

Michigan Office of Administrative Hearings and Rules

Administrative Rules Division (ARD)

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**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:

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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.