting from the contamination at a site are dependent on the type and level of contamination present at a site, the amount and quality of environmental data already known about a site, the type of use of the site, as well as the response activities selected for managing the risks presented by the environmental contamination.

24. Estimate the ability of small businesses to absorb the costs without suffering economic harm and without adversely affecting competition in the marketplace.

It is not expected that these rules will adversely affect competition in the marketplace. All businesses that are liable for a release of hazardous substances into the environment are required by statute to address the risks posed by the contamination. There are costs associated with those responsibilities, but as stated above, those costs vary depending on the specifics at the site. EGLE routinely uses enforcement discretion with regards to the financial viability of a particular business and does a formal assessment of a person's ability to pay for the necessary remedial actions or corrective actions when pursuing compliance and enforcement alternatives.

25. Estimate the cost, if any, to the agency of administering or enforcing a rule that exempts or sets lesser standards for compliance by small businesses.

EGLE will not incur any additional costs since the proposed revisions do not specifically exempt or set lesser standards for compliance for small businesses.

26. Identify the impact on the public interest of exempting or setting lesser standards of compliance for small businesses.

There would be an adverse impact to the public if small businesses were exempt or the rules set lesser standards of compliance for small businesses. If a private well is impacted from PFAS contamination originating from a small business, the residents who depend on that well will be at risk. These citizens deserve the same protections that Michigan provides to the 7 million citizens who are connected to a public water supply.

In the event that a small business responsible for a PFAS release fails to appropriately act, the burden to abate the risks caused by the release would be placed on limited public resources.

27. Describe whether and how the agency has involved small businesses in the development of the proposed rules.

In consideration of the proposed rules for the generic cleanup criteria for groundwater used for drinking water for PFAS, EGLE held two public webinars on November 2 and November 16, 2020. In order to facilitate participation for those who were unable to attend these live webinars, the webinars were also recorded for future viewing.

In addition to the webinars, EGLE allowed for a three-week public comment period after the second webinar to allow interested parties to submit comments regarding whether the process for establishing the proposed generic cleanup criteria for groundwater used for drinking water for PFAS followed the regulations under Part 201. An estimated 232 individuals representing federal, state and local governments, large and small businesses, tribal entities, and associations that represent large and small businesses participated in the webinars.

A. If small businesses were involved in the development of the rules, please identify the business(es).

No individual small businesses were directly involved in the development of the proposed rules.

Cost-Benefit Analysis of Rules (independent of statutory impact)**28. Estimate the actual statewide compliance costs of the rule amendments on businesses or groups.**

The proposed promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS, by itself, does not impose any compliance obligations. The cost of compliance would be incurred in the same manner as those costs to comply with statutory obligations to address the release of any hazardous substance. In this case, there will be increased costs if a person (i.e., individual, small or large business, federal, state or local unit of government, etc.) is the owner or operator responsible for a site of PFAS groundwater contamination.

EGLE does not have the ability to estimate the actual statewide compliance costs of the rule amendments on business [or individuals] since the statute does not always require a responsible party to report the presence of PFAS groundwater contamination. To date, 154 locations have been identified where groundwater contaminated with PFAS is present above enforceable generic cleanup criteria for groundwater used for drinking water for PFOA and PFOS. EGLE has also identified locations where concentrations of PFNA, PFHxS, PFBS, PFHxA, and HFPO-DA have been detected above their respective criteria in addition to PFOA and PFOS. Since the same treatment technology can be used to address all seven PFAS, the department does not anticipate that additional actions would be required above and beyond those already required by the presence of PFOA and PFOS contamination.

The costs associated with each cleanup would vary location to location depending on a number of factors – the proximity of wells used for the drinking water supply, the ability to contain and properly manage the release, the volume and concentration of the pollutant in the groundwater, etc.

A. Identify the businesses or groups who will be directly affected by, bear the cost of, or directly benefit from the proposed rules.

Small and large businesses that used products containing PFAS may be directly impacted, if those businesses are responsible for an activity causing a release of the products containing PFAS.

Businesses engaging in property transactions for the redevelopment of contaminated property will benefit from the liability protections that these proposed rules will provide.

The public will directly benefit because the proposed rules will establish cleanup criteria intended to protect public health and the environment and will establish a basis for persons liable for the release of PFAS for undertaking response activities necessary for protecting public health and the environment.

B. What additional costs will be imposed on businesses and other groups as a result of these proposed rules (i.e. new equipment, supplies, labor, accounting, or recordkeeping)? Please identify the types and number of businesses and groups. Be sure to quantify how each entity will be affected.

EGLE does not have the ability to quantify the additional costs of education, training, application fees, examination fees, new equipment, supplies, labor, accounting, or recordkeeping for the public or regulated individuals. Not only are there no reporting requirements to estimate the number of sites that have PFAS groundwater contamination, but a person can self-implement actions necessary to address the risks associated with PFAS contamination without department approval and there is no requirement to report the costs of these actions to EGLE.

29. Estimate the actual statewide compliance costs of the proposed rules on individuals (regulated individuals or the public). Include the costs of education, training, application fees, examination fees, license fees, new equipment, supplies, labor, accounting, or recordkeeping.

The proposed promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS, by itself, does not impose any compliance obligations. The cost of compliance would be incurred in the same manner as those costs to comply with statutory obligations to address the release of any hazardous substance. The proposed rules will only result in increased costs for statutory compliance relative to the cost to comply with the current generic cleanup criteria rules where a person (i.e., individual, small or large business, federal, state or local unit of government, etc.) is the owner or operator responsible for a site of PFAS groundwater contamination.

EGLE does not have the ability to estimate the actual statewide compliance costs of the rule amendments on business [or individuals] since there are no reporting requirements to estimate the number of sites that have PFAS groundwater contamination or the potential additional response activities that may be necessary. In addition, a person can self-implement actions necessary to address the risks associated with PFAS contamination without department approval and there is no requirement to report the costs of these actions to EGLE.

There are no known costs for education, training, application fees, examination fees, new equipment, supplies, labor, accounting, or recordkeeping as a result of these proposed rules.

A. How many and what category of individuals will be affected by the rules?

EGLE does not have data with respect to the number of sites affected by groundwater contaminated with these PFAS, because there is no statutory obligation to report the discovery of PFAS contamination to the department.

To date, EGLE has identified 154 facilities where PFAS exceeds the generic cleanup criteria for groundwater used for drinking water for PFOA and PFOS. EGLE has also identified locations where concentrations of PFNA, PFHxS, PFBS, PFHxA, and HFPO-DA have been detected above their respective criteria in addition to PFOA and PFOS. These facilities are comprised of large and small businesses, public and privately owned or operated waste disposal areas, military installations, and other locations.

These proposed rules will protect Michigan citizens from potential health impacts caused by PFAS contamination. It equally protects all Michigan citizens' drinking water from PFAS contamination regardless of whether a person's source of drinking water is a regulated municipal water supply system or an individual water supply well that relies on groundwater. Roughly 3 million Michiganders rely on a private well for their drinking water. These rules will protect those residents.

B. What qualitative and quantitative impact do the proposed changes in rules have on these individuals?

EGLE does not have the ability to estimate the qualitative and quantitative impact of actual statewide compliance costs of the proposed rules on business [or individuals] since there are no reporting requirements to estimate the number of sites that have PFAS groundwater contamination or the potential additional response activities that may be necessary to protect public health or the environment. There are no known costs for education, training, application fees, examination fees, new equipment, supplies, labor, accounting, or recordkeeping for the public or regulated individuals.

30. Quantify any cost reductions to businesses, individuals, groups of individuals, or governmental units as a result of the proposed rules.

The proposed promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS, by itself, does not impose any costs to these entities; therefore, these proposed rules are not expected to result in any significant cost reductions to businesses, individuals, groups, of individuals, or governmental units. The cost of compliance would be incurred in the same manner as those costs to comply with statutory obligations to address the release of any hazardous substance.

For the entities responsible for the release of PFAS, the proposed rules would establish generic criteria that would provide a cost savings by avoiding the additional costs of developing site-specific criteria or conducting site-specific risk assessments.

These proposed rules also would allow property owners or prospective purchasers of properties to use generic cleanup criteria to evaluate the risk from environmental conditions at the property, avoiding additional costs of developing site-specific criteria or conducting a site-specific risk assessment.

The promulgation of the proposed rules may result in cost reductions to the state of Michigan by establishing an enforceable standard that will allow the state of Michigan to expect response activities from parties responsible for the release of PFAS.

31. Estimate the primary and direct benefits and any secondary or indirect benefits of the proposed rules. Please provide both quantitative and qualitative information, as well as your assumptions.

These rules will provide the basis for identifying hazardous levels of PFAS in the environment and will assist responsible parties and the public with the information necessary to take actions that protect the public from unhealthy exposure to these hazardous substances.

32. Explain how the proposed rules will impact business growth and job creation (or elimination) in Michigan.

The proposed rules will continue to facilitate the sale and redevelopment of contaminated properties based upon scientifically sound risk management for the protection of public health, safety, and welfare and the environment. Businesses engaging in property transactions for the redevelopment of contaminated property will benefit from the liability protections that these proposed rules will provide. The redeveloped properties result in investment in communities, create jobs, improve property values, and provide increased tax revenue to state and local units of government.

33. Identify any individuals or businesses who will be disproportionately affected by the rules as a result of their industrial sector, segment of the public, business size, or geographic location.

The proposed promulgation of the generic cleanup criteria for groundwater used for drinking water for PFAS, by itself, will not disproportionately affect businesses. Only those individuals or businesses responsible for PFAS contamination will be affected. There is no known affect from the proposed rules to specific segments of the public, industrial sectors, business size, and geographic location other than those that have used and released PFAS to the environment.

34. Identify the sources the agency relied upon in compiling the regulatory impact statement, including the methodology utilized in determining the existence and extent of the impact of the proposed rules and a cost-benefit analysis of the proposed rules.

EGLE relied upon department experts and information obtained from existing EGLE data sources in the determination of the impact and estimated costs related to the proposed rules.

A. How were estimates made, and what were your assumptions? Include internal and external sources, published reports, information provided by associations or organizations, etc., that demonstrate a need for the proposed rules.

Reliable, quantifiable estimates cannot be made without knowing the entire universe of sites and the nature and extent of PFAS contamination. As previously stated, the cost to comply with statutory obligations resulting from PFAS contamination at a site are dependent on the type and level of contamination present at a site, the amount and quality of environmental data already known about a site, the type of use of the site, as well as the response activities selected for managing the risks presented by the environmental contamination. In addition, a person can self-implement actions necessary to address the risks associated with PFAS contamination without department approval. As a result, there is not reliable data available to EGLE.

Alternative to Regulation

35. Identify any reasonable alternatives to the proposed rules that would achieve the same or similar goals.

EGLE has not identified any reasonable alternatives. Failure to establish these rules will leave roughly 3 million Michiganders who rely on a private well for their drinking water without the assurances that their drinking water will be safe from PFAS contamination. These citizens deserve the same protections that Michigan provides to the 7 million citizens who are connected to a public water supply.

A. Please include any statutory amendments that may be necessary to achieve such alternatives.

EGLE has not identified a reasonable alternative or any statutory amendments that may be necessary to achieve an alternative, if one existed.

36. Discuss the feasibility of establishing a regulatory program similar to that proposed in the rules that would operate through private market-based mechanisms. Please include a discussion of private market-based systems utilized by other states.

The development of cleanup standards is a state function rather than a private market-based system for other state cleanup programs. The development of site-specific cleanup standards may be required of private parties by other state programs, but the determination of whether the resulting standards are protective of public health, safety, and welfare and the environment is a state agency decision.

A few states have implemented licensed site remediation professional programs that oversee investigation and remediation of contaminated sites and certifies to the state agency full compliance with statute and rules. These programs require any party responsible for an existing or newly identified contaminated site to complete the remediation of the affected properties under specific time frames and regulations. The development of cleanup standards for these states was done by the state agency responsible for environmental protection. An extensive revision to Michigan's cleanup programs would be necessary to mirror these programs, including revisions to Michigan's unique causational liability scheme that has made brownfield redevelopment successful in Michigan.

37. Discuss all significant alternatives the agency considered during rule development and why they were not incorporated into the rules. This section should include ideas considered both during internal discussions and discussions with stakeholders, affected parties, or advisory groups.

As required by and in accordance with the statutory provisions of MCL 324.20120a(4), EGLE calculated and considered the health-based values for establishing the generic cleanup criteria for groundwater used for drinking water for the various PFAS. However, in accordance with the statutory provisions of MCL 324.20120a(5), the SDWS become the generic cleanup criteria for groundwater used for drinking water for the various PFAS, regardless of the calculated health-based values.

Additional Information

38. As required by MCL 24.245b(1)(c), please describe any instructions regarding the method of complying with the rules, if applicable.

Compliance obligations are embodied in the remedial action or corrective action requirements of the statutes that rely upon the generic cleanup criteria. Compliance with these rules would be expected to occur in the same manner as those who are responsible for the release of any hazardous substance. EGLE will continue to provide information to assist the regulated community in understanding its compliance obligations through outreach workshops, webinars, plain English fact sheets, and postings on its web page.